Case Studies: Delivering Inclusive Growth Through Infrastructure Programming in FCAS

Consolidated findings

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Contents

Authors' note:

This report and its annexed reports were researched and written by the team of the Infrastructure and Cities for Economic Development (ICED) Facility, a technical assistance programme funded by the UK Department for International Development and operational between 2016 and 2019. All views expressed and any inadvertent errors are the responsibility of the authors and do not necessarily represent the views of the funding agency. Please contact the ICED Facility using details on the website www.icedfacility.org if you wish to discuss any of the contents of these reports.

The authors are grateful to the interviewees and reviewers who contributed to this research, who are not typically named in these reports.

Acronyms

Acronym	Definition
ADB	Asian Development Bank
AfDB	African Development Bank
DFID	UK Department for International Development
DRC	Democratic Republic of Congo
FCAS	Fragile and Conflict Affected States/Situations
HMG	Her Majesty's Government
ICED	Infrastructure and Cities for Economic Development (Facility)
ISIS	Islamic State in Iraq and the Levant
IT	Information Technology
MDTF	Multi-Donor Trust Fund
NGO	Non Governmental Organisation
PPP	Public Private Partnership
RAP	Rural Access Programme
REGIDESO	Régie de Distribution d'Eau
SDF	Somaliland Development Fund
WASH	Water, Sanitation and Hygiene
WB	World Bank

1 Introduction

This is a summary report from a DFID research project investigating infrastructure development in Fragile and Conflict Affected States (FCAS). The research seeks to draw both from the literature and from recent experience to formulate advice to DFID and other donors on applying practical approaches for adapting infrastructure programming to stabilisation and economic development objectives in FCAS.

The research outputs comprise a literature review and three case study reports. Two reports were country level case studies covering Afghanistan and Somalia. The third was a collection of thematic case studies focusing on urban water supply and sanitation in various FCAS contexts.

The three case study reports are included as annexes to this document, and can be found individually on the ICED website, along with a full annotated bibliography from the literature review process.

> 'We noted that DFID has no clear guidance about how effectively to incorporate targeted infrastructure elements in sector programmes; nor about how to ensure that it is sustainable, involves the community and meets critical beneficiary needs. We note that only 12 of DFID's 21 fragile states have an infrastructure advisor in country'.
>
> *ICAI (2015). Assessing the Impact of DFID's Support to Fragile States*

The primary research questions are:

1. How can infrastructure development in FCAS be promoted in a way that:
    a. Minimises the risk of doing harm?
    b. Proactively supports efforts to build long-term stability?
2. What interventions (including types of infrastructure), approaches, investments and levers of influence are most effective in promoting sustainable[1] infrastructure development in fragile and conflict affected states?

Based on the above questions, the team developed five areas of inquiry for the research:[2]

1. **Understanding the context** - to what extent has this been adequately considered in the planning and design of donor programmes, and was the changing nature of the context recognised and monitored in order to adapt/modify approaches to a changing context?
2. **Delivery of infrastructure** - were basic good practice and principles applied throughout the project cycle – or were these overridden by other political imperatives or for other reasons? Is the infrastructure that was built sustainable? Are viable arrangements in place for operations and maintenance? How will costs be covered?
3. **Impact of Infrastructure** - were services delivered and outcomes from completed infrastructure consistent with theories of change/intervention logic? Were there unexpected positive or negative consequences?
4. **Donor modalities, instruments and approaches** - how did these influence the success or failure of infrastructure projects?
5. **The role of other actors** - private sector, non-traditional donors - how was this affected by/did this have an impact on the operating environment?

The research team also developed a conceptual framework (see annex) that demonstrates how the above topics relate to each other and provides more clarity on the way we have interpreted donor activities.

Focus of Case Studies:

- The Afghanistan case study assessed the overall experience and key learning points for DFID from two sectors where donors have placed significant emphasis: power and roads.
- The Somalia case study covered transport, energy and water for productive purposes.
- The urban water and sanitation (WASH) case study covered lessons from interventions in the Democratic Republic of Congo (DRC), Sierra Leone and Somalia with short case studies drawing more from published material on Syria (Idlib), Yemen (Ibb) and Liberia.

[1] ICED, 2018, Value for Money of Infrastructure in FCAS – Improving Sustainability
[2] These are summarised here, with a fuller set of subsidiary questions in the annexes

The literature review provided an important basis for the case studies, particularly in emphasising the fundamental important of understanding the political economy and social context. It also highlighted the early stages of the infrastructure project cycle as an important area of investigation. Evidence from the literature review suggests a clear causal link between these issues and problems, sometimes extreme, during project implementation in the highly challenging operating environments in FCAS.

2 Literature review summary

The literature review was recorded as an annotated bibliography with an analytical introduction summarising the themes arising and implications for the direction of the case study research. The full introduction is provided in the annexes of this report, while the annotated bibliography can be found in full on the ICED website. Primary themes are summarised here.

A key finding from the literature review is that infrastructure project designers and implementers are tending to fail to follow the advice available in reviews, reports from previous work and manuals of good practice. This applies both to FCAS adaptations to development practice and even to basic good practice for any infrastructure project (which has frequently been ignored or circumvented with fragility the ultimate justification).

A systematic review of projects in Afghanistan[3] found that *'few were designed, implemented or modified to take into account existing recommendations that may have improved their chances of success. It is precisely for these reasons that stabilisation efforts should focus on not simply implementing projects, but also ensuring a mechanism for effectively integrating evidence-based recommendations and, when appropriate, modifying policy and strategy.'* It concludes that it is not surprising that so many failed to accomplish the desired outcome.

> This is reinforced by a report[4] on the performance of construction projects in the UK, which found *'striking patterns in the reasons for projects failing. Organisations which really understood the inherent challenges and the complexity of the project, when making a decision whether to proceed, were able to create an environment for success at the earliest stage of its design. Those who did not, set themselves up for failure at a later stage.'* This reinforces one of the central findings from the case study research, which is the importance of understanding and addressing context, and project/delivery complexity, prior to the decision to proceed – particularly in the far more challenging environment faced in infrastructure delivery in FCAS.

Along similar lines, a recurring theme in the literature was the critical importance of understanding contextual challenges in FCAS. This implies the need for detailed political economy, conflict sensitivity and risk analyses – regularly updated through the project cycle – recognising the fluidity of the situation in most FCAS environments.

Other issues included:

1. There continues to be limited evidence that infrastructure projects in FCAS targeting peace and stabilisation are effective at delivering these by themselves. Infrastructure is *necessary but not sufficient* to deliver peace and prosperity in fragile contexts.
2. Problems derived from insecurity differ with the type of infrastructure investment and the context, due to differing reactions of non-state armed groups to infrastructure in different circumstances.
3. As a rule, there is a need for better inclusion of beneficiaries and other affected groups in the process of infrastructure planning and development - focusing more on **how** you build than **what** is built.
4. The role of the military in infrastructure development is often inevitable in FCAS, but can skew development efforts and tends to facilitate less sustainable solutions.
5. There are usually unrealistic expectations for early and direct impact in post-conflict situations. Change processes are known to take a long time to conclude; change 'is often indirect, multi-dimensional and incremental'. This is a particular challenge for infrastructure development and for post-war contexts, where 'important developments often happen indirectly, making it hard to plan with confidence'.[5]

[3] Iyengar, R, Shapiro, J, & Hegarty, S (2017): Lessons Learned from Stabilization Initiatives in Afghanistan: A Systematic Review of Existing Research
[4] NAO (2013). Delivery Environment Complexity Analytic (DECA)
[5] Vernon, P. / International Alert (2015): Peace Through Prosperity: Integrating peacebuilding into economic development.

6. Researchers observe that insufficient attention is given to early stages of the infrastructure project cycle – in particular inception, feasibility and outline design – in FCAS contexts. Pressures to implement can override good practice.

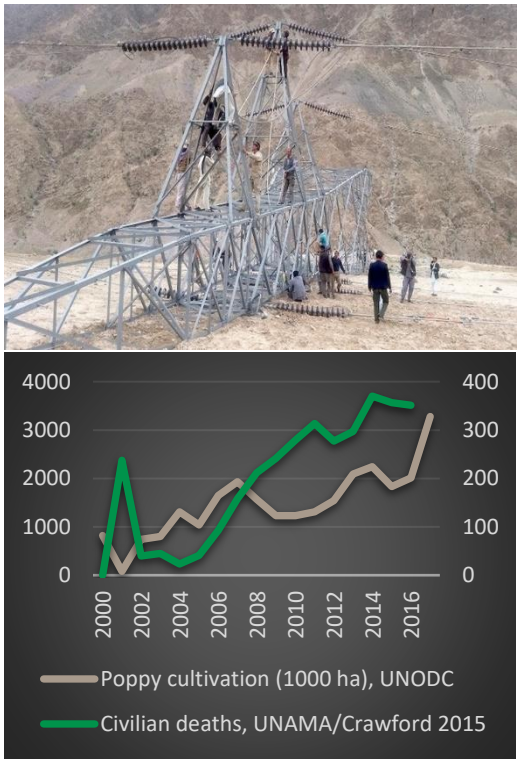
3 Case study summaries

These are very brief summaries of the more extensive case study reports that provide the basis for this research (included as annexes to this document). A synthesis of findings from these can be found in sections 4 and 5, although it will be important to refer to the main case studies to fully understand the basis for these.

3.1 *Afghanistan*

Early efforts to rebuild and extend Afghanistan's devastated infrastructure have been relatively well studied and documented. A multiplicity of actors – civilian and military – sought to bring about change, adopting a combination of military tactics and 'hearts and minds' approaches. However, many large projects became targets for the Taliban, and 'quick impact' projects had limited positive effect. Almost two decades later, Afghanistan remains a fragile, conflict-affected state. Armed anti-government groups control large areas of the country and insecurity and lawlessness are increasing (see graph in Figure 1). However, despite the inefficiencies and problems with infrastructure projects over many years, the case study team found indications that longer-term development approaches are having positive results. There have been substantial improvements in the quality and reach of national electricity networks, for example, in spite of the difficulty and cost of obtaining this result.

Figure 1: National utility staff attending to a pylon toppled by militants in Wardak, Afghanistan (Twitter: @sadat1359); Graph showing Afghanistan conflict indicators worsening over time



Other positives include a more coherent and co-ordinated approach between donors and other funding agencies – following what one interlocuter described as a 'donor free-for-all'. Multi-Donor Trust Funds (MDTFs) and pooled resources have provided sufficient levels of capitalisation for larger and more strategic infrastructure investments.

The operating environment was and continues to be very challenging, with security issues delaying completion and adding significantly to costs. As well as the positives, the study team also found evidence that many of the earlier challenges remain:

- Continuing pressures for fast spending projects, and institutional incentives encouraging this, increase the risk of decisions that are prejudicial to the successful delivery of programmes.
- Optimism bias continues to be a major risk to rational project identification and delivery.
- Assignments are mainly short term, because of the challenges of the living and working environment, leading to limited contextual understanding, and low levels of institutional memory.

3.2 *Somalia*

Somalia has experienced decades of civil war since independence in 1960. The conflict, and resulting insecurity, has resulted in almost total destruction and loss of Somalia's historic infrastructure base.

Although once served by an extensive roads network, over 90% of this is now reduced to tracks through the bush. Air transport is often the only viable means of travel between locations as long sections of the road network are under the control of militia.

At the end of the 1980s, following the destruction of power sector infrastructure operated by the national energy corporation, small family companies emerged to supply power at low voltage in their immediate vicinity. Although they have been expanded and consolidated over the years, these local, family-funded systems continue to be the sole providers in their areas, distributing electricity directly from generators to the homes or businesses of the customers. The current high prices keep the poor at the margins of electricity supply.

Figure 2: Public tariff reduction commitments by private energy company in Berbera

Irrigation, with water from the Juba and Shabelle rivers, once played an important role in the agricultural economy of a large area of southern Somalia, which was once considered the country's bread basket. A number of irrigation projects were developed following independence. However, lack of maintenance means most of the systems are now inoperable because of siltation and dilapidated control structures.

Figure 3: A DFID-funded materials lab at Somaliland Roads Agency and a stretch of road constructed with DFID funding linking Hargeisa with the port of Berbera (credit: ICED)

Somalia is a challenging operating environment, with multiple contexts in the different areas of the country. There are varying shades of complexity in the states. Somaliland has seen an increase in infrastructure investment over the last 5 years, although this has been mainly focused in the west. Donor funding for infrastructure in the other states has been far more limited, with Jubbaland, South West and Hirshabelle being particularly hazardous states in which to operate.

In contrast with optimism bias in Afghanistan, investment in infrastructure in Somalia has been cautious. It has typically been small scale, dispersed and linked to other programmes. As a result, there are far fewer examples of significant successes or failures in infrastructure delivery in Somalia compared, for example, with Afghanistan. The location of most expatriate development staff working on Somalia programmes in neighbouring Kenya, with the resultant longer-term contracts, ensures a much deeper understanding of Somalia than in other FCAS contexts where short-term assignments are the norm.

Although there are few major high-profile infrastructure investments, there are substantial levels of infrastructure investment as components of larger multi-donor humanitarian and stabilisation/development funding mechanisms/instruments.

Somalia provides some useful evidence of the use of political economic analysis, and Thinking and Working Politically[6] (through for example the Somalia Stability Fund) – particularly in highly insecure areas. A particular example is the development of the Hobyo airstrip that has had a significant local impact. There is also very strong evidence of the importance of community engagement and

[6] A development programme management approach championed by DFID and DFAT/Australian Aid, espousing the following principles: strong political analysis, insight and understanding; detailed appreciation of, and response to, the local context; and, flexibility and adaptability in program design and implementation.

acceptance. This has provided the necessary security for irrigation development in areas of high-level Al Shabab presence.

Somaliland, while providing a more stable and secure environment away from the disputed border with Puntland, presents many operational challenges (poor regulatory enforcement, remoteness and lack of access to parts of the state, high utility costs). There have been some impressive achievements in roads and solar energy. However, there are also examples where not enough time has been taken in early preparation. This may contribute to apparent failures in context analysis or community engagement, which have resulted in significant challenges during implementation.[7]

3.3 *Urban water and sanitation*

The urban water and sanitation report comprised three new case studies – on DRC (Goma and Bukavu), Somaliland (Hargeisa) and Sierra Leone (Freetown) – with additional material on Syria (Idlib), Yemen (Ibb) and Liberia.[8] The full report is provided in the annexes, along with findings from all of the case study locations and consolidated recommendations arising.

3.3.1 Hargeisa (Somalia)

Hargeisa provides a look at water services in a post-conflict city which has seen strong private sector encroachment into traditionally public services as a result of a vacuum in provision. 25 years after the end of the last conflict, the water supply situation in the city remains dire, in part due to a population that has grown at an average of 6% annually since 2005. 70% of the city's population rely largely on water from tanker trucks and hand carts, paying at least four times the price of piped water per unit, creating an excessive cost burden that falls most heavily on the poorest. DFID and other actors have lined up major investments to increase the supply of bulk water to the city, but these have been severely delayed due to procedural hold-ups and are only proceeding now, six years after the funds were originally committed. There remain questions about the further development of supply systems after more bulk water becomes available from the city's distant sources.

Figure 4: Private water tanker filling from shallow groundwater source outside Hargeisa, Somaliland (Credit: ICED)

Funding agencies are working together to improve supply to unserved areas. However, six years after the launch of the project this has still not resulted in water to taps or kiosks to those previously unserved. Efforts have focused to a very great extent on increasing bulk water supply to the main holding reservoir – and relatively little on the distribution system. There was also a 'missing link' between the well field and the transmission main, discovered late in the process, that further delayed completion. This highlights the need to get the basics right. In parallel with the funding of new/replacement infrastructure there has been good progress with capacity building in Hargeisa Water Agency, which has a high level (over 90%) of revenue collection against billings. More could also be done to understand the tankering, and other informal private sector provision of water services, given the likely dependence of most of the poorest in Hargeisa for the foreseeable future.

[7] Many projects have suffered from this kind of issue. One example is difficulties experienced in certain water projects by the SDF in the conflict-affected east of Somaliland, referenced in the project completion review of SDF 1. In one of these projects, even prior efforts to analyse the context were insufficient to discover a conflict that ended up disrupting the project. SDF 2 is considering upgrading the conflict analysis process.

[8] The text on Liberia was a summary of a longer World Bank case study from 2015: Dominick de Waal and Max Hirn / World Bank: 'The Intricacies of Attracting and Sustaining Investment in WASH in Fragile States: Lessons from Liberia', July 2015. http://hdl.handle.net/10986/24787. The Idlib and Ibb case studies were derived from more limited research and although ICED-drafted were indebted to previous work referenced in the case study report.

Another lesson drawn from this case study is around the 'capacity conundrum'[9] that historically affected donor engagement with water management agencies in Somaliland. Donor reluctance to engage with dysfunctional public institutions required the substitution of services from private and informal sources, further undermining public supply. The World Bank's recent assessments of the Hargeisa Water Agency have highlighted progress on this front, presenting Hargeisa as an example of a successful approach to tackling the capacity conundrum through sustained donor attention and support.

3.3.2 Goma and Bukavu (DRC)

This case study focuses principally on a 2013-2020 £38m DFID programme to fund an expansion of water supply service in Goma and Bukavu. Both these towns are located close to the border with Rwanda in eastern DRC, which is a conflict affected area currently in the grip of an Ebola crisis. The programme is one component of a £164m WASH programme which represents one of DFID's largest single country WASH interventions. The Goma and Bukavu programme has a unique structure designed specifically for the DRC context, in which authority is highly centralised in large state institutions and privatisation of service delivery has been challenging. The recent passage of a Water Law theoretically decentralising water services and enabling locally-led service delivery and cost recovery has yet to be translated into practical effects on the ground, and the DFID programme is in the vanguard. The programme has set up a structure similar to a user-pay PPP, involving a new DRC-registered utility company owned by a UK-registered charitable entity, which has a contract to deliver services on behalf of the national water utility REGIDESO. This replaced an earlier model involving a local NGO to be supported by the programme, which proved to have limited capacity to deliver project goals.

Lessons from this are around the adaptability and patience that are necessary to pursue urban utility interventions in a highly politicised and fragile context, including the careful navigation of political economy problems and the willingness to stop, start and change approaches as necessary. Strong donor leadership based on an understanding of the political economy (as demonstrated by DFID DRC) is necessary to protect projects and implementers against insurmountable political hurdles. Additionally, it was observed that frequent over-promising related to short-term donor water projects (and also a failed rural roads project in the region) had damaged community trust and engagement, which had to be painstakingly rebuilt in order for the project to be resilient at the ground level (against neglect and vandalism of infrastructure).

3.3.3 Freetown (Sierra Leone)

This case study charts the course of water infrastructure development over the past 16 years since the end of the civil war, focusing on the repeated short-term donor interventions to rehabilitate piped networks, the unregulated development of groundwater sources and the possible causes of the difficulties donors have had in building up the capacity of local institutions. It also briefly covers the dire sanitation situation in the city – a largely unmanaged sector with waste dumped informally and liquid waste polluting groundwater and waterways throughout the city. DFID is the leading donor in the WASH sector in Sierra Leone and has been engaged there since the immediate aftermath of the civil war in 2003.

Figure 5: Leaking 'spaghetti' lines connected to a water main in Freetown (credit: ASI)

Lessons drawn from this study are primarily concerned with the effects of lasting post-conflict fragility on urban development and the knock-on effects on water and sanitation. Dynamics examined include the political economy of young post-war democracies, the attritive effect of the unwillingness of authorities to enforce rules, the in-built vulnerability of self-funded water utilities in this kind of environment and the ever-present post-war dynamics such as massive population growth.

[9] A term introduced in this context by the World Bank's Water and Sanitation Program (WSP) and used throughout their reports, referring to the circular problem with poor local institutional capacity leading to short term donor interventions that sidestep country systems for reasons of urgency, which in turn exacerbates the inadequacy of the local water institutions.

3.3.4 Ibb (Yemen) – short case study

The Ibb study explores a successful urban water and wastewater utility which has so far not only weathered a protracted conflict – experiencing all of the typical effects of conflict outlined elsewhere in this report – but has actually *expanded* its water services during this period. This with a minimum of stabilisation support from donor programmes. The overall lessons from Ibb are around the need for humanitarian organisations and donors to properly assess the problems and existing solutions prior to providing short term substitutes for water supply that could undermine longer term sustainability. Notably, in Ibb a decentralisation policy framework predating the conflict by two decades has been an essential precursor to a resilient utility that can handle conflict.

3.3.5 Liberia – short case study

This case study – briefly covering urban contexts across the country – demonstrates the effects of failing to prioritise better management of WASH services in the early post-conflict period: when humanitarian aid wound down, there was essentially no national capability to take on the WASH services that humanitarian programmes had provided. A short-termist donor response undermined the longer-term sustainability of water institutions. The World Bank holds this up as another example of the 'capacity conundrum' experienced in Hargeisa.

3.3.6 Idlib (Syria) – short case study

This case study explores a quite unusual conflict context, in which donors are supporting only semi-functional rebel governance bodies which lack the depth and mandate to support sustainable water services utilities. It illustrates some of the common problems that programmes face in an active conflict scenario and the uphill struggle that can result from trying to build water services in a void without some of the key functions provided by a centralised policy framework.

4 High level research findings

4.1 *Understanding the context*

There is overwhelming evidence from the literature review and the case studies of the importance of taking time and resources to fully understand the context. For a number of reasons, particularly pressures to implement and disburse funds, this has not been given sufficient attention on some projects. A particular example that could serve as a useful model for other projects in Somalia and other FCAS is the 'Thinking and Working Politically' approach that the Somalia Stabilisation Fund has adopted. This uses local consultants/nationals – in some very hostile contexts where other actors are highly suspicious of foreign connections – to collect information about the context and the local operating environment. An important part of the contextual understanding is how insurgents, militia and other groups will view the planned infrastructure – and whether it will be a target for sabotage, capture or other benefits, during construction or post completion.

The response of local communities to any infrastructure project is likely to have a major impact on the success or failure of an infrastructure project (the Somalia case study provides some examples). Clearly the greater the perceived benefits the higher the likely level of support. In fragile contexts projects that are seen as extractive – taking local resources and benefitting others – are likely to be strongly opposed. A positive community response may in some situations be sufficient to protect the project from insurgents. A deep engagement is therefore critical. The higher the number of affected groups (e.g. roads projects) the more complicated this process is likely to be. Water resource development/storage in agro-pastoral/arid contexts is often highly contested between communities.

Scale and complexity of planned infrastructure should be guided by the context and operating environment. Simply looking at physical security: as a general rule the greater the security risk, the higher the risk of failure of major infrastructure projects. The level of security required to protect contractors delivering an infrastructure project is a strong predictor of subsequent problems.

There is clear evidence that the intensity of conflict and fragility, and the desire for earlier impact results in decisions to take a course of action that is based on incorrect assumptions. The most frequently observed incorrect assumptions in this research are that either the environment is more conducive to infrastructure development than is the reality, or that the situation will improve during construction. Beware of optimism bias, which can lead to irrational decisions to proceed. **Equally be aware of the possibility of a pessimism bias**, which can result in missed opportunities and a continuation of humanitarian response, when longer term initiatives are possible.

4.2 *Delivery of infrastructure*

There are particular delivery challenges in fragile and conflict affected states. These apply throughout the project cycle from inception to handover and sustainable delivery of services, but the effects of neglecting *preparatory* work are particularly damaging. There are a number of examples from the case studies of early stages of projects being short-circuited and 'designs being done on the cheap' (Afghanistan case study), as well as insufficient attention to project planning, particularly in relation to logistics. Stage 1 of the project cycle (from inception to design and procurement) is particularly critical for successful project delivery.[10] Early stage resource requirements are greater in an FCAS context, and the preliminary stages also suffer from pressures in post-conflict contexts for 'boots on the ground' and early results. Attempting to reduce time or resources dedicated to an infrastructure project's early phases due to these pressures is unlikely to result in any overall time savings, could increase overall costs and risks the successful completion of the project.[11]

The literature review and Afghanistan and Somalia case study reports all highlight the particular challenges of corruption in FCAS. This is due to a range of factors, but in particular the lack of dependable rule of law and judicial processes. Good quality contextual analysis and project planning

[10] ICED, 2018, Value for Money of Infrastructure in FCAS: Using Cost Indicators
[11] CoST Afghanistan, 2018, First Assurance Report on Public Infrastructure Projects

has a positive impact in reducing corruption – which further reinforces the importance of giving sufficient attention to this during stage 1 of the project cycle.[12] There are coordinated multi-donor approaches which can help donors to recognise and mitigate corruption risks for major infrastructure projects, for which the experiences of the World Bank and ADB in Afghanistan are pertinent.

One of the biggest challenges to the successful delivery of infrastructure in FCAS is finding contractors: competent to deliver the required quality; capable of managing the complexity; acceptable in the operating environment; willing to work there, and representing value for money. Large contracts in Afghanistan were awarded to international contractors, with multi-layered sub-contracts ultimately involving local contractors. Forms of contract and provisions positively precluded the possibility of local contractors bidding. This is done in Afghanistan and elsewhere to attempt to control for corruption risks and environmental and social safeguarding issues which donors find difficult to guarantee when operating directly with local contractors less experienced in applying international standards. The unintended consequences are distancing donors from understanding how their funding is executed at ground level, additional expense due to the compounding margins of large consortia and failing to build sustainability through upskilling of local companies to handle complex projects. By contrast, there has been strong pressure in Somalia for contracts to be packaged at a scale that can be awarded to local contractors. The Somaliland Development Fund (SDF) provides a good example of positive support and building capacity of local contractors to enable them to bid and undertake the work. The recommendation is therefore: to the extent possible, award contracts to local contractors. However, donors need to be in a position to understand, monitor and control for risks arising from corruption and safeguarding issues. Substantial guidance is available from ICED and other sources on these issues.

Poor sustainability of infrastructure in FCAS is a recurrent issue through this research (this is also discussed in section 5). There are a number of reasons for this linked to errors with the design, inappropriate specifications or substandard construction linked to lack of adequate supervision and corruption. The clear lesson is that sustainability considerations need to be built into programming from the outset.[13] This includes considerations of higher capital costs, with deferred maintenance, or lower capital cost but higher maintenance options. This has a direct impact on the dependability of service delivery to end users. Failure to address these issues on many infrastructure projects has resulted in the need to replace infrastructure or carry out a major rehabilitation after a few years of operation. A recommendation, and a priority for SDF 2 in Somaliland, **is not to proceed with any infrastructure investment without a clear operations and maintenance plan in place that includes funding for recurrent costs.**

This research reinforces the importance of designing infrastructure appropriate to the context – with regards buildability and operability. A particular challenge in FCAS is the logistics – which applies to all inputs – from the basics of cement, aggregate and reinforcement to importation of plant and equipment. From the case study evidence, too much is assumed and left to resolve during construction. In an FCAS context, assumptions are substantially less reliable.

4.3 *Impact of Infrastructure*

There is a tendency everywhere for the completion of the infrastructure to be the main indicator of success. The precarious situation in FCAS means that once the physical infrastructure is complete there is no guarantee that delivery of services will follow. The political economy aspects, who benefits from the infrastructure, who controls it, the wider social economic effects of building it, whose permission is/was needed for it to be built – are often secondary or even absent when programme outcomes are measured.

The true impact of infrastructure will only be seen months and years after completion and handover to the owner. For this reason, there is a case for better long-term monitoring of completed infrastructure projects to understand their impact post-completion. Funding agencies do not systematically link long-term impact to project reporting. Closed projects do not have additional impact assessment documentation added. This significantly limited the ease of analysis of project

[12] Wells, J. 2015. Corruption in the Construction of Public Infrastructure - Critical Issues in Project Preparation. Anti-Corruption Resource Centre.
[13] ICED, 2018, Value for Money of Infrastructure in FCAS – Improving Sustainability

impact for this research, and will continue to limit lessons learning unless donors commit more resources to automatic longer term impact monitoring.

Donor projects have a tendency to over-promise and under-deliver, which is more pronounced in FCAS where setbacks and changes of plan are more likely. Too many projects have failed to deliver, or have delivered services that were not sustained, leaving communities distrustful of the development community delivering anything that will be of lasting benefit. The Goma WASH case study highlights this challenge – where even failures in other sectors can affect the reputation of donor projects. Projects should express more realism in their expected outcomes where implementation risks are high. This requires donor organisations to overcome internal pressure to exaggerate expected benefits in order to get projects approved.

A related issue is delayed projects, which frustrate beneficiaries' raised expectations following a high profile launch. Water projects are a particular example from the case studies – significant because water supply has a direct impact on beneficiaries. In an environment of high expectation post-conflict, early delivery of some improved service is important, rather than focusing solely on longer term structural issues such as bulk supply and major infrastructure upgrades. This should be designed in from the beginning, rather than the common error of responding to startup delays by cherry picking 'quick impact' elements from an integrated programme and pressuring implementers to push ahead with these to the detriment of wider timelines, budgets and good management principles.

Despite the extreme challenges, infrastructure projects can succeed in having a positive impact in FCAS. Particular examples from the case studies are Hobyo airstrip in Somalia that has had a catalytic impact, including enabling high value fish sales to Mogadishu. The repair of the road linking Hargeisa and Berbera in Somaliland resulted in shortened journey times and reduced wear and tear on vehicles, reflected in lower bus fares. In Afghanistan there has been a significant increase in access to electricity in urban areas as a result of long term donor investment in the sector, and in spite of conflict challenges.

The case studies also found evidence of many stand-alone projects (for example irrigation projects without feeder roads) that had limited positive impact because of a lack of connectivity with other services. There is an inter-dependency between different infrastructure that is often overlooked in planning of individual projects. A recommendation emerging from this is to adopt an integrated planning within and between sectors – as well as a spatial assessment of interlinkages and distributed impact.

4.4 *Donor modalities, instruments and approaches*

Pressuring programmes to spend can reduce the quality of the investment process and risks major problems and in some cases failure. See section 5 where this is discussed.

Multi-donor trust funds and other pooled funding arrangements are not a way to tackle infrastructure without needing to dedicate time and expertise to the subject matter. Such funds are important for infrastructure development, particularly in terms of scale and shared risk. However, they do create a degree of separation from agencies contributing funding and require conscious alignment of bilateral programmes, particularly those which are tackling problems with the enabling environment for infrastructure development.

Do not expect dedicated infrastructure trust funds to operationalise quickly. The nature of infrastructure and the caution of funding agencies to capitalise such funds is likely to result in a relatively long lead time before they are fully operational. They therefore suit agencies that are able to commit patient funding, rather than funding for fast disbursement.

Stabilisation and emergency programming that involves infrastructure can undermine struggling local management agencies. Although these modalities have a place, they should be designed with an understanding of how the longer-term problems will need to be tackled and they should not leave unsupported liabilities. Any opportunity to engage with and support local management institutions should be taken, even within short-term programming.

Donor agencies need to find a better balance between proximity and longevity when locating staff working in FCAS. There are many risks associated with short term assignments of both donor and implementer staff on FCAS programmes. These include a lack of understanding of the local environment/context, decisions taken with a limited time horizon, and a lack of continuity and

institutional memory. The clearest observations in the case studies of failures resulting from fast staff turnover are from Afghanistan. Although there are clearly some negative aspects of living remotely from the programme, the evidence from comparing, for example, the Afghanistan and Somalia donor infrastructure responses shows fewer mistakes and more politically sensitive programming when supervising staff stay longer in roles focusing on one context. Evidence from DRC also supports this. This point also applies to research organisations, consultants and NGOs working in the same contexts.

4.5 *The role of other actors*

It is important to understand the roles and motivations of other actors in infrastructure beyond government and traditional donors, including their political links to national and local administrations. This applies in particular to the powerful non-traditional donors, who often have privileged access to politics at the highest levels. Large infrastructure investments from traditional donors have occasionally been side-lined or rendered redundant by an 'offer' from one of these actors. However, there are also opportunities for DFID and others to leverage large funded projects for greater development impact, an example being plans in Somaliland to collaborate on a transport corridor from Berbera port into Ethiopia.

The regional context is also important and often not given sufficient attention. Opportunities of strengthened linkages and cooperation as a result of infrastructure can provide a basis for improved understanding and trust. Infrastructure development can also reinforce mistrust through, for example, development of upstream water resources, that reduce flows to a downstream riparian country.

The case studies identified numerous examples of local private sector innovation and resilience, particularly in urban environments. However, emergent private provision of infrastructure related services in fragile contexts can delay public investment and frustrate efforts at regulation. For these reasons it tends to be delivered inefficiently and at a high cost to consumers. The most striking example of a strong local private sector in infrastructure is in Somalia, where in most cities the local private sector delivers water and electricity services, following the destruction of much of the basic services infrastructure during decades of conflict. Despite family/clan-based ownership, political economy complexity and an insecure environment, there is a surprising level of co-operation between the separate suppliers. However, it is a very closed system dependent on local patronage. This has made it difficult for funding agencies to address systemic sector governance issues (such as regulation) or extend access at scale. Early donor engagement and especially more early effort on sector governance issues is important to avoid the problems associated with unchecked private sector provision.

The case studies reinforced the literature finding: that international private sector investors generally avoid infrastructure projects in FCAS. The exception is in mobile telecoms and IT services, which are faster to install than other infrastructure, generally lucrative and lower risk.

4.6 *Getting the basics right*

The importance of getting the basics right is a clear thread emerging from this research. An important starting point is a sound understanding of the infrastructure project cycle. This covers the sequence of activities from project identification, preparation (feasibility and design), procurement, construction, handover and delivery of services (with related operations and maintenance in place).

- Understand the context
- Focus on the right infrastructure and get the infrastructure right
- Be clear on the objectives – have a single primary focus and do not expect a single project, of itself, to have a major positive impact on peace and security.
- Integrate cultural, religious, gender, social inclusion, climate change and environment issues.
- Have the right people engaged at the right time – and select contractors and consultants on the basis of the best for the job, even if this takes longer.

5 What is different about infrastructure programming in FCAS?

Many of the problems and recommendations raised in the case studies and this synthesis report could be said of *any* developing country context where infrastructure development programmes are implemented. It is necessary to ask: are fragile and conflict affected situations fundamentally different, or can they be tackled with the same programming methods – only perhaps by investing more time and effort where the problems are more serious than usual? In this section we first summarise the issues in a table, followed by a short analysis and comparison of both the contexts we have examined and donors' responses to them.

Unique to FCAS	**More difficult in FCAS**
Physical security – cost and time required, adverse consequences (armed groups co-opting infrastructure or targeting it) *Military influence* over and involvement in aid projects (national and international) – military and civilian agendas can work against each other *Stabilisation and peacebuilding agenda* using infrastructure as a delivery modality – affecting how projects are planned and overseen *Legal and technical issues without a solution*, awaiting stable legislative environment or the creation and capacity building of management agencies *Physical destruction of infrastructure by war* – sudden very large deficit; pre-existing systems designed for a different context	*Low level political economy issues* - geographical targeting and relative impact among different cultural/religious/ethnic groups, negotiation and resource sharing between communities. *High level political economy issues* – the growth (or overturning) of powerful political and economic actors and the shaping of development around these agendas. *Internal donor dynamics* – pressure to spend, pressure to produce early results, high staff turnover *Major demographic shifts* – near-universally seen after war, exactly at the point that national capacity to cope is lowest *Low availability of private capital* due to high political and security risks *Difficulty accessing projects* to monitor them *Corruption* *Low counterpart capacity* – for policy, regulation, implementation, operation *Low availability of skills* to implement projects

Table 1: Contextual factors affecting infrastructure in FCAS

5.1 *How do programming approaches differ in FCAS?*

Although there have been a number of theoretical attempts to categorise fragile contexts, we have resisted categorising the case study targets. We believe categorisation is useful primarily for broad international comparisons, not for predicting and planning development dynamics within individual – always unique – contexts.

The figure below from the Somalia case study is a simplified illustration of a multi-dimensional process by which unstable countries can become permissive environments for increasingly ambitious infrastructure projects – or conversely can slip backwards into instability. Different parts of countries are often located at different points on the fragility axis, as in Somalia where certain states and larger cities can support a level of complexity above simple emergency interventions.[14]

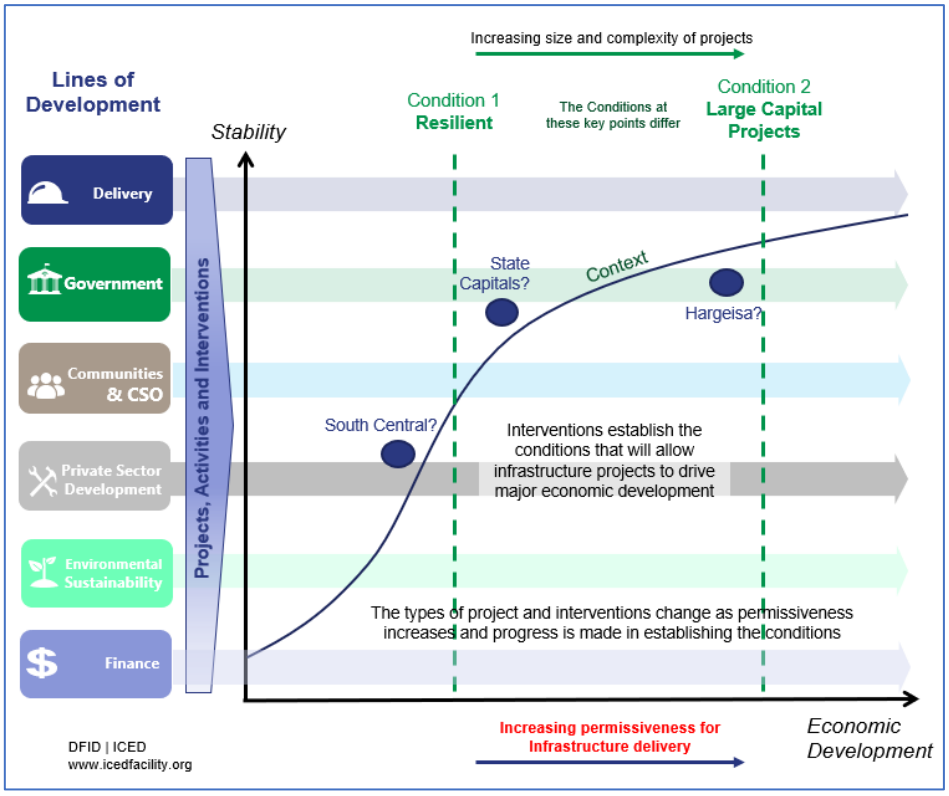


Figure 6: The trajectory out of instability and infrastructure permissiveness (example Somalia)

Somalia is an example of a context in which DFID has chosen to deliver tactical infrastructure programming on a relatively small scale but with numerous projects. This has been in response to the dysfunctional governance situation in the majority of the country, as well as security and logistical challenges. Here, donors' rationale for infrastructure is subjugated to stabilisation, humanitarian and peacebuilding theories of change rather than the more typical economic development argument. There is a cost in terms of the sustainability of the infrastructure that is built. When programmes are smaller and shorter and not linked to a wider infrastructure management strategy, there are few good options for sustaining what is built. When reviewing project designs for short-term tactical infrastructure interventions, it is evident that there is usually little substance behind sustainability plans, which are frequently delegated to implementers to articulate at some point in the future. Simply telling designers to write better plans will not solve the problem as long as the broader strategy is prioritising stability and political goals over economic development and good governance of infrastructure.

In environments where there is a higher level of military control over a post-conflict state such as in Afghanistan, DFID and other donors have made attempts to build large strategic infrastructure. Our case study suggests that these can work, provided the goals are long-term and the implementation approaches and timeframes do not misunderstand the context – as many seemed to for some years of 'post-conflict' optimism in Afghanistan.

[14] The five horizontal arrows represent elements of the enabling environment for infrastructure, all of which can be separate targets for infrastructure programming or other work which broadly supports improvements in the development context (e.g. supporting the rule of law, political processes or economic governance). The framework is taken from an internal ICED report for DFID Somalia.

In environments which are currently subject to conflict and where donors have little control over events (e.g. currently in Syria, Yemen), DFID staff have in discussions queried whether the solution is not to tackle infrastructure challenges at all, but instead to wait until the situation allows. There is no valid general answer to this challenge. There are going to be critical infrastructure challenges which can accept temporary physical solutions during these conflicts. Dealing with critical system issues which have reasonably fast solutions, such as key roads, power facilities, water systems, telecoms, etc. may present efficiencies compared with the humanitarian demands arising from not addressing them. However, with rare exceptions,[15] there are too many gaps in governance of infrastructure in uncontrolled conflict situations for these projects to be aligned with long-term solutions. The main principle to follow is to do no harm to longer term capacity to manage – so, **try to use existing local engineers and managers to oversee the projects, use technologies and designs that are an appropriate level of ambition for local management, do not extend public services beyond the likely ability of the post-conflict state to affordably sustain** (for example extending networked services such as power and water only to poor populations who will be unable to afford fees that are not donor-subsidised).

5.1.1 Planning to be ready when peace comes

It is a key finding of this research that there tends be a gap between the time that a conflict theoretically ends and the time that broad donor engagement on infrastructure governance begins – taking over from the humanitarian and stabilisation focus of the war period. This can be for a number of reasons, but is frequently linked to transitional periods, the working out of constitutional processes and the terms of interim governments – leading to gaps in the ability of donors to engage with national government counterparts. In some cases (e.g. post-ISIS Iraq) it can be a year or two, while in others (Somalia) it stretches on for decades. It is during this gap that we have seen the most uncoordinated, risky and sometimes harmful donor infrastructure programming. **It is essential to begin planning, engagement, capacity building and strategic donor coordination as early as possible, *before* the context becomes permissive for strategic economic infrastructure.** Emergency projects to stabilise infrastructure-delivered services are clearly necessary, but should not distract from an early focus on long term planning.

There are encouraging signs that the donor community is improving its preparatory processes for countries emerging from conflict. While in 2003, the UK and other donor countries were not remotely prepared for the challenges of stabilising and rebuilding a post-invasion Iraq[16] and the country descended rapidly into civil war, it has taken far less time to produce credible integrated plans for infrastructure reconstruction in the parts of Iraq (over 40% of its territory) which have been liberated from ISIS control following their capture around 2013-14.[17] Similar processes are ongoing in Syria, which remains in a state of civil war. UK and US stabilisation programming in Syria has been attempting to build the foundations of local governance and accountability in the absence of central control, even though these efforts are risky and may not succeed given the fortunes of war (see Idlib case study in the urban WASH case studies report).

5.1.2 Why do donors appear to disregard learning on development in FCAS?

Several authors[18] have been critical about donor approaches to development in the most fragile countries – those in a state of conflict or immediate post-conflict recovery – observing that published lessons appear to have little effect on how donors go about designing and delivering programmes. This question was not explicitly part of this research, but we can provide some suggestions for why this may be the case.

[15] The case study of water supply in Ibb in Yemen is one example.

[16] The Report of the Iraq Inquiry, 2016, outlines the UK's critical self-assessment of its level of preparation in 2003. For example, in the executive summary para 611 "DFID's focus on poverty reduction and the channelling of assistance through multilateral institutions instilled a reluctance, before the invasion, to engage on anything other than the immediate humanitarian response to conflict." And para 613 "The shortage of expertise in reconstruction and stabilisation was a constraint on the planning process and on the contribution the UK was able to make to the administration and reconstruction of post-conflict Iraq."

[17] World Bank, 2018, Iraq Reconstruction and Development – Needs Assessment.

[18] Iyengar et al 2017 listed this as a key finding from Afghanistan and cited several others (ICG, 2011; US Dept of State, 2011; Zurcher et al, 2014) finding this repeatedly over an extended period of time.

Firstly, getting donors to change their approach requires changing the institutional incentives leading them to make the mistakes that have been made in the past. Among other factors, Table 1 above shows some pressures that cannot be solved solely by focusing on external problems. These are linked to political and institutional factors endogenous to donor institutions and home governments:

- **Military influence in aid projects** – in conflict situations, military strategy often has primacy and civilian plans are made on the basis of political priorities heavily influenced by military imperatives (Iraq, Afghanistan). For example, while academic findings may indicate that you need to *not* invest in infrastructure development in a certain area due to the lack of an environment stable enough to be conducive, aid actors will do so in any case if military priorities include controlling and stabilising the area in question.
- **High level political economy issues** – in some circumstances, diplomatic and political necessity precludes engagement with certain actors even if they pose a high risk to delivery if not consulted. For example: engaging the Taliban in discussions in Afghanistan; coordinating reconstruction planning with Russia, Iran and the Syrian government in Syria; engaging sanctioned governments like the Government of Sudan.
- **Stabilisation and peacebuilding agendas use infrastructure as a delivery modality** (Somalia), which leads to infrastructure that has short term goals (see above discussion of contexts and programming styles). This is deliberate, and the consequences are evident to project designers.
- **Conflicts are emergencies, which put pressure on international actors to take visible action quickly** and to meet high level spending commitments regardless of practicality. This pressure to spend and to produce early results is detrimental to proper infrastructure project delivery.
- **High staff turnover** means projects are forgotten about and not evaluated post-completion (Afghanistan). Lessons learned from previous work are lost. The emergence of strategic infrastructure approaches is delayed due to the close horizon of the ends of postings.
- **Corruption** – an inability to tolerate some risk of diversion of aid (this is particularly the case in bilateral programmes) can prevent donors engaging with the appropriate local or national authorities, side-stepping their systems and cementing capacity problems.

A second answer to this question applicable in the most immediate conflict scenarios is the immediate confusion of post-conflict situations. Being directly involved in the day to day and subject to the push and pull of immediate priorities, donor staff may not have the bandwidth to assess and plan for the strategic context. To some extent, criticisms of donor actions in such scenarios benefit from knowledge and insights only available in hindsight.

Both of these answers suggest a common solution: building up deeper expertise and more patient development approaches over time. This would address the information and experience problems, and also serve as a valuable resource to policymakers attempting to resolve issues that require strategic restraint and a long-term outlook. Somalia has become a good example of this, as noted in sections 3.2 and 4.4: the conflict has been severe and prolonged, but the donor community has formed a patient long-term approach to engagement with staff covering the country in the longer term from Kenya. DFID has organisational features which push in this direction, such as regional teams and specialist 'professions', however as a rule teams working on conflict are focused on a single country. Career incentives are also such that skills and experience quickly transfer out of the relevant geography and out of reach.

Better training is also required; though there is a lot of learning material, we often came across surprising gaps in knowledge both in donor and implementer teams where important research had not been identified and incorporated in planning. Operational resource constraints can lead to insufficient time for learning, no matter if the necessary material is produced.

Figure 7: DFID's Rural Access Programme in Nepal has been active for 16 years, since before the end of the civil war in 2006, and has been a critical contributor to rural development and livelihoods, adapting over time to the changing context and increasing its impact on the poor and marginalised (credit: IMC/RAP)

Annex – Subsidiary questions guiding the case study research

A. Understanding/Assessing the Context

- What contextual factors are significant when developing infrastructure in FCAS? How was the understanding of context used to inform and influence project design and implementation, and provisions for future adaptation?
- To what extent was monitoring of the context updated through the project cycle, and did this result where needed in adapting the approach?
- Are funding agencies more or less risk averse in FCAS than in other operating environments?
- How have donors dealt with the risks and realities of, insurgents/rebel groups, corruption and political capture of projects and benefits?

B. Delivery of Infrastructure

- Are some types of infrastructure development more feasible to implement in FCAS than others?
- To what extent are infrastructure projects in FCAS following the 'infrastructure project cycle'? At what stage of the project cycle have major problems started to emerge and why? Is there a pattern?
- How have community driven development and labour-based approaches been used to deliver infrastructure in fragile states, and what are the benefits and limits of such approaches? What has worked to build local ownership and capability at the national and local levels?
- What logistical and procurement problems have projects faced, particularly for imported goods, materials and equipment?
- To what extent have projects adopted good practices on gender, social inclusion and environment issues?

C. Impact of Infrastructure

- How have operations and maintenance structures been addressed, and what has been the source of funding?
- Quick-impact projects are strongly favoured by development actors in urgent FCAS contexts, especially immediately post-conflict. How have quick/early, and longer-term impacts, been successfully balanced at the planning stage?
- Are there examples of situations where the construction or implementation of donor funded infrastructure has directly or indirectly led to: increased conflict and violence; support for illegitimate state power; entrenched illegal economic activity; or other unplanned negative impacts?

D. Donor Modalities, Instruments and Approaches

- What is the evidence of DFID or other funding agencies adopting strategic approaches in infrastructure development and delivery in FCAS, rather than ad hoc project support?
- What is the quality of the intervention logic, in particular the link with increased stability and economic growth?
- How effective have Multi-Donor Trust Funds (MDTFs) and pooled funding been for delivering infrastructure development in FCAS?
- What evidence is there of sound strategies and approaches being overridden by an imperative to disburse funds?
- Where Third Party Monitoring is used for infrastructure projects, what have been the benefits and are there any downside risks?

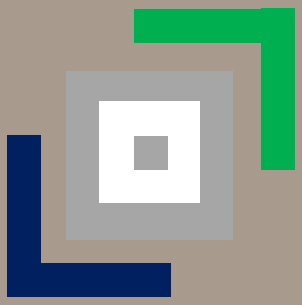
E. The roles of other actors:

- What is the evidence of a positive contribution of military engagement in infrastructure delivery in FCAS? Where has it been less effective and what are the risks and lessons?
- What examples are there of local and/or international private sector actors to invest in infrastructure in FCAS? Under what circumstances does private investment work and what are the implications for donors and government?
- What has been the approach and impact of Chinese (and other non-traditional donor) investment in infrastructure in FCAS?

Annex – Case study reports

This document is distributed in PDF format with the three case study reports annexed. These can be found below at the PDF page numbers indicated. To return to this page quickly for reference, scroll to the top of the document and click this annex heading in the table of contents.

The case studies are also available individually on the ICED website while this is still online.



ICED
Infrastructure & Cities
for Economic Development

Case Studies: Delivering Inclusive Growth Through Infrastructure Programming in FCAS:
Afghanistan – Roads and Power Sectors

Produced for: Mark Harvey, Hayley Sharp, GRD

December 2018

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Authors: David Parish, Ian Curtis, George Hamer

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Contents

1 Preface and acknowledgements

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This document does not represent official views or policy of the UK Department for International Development or other HMG departments. Responsibility for accuracy of information and the opinions and analysis presented rests solely with the authors.

The authors are grateful to interviewees and reviewers who kindly offered their time to contribute to the work. A list of those formally interviewed is included in an annex. Further helpful commentary and feedback was provided by DFID colleagues at presentations in late 2018.

Please contact the ICED facility using connect@icedfacility.org if you wish to provide feedback on this report.

2 Acronyms

AITF	Afghanistan Infrastructure Trust Fund
ARTF	Afghanistan Reconstruction Trust Fund
DABS	Da Afghanistan Breshna Sherkat (Afghan national power utility)
DFID	UK Department for International Development
FCAS	Fragile and/or Conflict Affected State/Situation
GDP	Gross Domestic Product
GoA	Government of Afghanistan (aka GIRoA/GoIRA)
HMT	Her Majesty's Treasury
HoP	Head of Profession
ICED	Infrastructure and Cities for Economic Development
ICR	Implementation and Completion Results (Report)
IEG	(World Bank) Internal Evaluation Group
KfW	Germany's development bank
MDTF	Multi-donor trust fund
MW	Megawatt
NAO	UK National Audit Office
NATO	North Atlantic Treaty Organisation
ODA	Overseas Development Assistance
ODI	Overseas Development Institute
OECD	Organisation for Economic Cooperation and Development
PFM	Public Financial Management
PPP	Public-Private Partnership
USAID	US Agency for International Development
WB	World Bank

3 Executive summary

Early efforts to rebuild and extend Afghanistan's devastated infrastructure have been relatively highly studied and well documented. Many assessments have criticised efforts as ineffective and a poor use of development funding. Afghanistan following 2001 was an extremely challenging environment, with security a major risk. A multiplicity of actors – civilian and military – sought to bring about change, adopting a combination of military tactics and 'hearts and minds' approaches. This mix of actors, with different agendas, objectives, and modus operandi added hugely to the confusion in the years following 2001.

Infrastructure development was an important part of the offer. Many hoped and expected that this combination would bring peace and security. However, almost two decades later, Afghanistan remains a fragile, conflict-affected state. Armed anti-government groups control large areas of the country and levels of insecurity are increasing.

This report focuses on the roads and power sectors. Despite years of investment in infrastructure with limited positive impact, the case study team has identified some indications that longer-term development approaches are having positive results. This is particularly evident in the improved access to, and quality of, electricity supply. Roads continue to be more problematic, although the extent of the usable roads network is now far greater than in 2001.

Other positives include a more coherent and co-ordinated approach between donors and other funding agencies. For example, despite their challenges, Multi-Donor Trust Funds (MDTFs) are an important co-funding instrument. They have helped strengthen donor co-ordination and alignment with government priorities, and pooled resources have provided levels of capitalisation for larger and more strategic infrastructure investments.

As well as the positives, the study team also found evidence that many of the earlier challenges remain:

- The continuing pressure for fast spending projects, and institutional incentives to encourage this, increases the risk of decisions that are prejudicial to the successful delivery of programmes
- Optimism bias continues to be a major risk to rational project identification and delivery.
- Most assignments for staff in donor agencies are short term, because of the challenges of the living and working environment. This leads to limited contextual knowledge and understanding. It also contributes to a low level of institutional memory, since staff completing assignments are reassigned and their experience and knowledge of Afghanistan is lost.

The importance of getting the basics right is a clear emerging thread running through this research. An important starting point is a sound understanding of the infrastructure project cycle. This covers the sequence of activities from project identification, preparation (feasibility and design), procurement, construction, handover and delivery of services (with related operations and maintenance in place).

There has been evidence from past evaluations of infrastructure development in Afghanistan, reinforced by findings in this case study, of internal and external pressures to expedite various stages of the process – whether feasibility, design, bid processes or construction. Although this may lead to some apparent early progress, it risks significant problems later in the process if basic good practice at any stage has been short-circuited. One interviewee, who is involved in major project development in Afghanistan, emphasised the importance of investing in the early stages of project preparation having seen the results of this being done without sufficient resources or attention. This echoes concerns raised in a UK National Audit Office (NAO) investigation into project delivery in the UK: 'Organisations which really understood the inherent challenges and complexity of the project, at the earliest stages of design, created an environment for

success. Those who did not, set themselves up for failure at a later stage.'[1] This is even more important for infrastructure development in a situation of fragility and conflict. The literature review that forms part of this research highlights the fundamental importance of understanding the context prior to undertaking any infrastructure development in a situation of fragility and conflict. A trend in US development aid to Afghanistan[2] which has been a common theme across most aid projects in the country is that projects frequently pay little attention to understanding the context – in particular the history and culture of Afghanistan. This links with the point above about the short length of assignments and lack of institutional memory. This is compounded with, in many cases, the lack of any substantive handover process between the outgoing and incoming post-holders.[3]

There are a number of practical recommendations emerging from the case study. These include:

1. Fully assess a range of options to achieve an objective. A particular example is the shift from building power stations, to building transmission lines to import surplus power from neighbouring Central Asian countries.

2. Invest in good project preparation, resisting the pressure to start construction early and spend money quickly. One interviewee gave an example from the roads sector, where the original design was for bridges across streams, but a subsequent review showed that culverts were sufficient. This was changed, with substantial cost savings resulting.

3. Ensure appropriate specifications. There are examples of some being inappropriately onerous for the context, leading to significant delays. Conversely, these can be too lax, resulting for example in early break up of road surfaces.

4. Seek, above all, to understand the context and operating environment, and assess the likely perspectives of different stakeholders. For example, understanding perceptions of winners and losers from a tarmac road into a remote area: will this be of greater benefit to insurgents,[4] drug networks or government security forces?

5. Ensure from the start that there are plans in place for operations and maintenance of the asset.

Finally, ODI's 2016 guidance paper on political settlements[5] provides relevant advice: "work in an adaptive entrepreneurial way – seeking to learn quickly from mistakes." The larger and more complex the infrastructure asset, the more difficult to adapt to changes in context. If security conditions, and other problems, mean that it becomes impossible to finish the project, it will become a stranded partially completed asset. This does not imply the avoidance of all large infrastructure projects. It does, however, mean that at the feasibility stage there should be a full unbiased consideration of whether there is sufficient peace and security, and prospects for this to continue, before any decision to proceed.

It is of course possible to mitigate some of the risks during construction with a cordon of security (at significant cost). However, the level needed, and the associated costs, should also be an indicator of whether the security environment is sufficiently stable for a recommendation to proceed. If the infrastructure is a major target during the construction phase, it is also likely to continue to be vulnerable to sabotage, or capture, post completion - by which time levels of security may well have been reduced or withdrawn, making it an easy target.

[1] NAO (2013) DECA, Understanding Challenges in Delivering Project Objectives
[2] The point is made regularly in SIGAR reviews of spending, particularly about military-driven aid. A colourful article on ProPublica (Fingers in Ears – Ignoring History, Advice and Culture; https://projects.propublica.org/graphics/afghan#afghan-FE) may be somewhat one-sided, but identifies this common trend in a full reading of SIGAR documents.
[3] From interviews for this case study
[4] The term 'insurgent' is still the most common term for anti-government militant groups in Afghanistan. It has fallen out of use in some subsequent conflicts (e.g. 'rebels' in Yemen and Syria).
[5] Kelsall, T. / ODI, 2016. Briefing paper: Thinking and working with political settlements

4 Introduction – objectives and methodology

Afghanistan has been, and continues to be, an extremely challenging operating environment both generally, and in relation to infrastructure development. This case study seeks to draw both from the literature, and also from recent experience, to identify approaches that could result in the development and financial support for infrastructure projects having a greater chance of success.

The study forms part of a larger research project on infrastructure programming in Fragile and Conflict Affected States, with three further case studies planned at country level. It examines infrastructure programmes in Afghanistan in the period since 2001. The report summarises the findings and key learning points on infrastructure programmes for DFID.

The focus is on power and roads, two sectors where donors have placed significant emphasis. The review will examine all forms of support: investment, technical assistance and policy dialogue.

Specific issues derived from the broader literature review that were examined in Afghanistan included:

1. **Understanding the context** - to what extent was this adequately considered in planning and design, and was the fluid nature of the context recognised and monitored in order to adapt/modify approaches and develop contingency plans to a changing context?

2. **Delivery of infrastructure** - were basic good practice and principles applied throughout project cycles, including assessment of Afghan capacity to deliver and sustain infrastructure - or were these overridden by other political and political imperatives or for other reasons?

3. **Impact of Infrastructure** - were services delivered and outcomes from completed infrastructure consistent with theories of change/intervention logic? Were there unexpected positive or negative consequences?

4. **Donor modalities, instruments and approaches** - how did these influence the success or failure of infrastructure projects?

5. **The role of other actors** - private sector, non-traditional donors - how was this affected by/did this impact on the operating environment?

There have already been a number of investigations of project performance in Afghanistan on behalf of DFID and others and the study will aim to build on the results of those projects (see below section summarising some existing findings). Both the World Bank and ADB have carried out formal evaluations of their country programmes in recent years and these have also been reviewed.

The objective is to consider the impact of all interventions and not just those from DFID. However, there will be particular emphasis on projects in the power and roads sectors with which DFID has been involved, for example through AITF.

The main approach was through interviews with key staff who had been involved in Afghanistan infrastructure programmes since 2001. The focus was on officials who had worked in Afghanistan with DFID, the World Bank and the Asian Development Bank both as employees and as consultants.

A list of those interviewed is at Annex A. In order to encourage frankness in interviews all interviewees were advised that their individual views would not be disclosed in the report.

This report is based on the interviews with those personnel as well as the knowledge of Afghanistan of study team members and reading and reference to programme documentation, reviews and existing research whose conclusions are being built upon by the study.

5 Background Afghanistan

5.1 Infrastructure - historical perspective, pre-2001

Efforts to modernise Afghanistan can be traced back to the late 1800s following Afghanistan's establishment as a British Protectorate in 1880. This included development of hydropower on a relatively small scale, with larger irrigation, roads and bridge construction through to the 1950s. However, despite these and other efforts to encourage industrialisation there were less than ten industrial units operational in Afghanistan by 1945.[6]

However, Daud Khan used his tenure as Prime Minister (1953–63) to give stronger impetus to construction of national infrastructure through the first two five-year plans (1956–61 & 1962–67). The priorities were roads, power plants and large-scale irrigation. The third and fourth five-year plans included similar infrastructure priorities. Daud's return as President in 1973 saw a seven-year plan started in 1976. However, his assassination in 1979 and the subsequent communist coup largely halted this.

By the 1970s Afghanistan had made significant progress:[7]

Roads	17,000 Km total of which 2,700 Km paved
Power	408 MW total generating capacity of which: 256 MW hydropower; 48 MW gas and the remainder diesel generators

The investments were heavily dependent on external funding – mainly from the Soviet Union and the US.

The progress made, through the push for modernisation, went into reverse over the following 20 years, during the Soviet era, civil war and the Talban insurgency. Infrastructure became a target for widespread damage and destruction.

[6] Christensen, A (1995), Aiding Afghanistan, The background and prospects for reconstruction in a fragmented society.
[7] Op cit.

5.2 Donor engagement – development assistance and security trends

Afghanistan received US$50.7 billion in official development assistance (ODA) between 2002 and 2012, including US$6.7 billion in humanitarian assistance.[8] Although the allocations to development efforts have been substantial the annual cost of military operations and building security forces was estimated at more than US$130 billion in 2012.

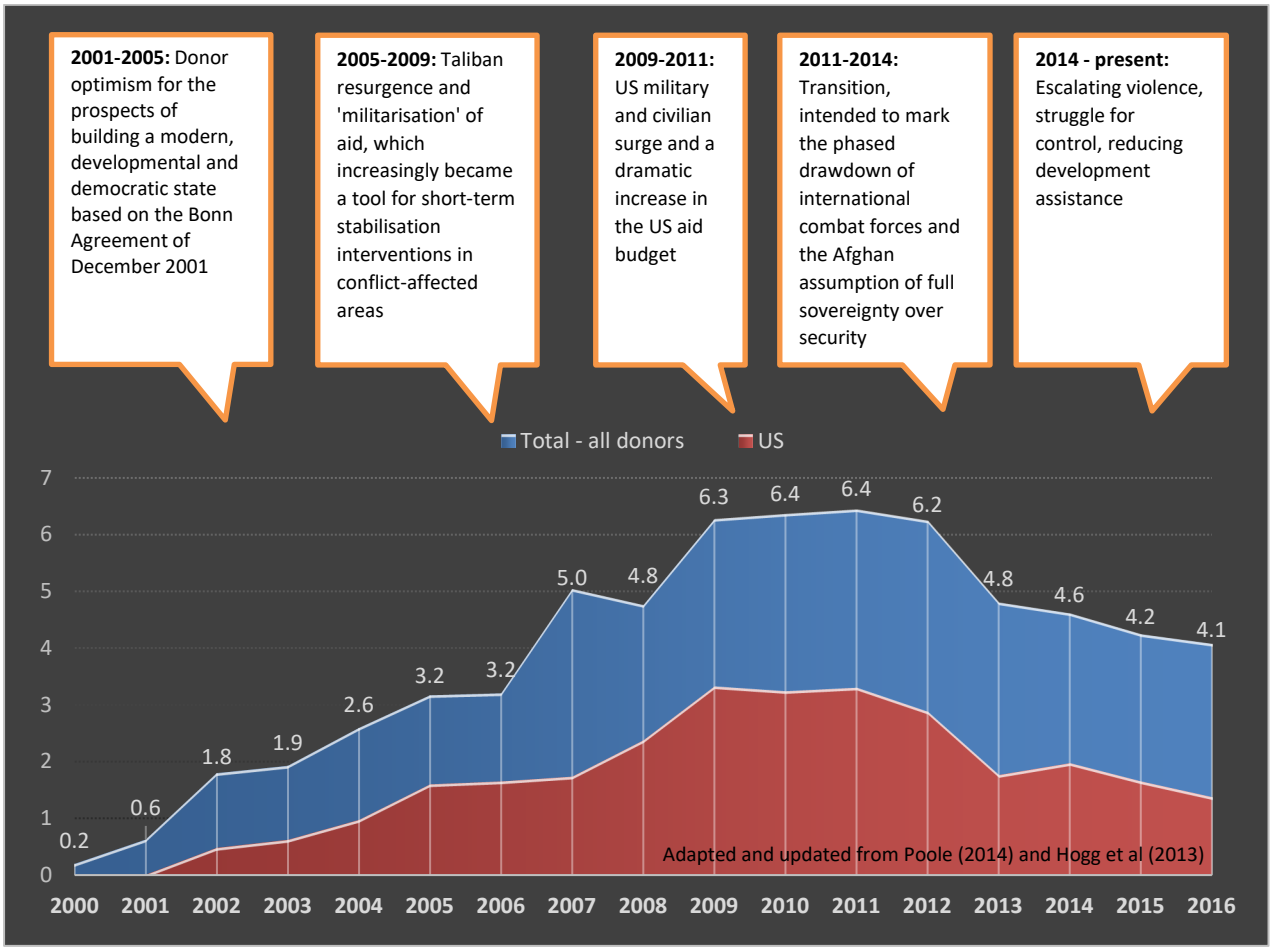


Figure 1: Development Assistance to Afghanistan (2000-16)

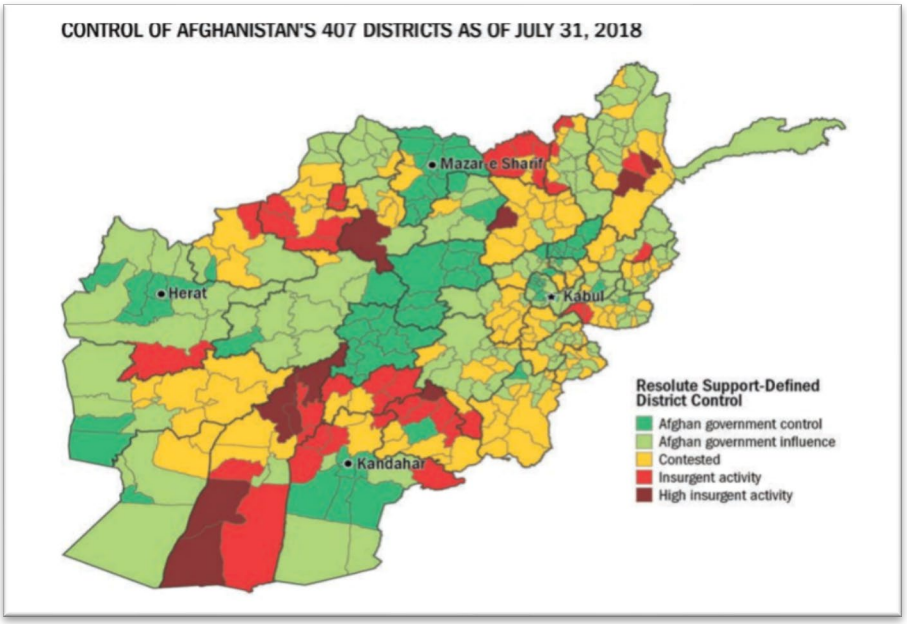
ODA levels have been progressively falling since 2011, from a high of $6.43bn in 2011. This has coincided with a renewed surge in violence as security responsibilities have been progressively handed back to GoA (see box).[9]

[8] Data compiled in Poole, L. / Development Initiatives (2014), Afghanistan Beyond 2014
[9] The box discusses territorial control among other conflict indicators. Territorial control is an imprecise concept and various estimates exist, however all show a similar trend over time. A nuanced discussion of conflict indicators and trends in Afghanistan can be found at this link: https://www.afghanistan-analysts.org/more-violent-more-widespread-trends-in-afghan-security-in-2017/

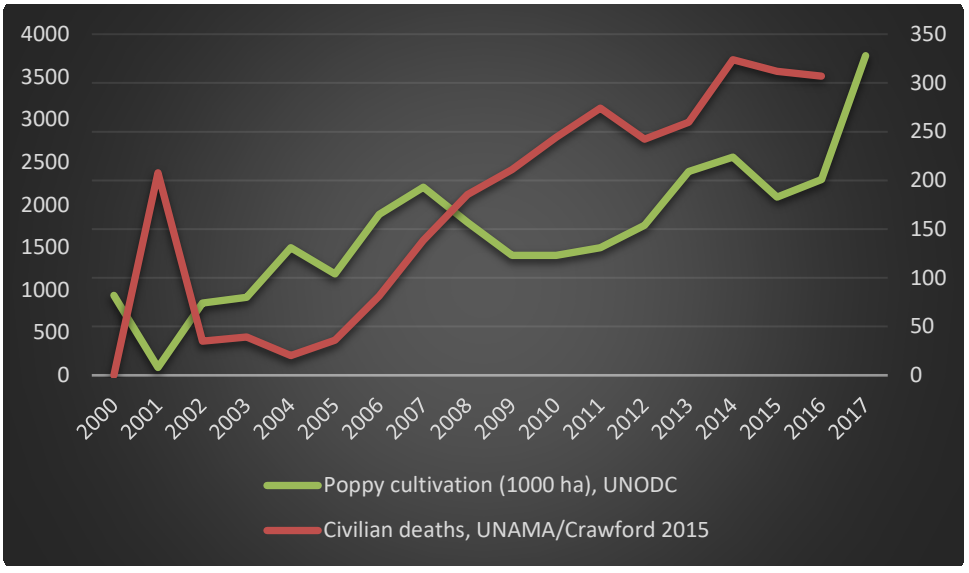
Context: worsening conflict

The move after 2014 by the international community towards Transition to Afghan-led security and governance was intended to mark the beginning of a Transformation Decade, during which development impacts would be sustained and Afghanistan would move from conflict to a sustainable economy with a government able to provide security and core services to its whole population. The trajectory so far has not been encouraging, and poses difficult operational and strategic problems for infrastructure development.

The latest assessments (SIGAR, 2018) show the government gradually losing control over large parts of the country. It has some level of control over just 55.5% of Afghanistan's territory and 65.2% of its population (a quarter is 'contested' with no clear authority and the rest is under insurgent control).



Proxy measures of conflict and law and order (see below figure) show civilian conflict-related deaths increasing and opium poppy cultivation surging in the post-2011 period.



Over the period 2011–15 (based on OECD data), the ten highest aggregate donors ($US) were:

US	11,034 m	**EU**	1,421 m	**Sweden**	588 m
Japan	3,047 m	**Australia**	910 m	**Denmark**	395 m
Germany	2,492 m	**Canada**	614 m		
UK	2,044 m	**Norway**	596 m		

$3.5 billion has been invested in the **energy sector** since 2003; with $4.5 billion invested in **roads and transportation**.

Funding for economic infrastructure from 2011-2015: for energy has been $1.93 billion; and transport and communications $1.23 billion. For **energy**, the largest donors are USAID, KfW, the World Bank and the Asian Development Bank.

Although the government and donors have been paying more attention to the issue in recent years, asset deterioration remains a serious concern, "with much (85%) of the road network in Afghanistan believed to be in poor condition."[10]

5.3 Involvement of countries from the region providing funding assistance

Afghanistan has also received substantial financial support from a number of the regional states including Pakistan, India, Turkey, Saudi Arabia, Iran, and the Central Asian States have been providing assistance to Afghanistan, especially in infrastructure and construction.

India[11] is involved in economic development both as a donor and through private investment, and has funded a number of major infrastructure projects. Some notable projects include Salma Dam in Herat Province, Delaram Zaranj and Kost to Gardez highways, and the installation of a transmission line linking Uzbekistan with Kabul.

5.4 Foreign direct investment

In addition to development aid, Afghanistan has also been receiving foreign investment since 2003. Levels are very low and have reduced from a high of $270m in 2005, to $60m in 2013. This implies an increasing lack of confidence due to levels of insecurity and future prospects for investments.

5.5 Multi-donor trust funds

There are two multi-donor trust funds that include significant infrastructure investment. One, the Afghanistan Infrastructure Trust Fund, administered by the Asian Development Bank as trustee. The other is the Afghanistan Reconstruction Trust Fund (ARTF), supervised by the World Bank. A broad characterisation from interviews for this report noted that the mandates of these two funds have tended to

[10] Aid Effectiveness in Afghanistan, ATR Consulting, 2018
[11] Building Legitimacy and State Capacity in Protracted Fragility – the Case of Afghanistan, Bizhan, IGC, 2017

focus on strategic infrastructure and social infrastructure, but there has been a **gap in financing for productive infrastructure** to take advantage of strategic infrastructure improvements.

5.5.1 Afghanistan Infrastructure Trust Fund (AITF)

ADB commissioned a review[12] of the impact of the AITF from 2011-16. The AITF was established in November 2010 with pooled funding from the UK, Japan, US and NATO - with commitments of $530 m. As of the end of 2016 the AITF had received $466 m. Of this $301 m represented committed funds, based on signed construction contracts. However, according to the impact assessment just $138m had been disbursed. An overall finding of the assessment was that although the AITF is a useful tool, it had not fully met donor expectations over the first five years of operation. It also concludes that some recommendations extend beyond AITF, and impact the way in which ADB operates in other FCAS and more generally as a trust fund manager. A summary of findings from the AITF review is included as Annex B.

DFID provided £35m to the AITF when it was established. The DFID business case[13] recognises the priority of infrastructure for GoA, and the importance of addressing the infrastructure deficit. The long-term objective of the support was increased growth and poverty reduction in the areas covered by the AITF. The business case also makes links between infrastructure, security and stabilisation through, for example, enabling alternatives to poppy production, and enabling security services faster access to narcotics networks. It also suggests that it will improve public perceptions of the government through delivery of public services. It considered the alternative option of funding through the ARTF rather than AITF. However, the recommendation was for the AITF on the grounds that the ARTF focused mainly on small-scale community led infrastructure that is complementary to the AITF's ambitions.

Unfortunately, with no developed pipeline of projects ready to start on site, early levels of disbursement were very low.[14] As a result, a large part of DFID's contribution, held on the ADB/AITF account, was neither committed nor disbursed. As noted by ICAI in a recent review: to avoid being in violation of Treasury rules on payment in advance of need, DFID requested the return of $36m in 2016, being the undisbursed balance of its earlier contribution.[15]

There were lessons learnt on both sides – particularly with regard to realistic expectations of the pace of infrastructure planning and delivery in complex environments. This led to a process of engagement between DFID and ADB to understand those lessons, and through this DFID and ADB have jointly published a co-financing guide[16] to inform future arrangements.[17]

Similar fiduciary rules affect some but not all bilateral donors. A broad lesson from this experience is that careful analysis of the risks associated with different administrative arrangements and the consequences of delays and setbacks associated with fragile operating contexts should be conducted when using pooled or delegated funding instruments for large infrastructure investments.

In addition to issues of funding rules in relation to donor instruments it also exemplifies some of the challenges of developing infrastructure in FCAS generally, and particularly in Afghanistan. Large infrastructure requires significant planning and preparation, usually taking a minimum of 1 – 2 years from

[12] Mik, J. (2017), AITF Impact Assessment 2011 – 16, ADB
[13] DFID (2011) Business Case of Support to AITF (2010-15)
[14] According to ICAI (2018) DFID's transport and urban infrastructure investments: A performance review. "The first phase [of AITF] performed poorly. The trust fund underestimated the delays and costs associated with working in an insecure environment. It was also unable to coordinate donor contributions into the fund with its disbursement needs, leading to delays in procuring and paying contractors."
[15] Ibid, page 26.
[16] ADB/DFID (2017) ADB-DFID Cofinancing Guide. Reviewed in hard copy but accessible at this link: https://www.adb.org/documents/adb-dfid-cofinancing-guide
[17] DFID was not alone in its concerns about the performance of the AITF. This was the subject of an external impact assessment in 2016. A summary of the findings is included for reference at Annex B.

inception, through feasibility, design and the bid process before construction begins on site – and significant disbursement starts - as is now happening with the AITF.

The literature (some referenced in this report) emphasises the fundamental importance of not allowing the pace of infrastructure development in Afghanistan to be determined/forced by the imperative to disburse funds. This presents a dilemma for a fund such as the AITF that is seeking to work with and through government systems – given the time that this will take, while at the same time hopefully building ownership and capacity through the process. Particularly given the desire of funding agencies to see their funds deployed to address immediate and pressing needs.

An alternative approach is initially to limit commitments to support a trust fund to build a pipeline of fundable projects. This clearly has merits – and avoids the disbursement problems outlined above. However, when the process reaches the point of funding for construction, it is quite possible that funds previously earmarked for multi-donor trust fund will have been committed elsewhere.

5.5.2 Afghanistan Reconstruction Trust Fund (ARTF)

The World Bank established the Afghanistan Reconstruction Trust Fund (ARTF) in 2002 as a means to quickly and effectively support the government's reconstruction efforts. It has two funding windows: channelling donor resources to GoA's recurrent budget, and providing capital funding for priority investments. Since its inception 34 donors have contributed a total of $10.3 bn to the fund. DFID's 'unpreferenced' commitment was £319m (2007-2014) and for £678m (2014-21).

The current ARTF Financing Programme[18] has allocated $258m to infrastructure (transport, energy and water) over this 3-year period. This is from a total of $2.4 bn for both funding windows – split almost equally between recurrent and investment funding.

Assuming infrastructure expenditure has been similar throughout the ARTF's implementation, DFID's contribution to infrastructure development through the ARTF has been approximately £105m over 15 years.[19]

The recent external review of the ARTF[20] conducted by Scanteam recognises the different set of constraints that the AITF faces in implementing large-scale infrastructure in a volatile context – and the resultant low spend profile. It considers whether AITF could be more effective as part of an enlarged ARTF given ARTF's greater flexibility, and broader portfolio. However, this is left as an open question, since the GoA position is not clear. It also recognises the donor complexities of such an arrangement.

Reviews of the ARTF and its main published reports have very little to say about infrastructure specifically. Most of the findings in reviews are applicable to the entire mechanism, not just the 10-20% that involves infrastructure.

According to Scanteam interviews, the WB administrator and donors admit to having had a 'testy' relationship for some time.[21] Donors feel unhappy about the responsiveness and transparency of the administrator, and the confused and sometimes dysfunctional governance of the fund means it is a hard task for a single donor to fully engage at a strategic level. The fund administrator in its turn finds donors ill-prepared and unable to contribute strategically to management fora – increasingly so as donor interest in Afghanistan wanes. However, donors have few or no other options for disbursing large amounts of funding in a manner that is fully coordinated (with government planning and with other donor contributions) and on-

[18] World Bank, ARTF Partnership Framework and Financing Programme (2018-20)
[19] This is a conservative estimate, as additional infrastructure work will have been undertaken within programmes not classified as infrastructure at the strategic level. Looking programme by programme gives a high-level estimate closer to £200m.
[20] Scanteam (2017), ARTF External Review for World Bank
[21] It should be noted that DFID in particular has been actively improving its capabilities to constructively oversee UK aid funds invested in multilateral delivery channels and progress on this issue has for example been highlighted in ICAI's followup review in 2017 examining DFID's response to the wide-ranging 2015 Multilateral Aid Review.

budget. This experience may be causing donors to pause before making large commitments to upcoming new MDTFs in other FCAS environments.

The Scanteam review notes broad agreement among development actors that the ARTF works and is mostly reliable. It has had a lot of sustained attention from a large number of interested parties over a long period of time and has been able to adapt its approach.[22] On the other hand, it is now 16 years after the fund was established and it is still being directly criticised for poor oversight leading to high fiduciary risk. 'The corruption issue' is repeatedly flagged in reviews, alongside 'ineligible expenditure' issues which are seemingly linked and worsening with time (SIGAR, 2018).[23] While these are broad governance and PFM issues which affect the entire government and donor relations, trust funds are particularly vulnerable.

Conflict and political economy are strategic challenges that ARTF does not have a mandate to tackle directly. More worryingly, the agendas of the donors are somewhat different from the agendas of the country which inform ARTF strategy.

> *"Conflict sensitivity in part requires acceptance of harsh realities on the ground. Local elites in contested areas have shown they can accommodate various concerns, including continued central government service provision, but typically based on local bargaining and rent sharing,* ***posing issues regarding ethical boundaries versus realistic choices, for ARTF partners****." (Scanteam, 2017, ICED emphasis)*

Donor criticisms of the ARTF (both in the third-party reviews and donors' own reports) contain regular mentions of the growing gap between donor priorities and ARTF ones. The US, for example, is urgently seeking improved geographical preferencing to address concerns about legitimising militant territorial control by providing central government services to populations in non-government areas.

The ARTF has been praised in reviews for enacting predictable and transparent fiduciary procedures, but also criticised for the institutional complexity that makes its instruments inflexible compared to some bilateral arrangements. This inflexibility is strongly objected to by both donors and GoA.

In spite of close partnership with GoA for implementation, security – particularly for monitoring – remains an oft-repeated problem.[24] ARTF programmes do not appear to be less affected by insecurity than other donor-funded programming mechanisms.

The future of the ARTF and the donor response in general is somewhat unclear. The ARTF is quite unusual for a post-conflict MDTF. Other MDTFs in the past have generally shut down and transferred responsibility to national authorities as societies recovered from war and returned to some form of normality. This situation is still a long way off in Afghanistan and ARTF has become the world's longest continuously running MDTF. In fact, the deteriorating security situation and continuing inability of GoA to take over responsibilities from the WB is leading the ARTF administrator to question whether the current operating model remains sustainable.[25]

[22] Although SIGAR (ARTF review, April 2018) points out that the amount of time and effort spent on external scrutiny is disproportionately low when considering the very large amounts of funding in question.
[23] SIGAR 18-42-AR/Afghanistan Reconstruction Trust Fund Audit Report, April 2018.
[24] E.g. Scanteam (2017) "the Monitoring Agent visits only about half the sites outside Kabul that they were expected to, due to security and budget constraints"; SIGAR (2018) "The World Bank states that security issues still prevent the Monitoring Agent from visiting certain locations to perform physical verification and sampling… in 2016, the Monitoring Agent could not perform physical verification on 44 percent of the government employees it randomly selected for testing"
[25] Scanteam interviews.

5.5.3 Are MDTFs useful for developing infrastructure in FCAS?

MDTFs are clearly a useful tool when there are challenges with government ownership, multi-donor strategic coordination, and strong incentives to engage in on-budget mechanisms to support the development of a stronger legitimate national government in a post-conflict scenario.[26] These are not infrastructure-specific concerns, however.

With the ARTF there has been more of a focus on social sectors and the latest review suggests that the ambition to build a more productive economy – partly by focusing on major infrastructure projects – has so far proved unsuccessful. This has pushed the focus to areas such as education, healthcare and local and rural development. The oft-mentioned lack of transparency seems to have led to there being little specific to say regarding the £100-200m infrastructure funding that DFID has channelled through the ARTF. This does not mean MDTFs are a poor tool for developing infrastructure. In fact, the long-term mandate and much higher capital pools available to trust funds make them an attractive option for a coordinated longer-term approach to development major projects. However, MDTFs which are structured like the ARTF (i.e. with a very wide mandate, high levels of independence from donors and complex governance arrangements which confound attempts by donors to influence strategy) are not necessarily the right tools for pursuing infrastructure development strategies that require flexibility, alignment with bilateral (e.g. UK) priorities or a rapid or ambitious theory of change.

AITF is a more purpose-built vehicle, however the lessons learned from DFID involvement are primarily about process, preparation and mutually understood governance systems rather than strategic lessons concerning the use of MDTFs for infrastructure development.

When taking a long-term approach to strategic infrastructure development in an FCAS context, based on the Afghanistan experience there is no reason in principle to recommend or not recommend the use of an MDTF. The details of how the MDTF has been set up, how it is governed, how credible its investment pipeline is and how it is currently (and can continue to be) aligned with DFID's own strategy will affect the decision about whether and how much to use MDTFs compared to other instruments. MDTFs are not the only financial vehicle available to pool capital funds for larger projects.

[26] A case for MDTFs is put in more detail by former Afghanistan WB country head Alastair McKechnie in his 2011 paper "Post-war programme implementation and procurement: Some lessons from the experience of Afghanistan", ODI. He was also interviewed for this research.

6 Case study findings – power and roads sectors

Reviews of investments in these sectors since 2001 have raised significant concerns about the delivery of infrastructure projects and concluded that many have not delivered expected results. Some projects have experienced extreme delays, others were abandoned prior to completion. Evidence also strongly suggests that of projects that have been completed, many have not provided the expected levels of service, or have not performed to the level expected. An overall conclusion is that many have not represented good value for money. The literature review and the programme of interviews also confirm numerous failings in development partners' programmes. However, the following assessments of the power and roads sectors suggest that despite the many specific failures, a wider and longer-term perspective suggests evidence of positive progress in both the power and roads sectors.

6.1 Power development

As referenced earlier in this report the state of infrastructure in 2001 was extremely poor, following two decades of civil war.

In 2002 there was no national power utility. The power supplies that were available were restricted to the major cities and towns and there was no central coordination of operations with each area operating as an individual fief. Operational and financial performance was poor. While supplies are still unreliable and further institutional improvements are vital, the extent of progress is considerable and advances have been made not just in extending electrification, but also in the commercial aspects of operations.

The initial focus was to construct power stations in Afghanistan to increase the installed capacity in the country. The approach faced many difficulties and setbacks – with construction sites becoming targets for attacks by insurgents. This compounded the other challenges of operating in a situation with very limited capacity. Examples of some of the projects to develop generating capacity in Afghanistan are summarised below.

The **Kajaki hydro-electric facility** was rehabilitated and expanded but with considerable delays. For example, a new turbine was delivered in 2008, following a British led operation to transport it from Kandahar to the dam site at Kajaki. There was a battle with Taliban troops close to the dam site. Subsequently, the Chinese contractors responsible for laying concrete foundations for the new turbine fled due to security concerns. The 700 tonnes of cement needed to complete the project could not be brought to the site because of attacks by the Taliban and the project was not commissioned until 2016. General David Petraeus, the commander of NATO forces in Afghanistan, described the project as an object lesson in, "overpromising but under-delivering".

The **Gereshk hydro power project** was estimated to cost US $76.5 million, shared between DFID $20 million (26%); Denmark $12.4m, (16%); ADB $43m (56%) and; GoA $1.1m (1%). Financing was available from 2010 but the project was not completed successfully. The main contractor was a Joint Venture between Aravali Infra-Power Limited of India (AIPL) and Hunan Allonward of China (HA) – known as AHAJV. The contractor struggled to develop the required knowledge of the local construction market and identify potential sub-contractors for the works. The companies had not worked in Afghanistan before and did not have a good understanding of government regulations. In addition, the security situation in Helmand remained unstable and both the contractor and sub-contractors found it difficult to maintain reliable security in order to continue work on site.[27]

[27] DFID's 2015 review of the project indicated that it was still unfinished, with ADB seeking to remobilise the Indian/Chinese contractors.

Tarakhil Power Station

Located just outside Kabul this was designed to increase generation capacity for the capital. Construction began in 2007. However, the project was plagued with problems - cost overruns, poor contractor performance and delays. With an original target date for completion of 2009, the plant was not fully completed until 2016.

Independent investigations found a number of lessons connected with similar power projects in Iraq were not heeded:

- US planners chose to ignore other ongoing reconstruction projects that were cheaper and more likely to succeed, or to pay attention to alternative recommendations from Afghan government officials.
- They chose expensive technologies that the city of Kabul could not afford to maintain or utilise.
- USAID asked for the plant to be built in record time - by a complex system of multiple contractors - causing costs to soar.
- By the time the project started, the price for the fast-track turbines and multiple layers of contractors was $259m, two-and-a-half times that of similar projects.

By comparison a power line to Kabul from Uzbekistan was completed, with funding from the World Bank, German and Indian governments. The construction cost was just 35 million dollars, providing greater capacity than Tarakhil, with operating costs estimated at 6 cents a kilowatt hour compared to the 22 cents a kilowatt hour that it will cost to run the diesel plant.

Quote from: Power Engineering International, June, 2015

6.1.1 Shift to transmission lines to import power from the region

Given the security situation and vulnerability of power station projects to attack, the focus shifted from power station construction to erection of transmission lines to import power from the Central Asian States, in particular Tajikistan and Uzbekistan. This was both the quickest and the least cost means of expanding supply. Hydro-electric power was immediately available from central Asia. In addition, these schemes are lower cost than developing thermal capacity in Afghanistan. Afghanistan has hydro-electric capacity, and some of it was developed in the past and has been rehabilitated in the past fifteen years. Notably, however, rehabilitation efforts have encountered security difficulties, particularly in the south of the country.

6.1.2 Issues in grid expansion

This approach was also not free of problems. There were several issues with the expansion of the power grid that were only identified at a late stage in scheme development.

First, there were plans to extend the transmission grid from Kabul to the South of Afghanistan. However, these were abandoned when it was realised that this would lead to substantial increases in technical losses and only contribute limited power to the South while reducing the reliability of supplies in Kabul.

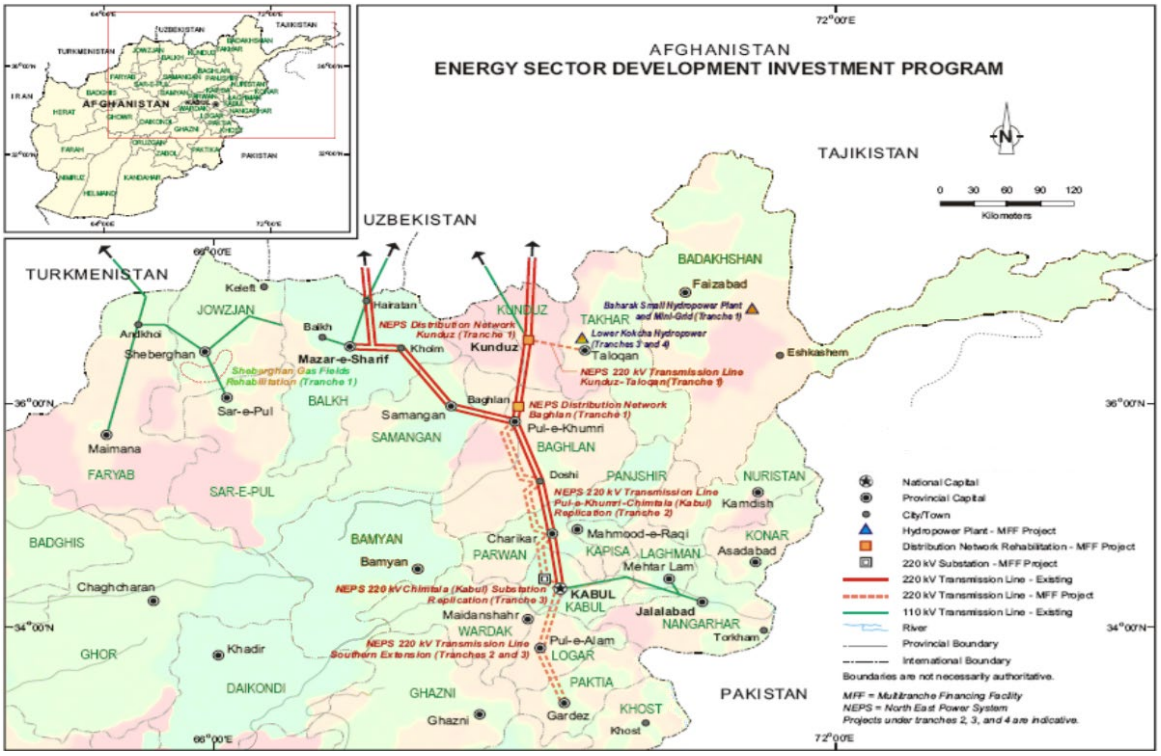


Figure 2: Regional transmission network, with conflict data overlaid. Sources: energy map World Bank 2012, coloured with 2018 conflict data from SIGAR (red=insurgent control, orange=contested)

	Installed capacity of transmission lines (max. in MW)	% of total installed capacity
Uzbekistan	326	33
Iran	164	16
Tajikistan	433	43
Turkmenistan	77	8
Total	1000	100

Table 1: Installed capacity of transmission lines (source: World Bank)

Second is the issue of synchronisation between different internal and external systems. Afghanistan effectively had 10 isolated grids, with asynchronous systems supplying these from Tajikistan, Uzbekistan, Turkmenistan and Iran[28]. This has proved a major challenge, to find technical solutions to enable the development of an interconnected grid that will enable load balancing and greater efficiency across a unified system. The current level of security of supply is lower than it could be with a fully synchronised system.

Finally, inadequate consideration was given to the necessary technical arrangements for starting up the transmission line from Uzbekistan and as a result, technical modifications had to be made in some substations before the lines could be brought into use. The equipment needed for the frequency and voltage transformation equipment is expensive, and has resulted in significantly increased project and systems costs.

[28] ADB, 2015, Power Sector Assessment Summary (www.adb.org/sites/default/files/linked-documents/47282-001-ssa.pdf)

These sorts of problems require sound basic technical skills in order to identify the problem and devise solutions to them. In an environment such as Afghanistan it is inevitable that these skills are lacking in the power utility itself and as a result the issues are identified later than they would be in a more well-developed utility. This emphasises the need for donors to have high quality and a high capacity of resources working on projects in a fragile environment where local capacity is limited. Additional due diligence on projects and programmes is needed to ensure that they work effectively.

The transmission grid has generally performed well and in accordance with expectations post construction. There have been interruptions, arising from insecurity, when towers have been demolished but the overall performance has been good and the system has delivered stable and reliable electricity.

Regional Integration

The Central Asia – South Asia Power Project (CASA 1000) was developed to transfer 1300 MW of surplus power from The Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan. It will include over 1200 km of transmission lines – high voltage AC and DC – with DCAC converter stations. The current cost is estimated at around $1.2bn USD with funding totalling just over $0.5bn from the World Bank, with Islamic Development Bank, IBRD, EIB, US and UK co-funding. Expected completion date is currently 2020.

Pakistan will take the bulk of the power, and Afghanistan's offtake may be limited initially because of low demand. Critics of the scheme have raised concerns about the ability of the Kyrgyz Republic and Tajikistan to deliver the power, due to the condition of the power plants, which will only be during times of surplus in the Summer months. Another significant concern is the risk of sabotage along the line through areas controlled by the Taliban.

The Turkmenistan – Uzbekistan – Tajikistan – Afghanistan – Pakistan (TUTAP) is a parallel ADB funded project to integrate power in the region. The ADB recently signed an agreement with the Government of Afghanistan for an allocation of $75m from the AITF to close one of the missing links to the transmission route.

Funding agencies hope that these projects will lead to a regional power pool to enable a more integrated approach to power trading across Central and South Asia.

Information from: World Bank 2014 Central Asia South Asia Transmission and Trade Project Summary and ADB news 20 November 2017.

6.1.2.1 Targeting of transmission infrastructure

Transmission towers are vulnerable to sabotage and very difficult to secure against guerrilla insurgency tactics. A recent ADB review reports[29] that there has been popular outrage in the past when the Taliban have cut transmission lines, including one incident which cut power to Kabul during winter, and appears to have dissuaded further attacks due to their effect on popular support for the insurgency. However, attacks have since resumed. Earlier in 2018, the Gulf Times[30] reported a major power cut in Kabul as the result of the Taliban bringing down a transmission tower with explosives in Baghlan Province. The Taliban then attacked the DABS team when they went to the site to inspect the damage. In a departure from earlier policy, the Taliban are reported to be demanding power for areas under their control in Baghlan and Kunduz provinces. They are also reported to have threatened that they will continue to cut power to Kabul

[29] Mik, J. (2017) Afghanistan Infrastructure Trust Fund Review (2011 – 16), ADB
[30] Gulf Times, 15 April 2018

until GoA agrees to this demand.[31] Figure 2 in section 6.1.2 above shows the vulnerability of the regional transmission links, which pass through districts currently under Taliban control.

It is noteworthy however that these are currently relatively isolated incidents, particularly given the ease with which insurgents could disrupt supplies if they chose to do so. The political calculus behind this approach is not fully clear, but appears to be informed by views on the extent to which areas under their control are included in access to electricity services or receiving other forms of development funding. **This is troubling in the context of the growing disagreement between donors and GoA about using donor funds to provide services in insurgent-controlled areas** (see section 5.5.2 on the ARTF: the reference to US geographical preferencing).

In the absence of further data, it is difficult to draw conclusions from this which might aid planning in similarly fragile contexts in future, other than to observe that under some circumstances the vulnerability of distributed infrastructure does not automatically lead to its targeting by insurgents. The precise parameters of the conflict and motivations of various involved actors will presumably dictate the frequency and extent of damage from sabotage that can be expected.

6.1.3 Overall Assessment of Progress

The following extract from a recent ADB report[32] illustrates well the extent of progress: “Despite impediments, the power sector has reduced the technical, fiscal, and governance deficits. Access to electricity increased from 5% in 2001 to 32% in 2017,[33] system losses dropped from 70% in 2002 to 23% in 2017, collection rates increased from 50% in 2002 to 90% in 2016, revenues have increased 15% every quarter since 2009, and the sector was corporatized through the formation of corporate power utility Da Afghanistan Breshna Sherkat (DABS) in 2009 and the Afghan Gas Enterprise in 2011. The power subsector in Afghanistan made substantial progress in meeting the strategic objectives and milestones set out in 2012, including:

(i) greater efficiency from existing operations (rehabilitation of hydropower plants and transmission and/or distribution networks);

(ii) improvement in sector governance (formulation of electricity services law, renewable energy policy and autonomous power utility, and institutionalization of operations and management system);

(iii) promotion of rural electrification (development of off-grid networks); and

(iv) investments in new capacity (development of additional generation, transmission, and distribution systems).”

[31] Eynde, (2015), as referenced in the literature review, cites evidence of the Maoists in Orissa, India, taking a similar approach in demanding the government to provide power to areas under their control.
[32] ADB, 2017, Energy Supply Improvement Investment Programme (Tranche 4)
[33] This figure is at variance with the SDG7 data on the ESMAP website (https://trackingsdg7.esmap.org/) which gives access coverage at 83% for Afghanistan. Based on information available the ESMAP data appears to be incorrect.

Although Kabul has been the primary focus for improved access to, and quality of, electricity supplies the coverage is now widely distributed. A recent ADB project completion report[34] confirms the construction of 216 km of transmission network and the rehabilitation of the associated substations and distribution systems in 11 secondary towns in the northern, eastern, and southern provinces. In addition to the transmission line to the major load centres the funding included grant-financed portions to support the development of low voltage distribution networks. This was aimed at connecting nearly 90,700 new households, mostly living below the poverty line.

> "Overall the coverage of the distribution network is low. While over 75% of the population in large urban areas like Kabul, Kandahar, Herat, and Mazar-e-Sharif have electricity, less than 10% of the rural population has access to grid-connected power."
>
> *ADB, 2015, Power Sector Assessment Summary*

Levels of revenue collection and tariffs are fundamental to DABS revenue stream and ability to operate and maintain the system. Building up connections in major load centres is an important part of their strategy to achieve this.

6.1.4 Remaining Challenges

Despite the progress, many challenges remain. A recent energy security report highlighted:[35] "

a) Afghanistan is not an energy self-sufficient country. Its domestic power generation capacity accounted for only 22 percent of its total consumption balance in 2015.

b) Many Afghans perceive dependence on power from neighbouring countries as a threat to energy security.

c) Afghan consumers suffer from an uneven distribution of energy within the country. While currently around 70 percent of consumers in Kabul enjoy a nearly uninterrupted supply of electricity, up to 75% of Afghans don't have access to the electricity grid.

d) Households currently account for over 90 percent of the total power consumption balance. This implies almost no industrial production.

e) The Afghan government is struggling to keep up with the rapid growth of energy demand in the country. Power demand in major cities increased by 25 percent from 2014 to 2015.

f) Beyond electricity, 85% of Afghanistan's energy demand is met through the consumption of environmentally damaging sources of energy (biomass). This has significant negative health impacts, with women and children generally more exposed, and most vulnerable to its effects."

6.2 Roads Development

The rate of progress in the roads sector has been slower than in the energy sector.

Since 2001, multilateral and bilateral agencies have support transport infrastructure, in particular priorities such as the Ring Road (see Figure 3 below). Their total investment is $4 billion to improve transport infrastructure, and institutional support.

[34] ADB, 2016, Afghanistan Power Transmission and Distribution Project Completion Report
[35] Aminjonor, F. (2016), Afghanistan Energy Security, Friedrich Ebert Stiftung

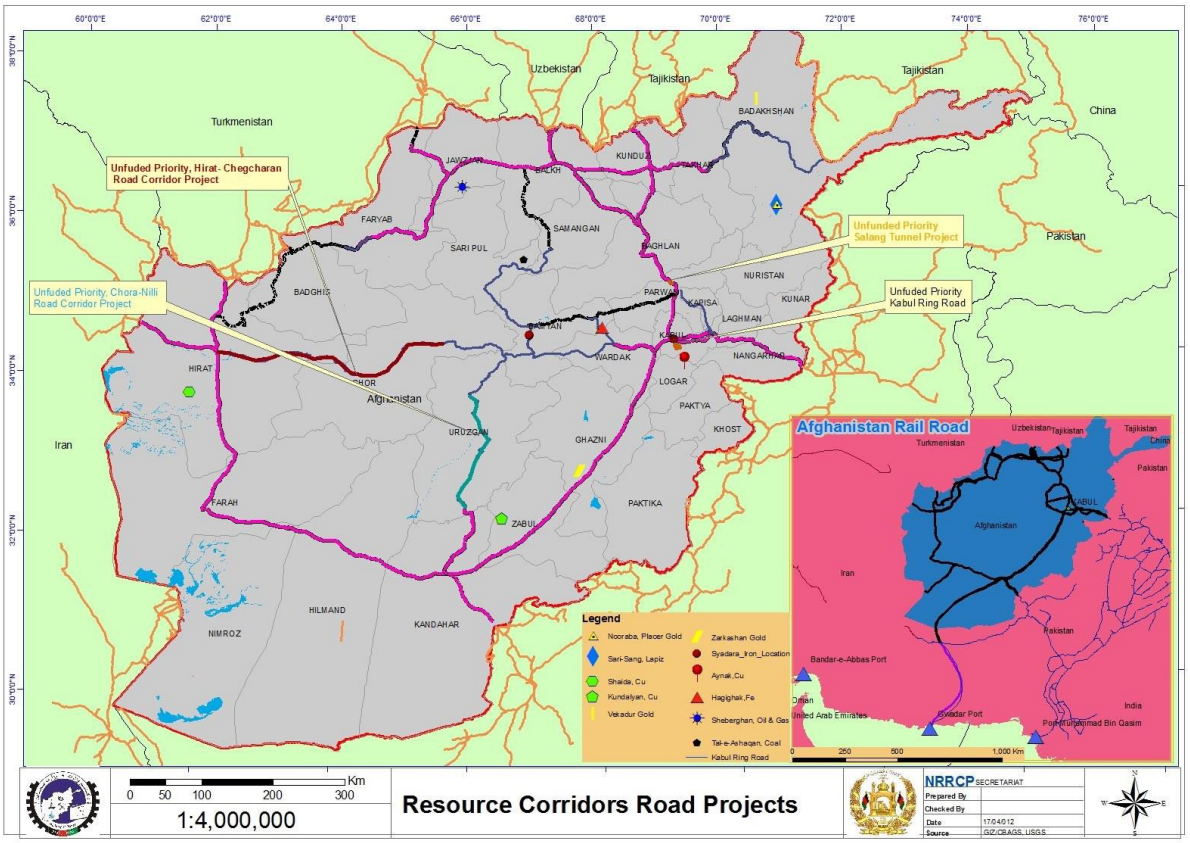


Figure 3: Afghanistan's road corridors[36]

Despite substantial investment in the country's infrastructure over the past 15 years, an ADB report[37] found that 90% of transportation modes are unconnected and in poor condition. At only 4 km per 1000 km2, Afghanistan's road density is significantly less than its neighbours (20% that of Pakistan). A DFID funded scoping study[38] found that there is no nationwide mapping of roads. This study gives the following data for Afghanistan's road network:

Regional Highways	3,300 km
National Highways	4,900 km
Provincial Roads,	9,700 km
Rural Roads	17,000–23,000 km
Urban Roads	3,000 km of which 1,060 km in Kabul
Cross-Border Roads	700 km

Roads also suffer from regular attacks. Research[39] into insurgent tactics concluded that 'In Afghanistan it is a core characteristic of Taliban tactics to target roads built by the coalition'.

[36] Cardno (2017) Rural Roads Scoping Study for DFID
[37] ADB Transport Assessment (2015)
[38] From Cardno (2017) op cit.
[39] Mayerle, J & Carter, M. (2009) Insurgent Tactics in South Afghanistan 2005-08

However, despite many challenges, progress in the roads sector has also been significant. ADB has coordinated activities and a recent report stated that "Resources mobilized by ADB have helped improve 1,725 km of regional and national roads."[40]

The World Bank makes a similar claim related to rural roads: "Since 2001, the Government and international partners, including the Bank, have been working on rehabilitation and reconstruction of transport infrastructure. The World Bank provided about US$165 million for an Emergency Transport Rehabilitation project, which rehabilitated about 4,000 km of rural roads."[41]

While there has clearly been substantial construction effort, **the key challenge in this sector is longer term sustainability, and this is where the majority of the pessimism emerges in sector assessments.** Many interviewees commented on roads that had been poorly constructed or rehabilitated, by a range of donors, and had deteriorated far more quickly than should be expected.

Roads that were resurfaced sometimes broke up again within five years or even shorter periods. This reflects a number of factors. Roads need to be built with a proper base and sub base and an adequate level of surfacing. However, when roads are built in a hurry, technical standards are often not adhered to. The military built some roads where the key priority was availability for short term operations not long-term durability. Contractors saved money by building to lower technical standards than planned. Supervision and construction were both hampered by insecurity.

A related problem is the weight of vehicles using the roads. Based on interviews for this report, heavy vehicles have been using roads designed to lighter load specifications, causing long term damage. This problem could be attributable to a number of causes:

- Under-design for the size of trucks likely to use the road as a result of lack of information or inadequate codes;
- Larger trucks now using the road than expected at the time of design, due to lack of controls;
- Poor quality construction not meeting the specification;
- Lack of adequate maintenance…

…or a combination of the above.

> "[The US] assessed the condition of 1,640 kilometers of U.S.-funded national and regional highways, or approximately 22 percent of all paved roads in Afghanistan … Most of these highways need repair and maintenance …
>
> Inspections of 20 road segments … found that 19 segments had road damage ranging from deep surface cracks to roads and bridges destroyed by weather or insurgents. Moreover, 17 segments were either poorly maintained or not maintained at all, resulting in road defects that limited drivability.
>
> MOPW officials acknowledged that roads in Afghanistan are in poor condition. In August 2015, an MOPW official stated that 20 percent of the roads were destroyed and the remaining 80 percent continue to deteriorate … USAID estimated that … 54 percent of Afghanistan's road infrastructure suffered from poor maintenance and required rehabilitation beyond simple repairs."
>
> *SIGAR, 2016, Afghanistan Roads Infrastructure: Sustainability challenges and lack of repairs put US Investments at Risk.*

Based on a decade of expertise in Afghanistan the US Corps of Engineers[42] has called for 'adjusted standards and procedures that take account of the terrain, local skills and local standards of design and construction'. This followed concerns that standard quality benchmarks might preclude that infrastructure is 'fit for purpose' in specific FCAS contexts. The authors call for establishing 'adaptable engineering

[40] ADB, 2017, Sector Assessment Summary – Road Transport
[41] World Bank, 2015, Trans Hindu Kush Connectivity Project
[42] Affleck, R & Reed, F. (2010) Challenges for Engineering Design, Construction and Maintenance of Infrastructure in Afghanistan) US Army Corps of Engineers.

design and construction standards with cultural and local consistency and acceptance'. This call resonates with findings from a 2012 DFID funded case study[43] that focused on Helmand (summary in Annex C), and interviews for this case study regarding differences between DFID and ADB approaches for a road design.

In some cases, projects were abandoned when half built and experienced damage before contractors returned to complete them. A recent World Bank appraisal[44] on a project to rehabilitate one of the most important roads in Afghanistan, across the Hindu Kush, made the point clearly: "During the past 15 years there have been several major repair and rehabilitation projects for the Salang road, tunnel and snow galleries. Under the World Bank funded Emergency Transport Rehabilitation Project about US$67 million were spent on the Salang pass between 2003 and 2005". The ICR for the project (prepared in 2008) found that "…the infrastructure rehabilitation part of the Project was completed successfully but there was a lack of progress in areas relevant to the project's long-term sustainability. Maintenance of the country's road network so far has been minimal. Continued financing is essential for the sustainability of the roads component. An example of the urgent need for maintenance is the Salang Tunnel. Rehabilitation of the tunnel has been completed, but due to snow and freezing temperatures in winter and a lack of maintenance in the drainage system, the road surface condition has severely deteriorated. Maintenance is urgently needed to protect the tunnel's operating condition." The ICR also stated that "…after this emergency phase of development, a next project, if any, should focus more on sector reform and capacity building, and on building up the sustainability of the sector's development."

Road maintenance

DFID advisers working in the roads sector recognised the lack of maintenance as a major issue. The led to the DFID funded Roads Rehabilitation and Maintenance Programme (RRMP), which ran from 2011 – 16. In addition to rehabilitation of Route 601 and Bolan Bridge, it included a £4.5m component providing technical assistance through UNOPS to the Ministry of Public Works (MPW) staff in Kabul, Helmand and Balkh. The programme faced a number of challenges – in particular lack of access due to insecurity. Despite this and delays with procurement it did undertake a roads condition survey in three provinces – as well as training of MPW staff. RRMP was set up in the expectation of a follow on ADB programme, which unfortunately has been delayed, demonstrating again the difficulties of coordinated sector approaches in Afghanistan.

There is also renewed interest in railway development. The Asian Development Bank (ADB) financed Hairatan to Mazar-e-Sharif rail link (75 km) was completed, the first new railway in Afghanistan in over 100 years.

Despite the progress, the ADB Transportation Masterplan[45] gives indicative overall investment requirements for the period 2017 – 36 as $25.9 billion (more than $1.25 bn/yr). With $13bn required for roads and $11bn for railways.

6.3 Institution building

Efforts to build effective local institutions have been undertaken in both power and roads. In power, DABS was created as a public sector organisation operating on commercial lines and has improved its performance over time.

Again, the roads sector seems to be lagging with new institutional structures now being planned. The latest ADB country strategy identifies a range of proposed developments: "ADB will help establish sustainable

[43] Scott, R. (2012). Supporting Infrastructure Development in FCAS – Afghanistan Case Study, Mott MacDonald/OPM for DFID
[44] World Bank, 2015, Trans Hindu Kush Connectivity Project
[45] ADB, 2017, Afghanistan Transport Sector Masterplan (2017 – 36)

road management practices—specifically in road asset management and road maintenance—and through classroom and on-the-job training build the technical capacity of the Ministry of Public Works to operate and maintain roads. ADB will support the establishment of an autonomous national road authority, a transportation institute, and a road fund, which is being led by the United States Agency for International Development. ADB support in establishing the road fund will improve the sustainability of the roads subsector, which has seen network expansion but received insufficient O&M funding. The road fund would be vital in the introduction of a road asset management system that would facilitate recurrent maintenance."[46]

6.4 Optimism Bias

Optimism bias is a subject that has been examined extensively in project appraisal in the UK. It is covered a number of times in HM Treasury's Green Book,[47] formally titled "Central Government Guidance on Appraisal and Evaluation." It defines optimism bias (paragraph 2.16) as "the proven tendency for appraisers to be too optimistic about key project parameters, including capital costs, operating costs, project duration and benefits delivery."

The focus of adjustments for optimism bias has focussed on techniques for adjusting cost estimates to reflect likely cost and time overruns and this has been applied in Afghanistan. However, there are other types of optimism bias. Extensive research[48] on the transport sector has established that optimism bias also applies to demand forecasts and in particular to demand forecasts in the rail sector.

It is clear that there has been another form of optimism bias in Afghanistan, which relates to the security situation. Development partners have invariably been over optimistic about the likelihood of improvements in the security situation, which have not transpired in practice. ADB classified Afghanistan as a post conflict situation and maintained this classification for many years in spite of the fact that calmer countries such as Nepal were regarded as conflict affected. Donor strategy documents from the period 2003-2005 in particular use the term 'post-conflict' even while detailed evidence submitted to home country government committees over this period continually cited the ongoing security challenges constraining aid delivery.

Further to the effects of security *on* development work, donors also believed they could help to *bring* security to Afghanistan through development efforts. Both the military and development partners were working on the premise that economic development was the key to long term reductions in insecurity and Taliban activity.[49] The power and roads sectors were regarded as major priorities to attract and enhance economic development.

In recent years there has been substantial questioning of the fundamental premise that economic development will automatically improve security, including conclusions drawn from the development effort in Afghanistan.[50] In the case of Afghanistan, substantial sums have been invested in development and the security environment has continued to be poor in spite of strong GDP growth and improvements in infrastructure and social development. In this environment, it is clear that some types of project worked better than others. Research suggests that small projects worked better than large ones. Iyengar et al. state: "smaller may be better … smaller projects can be targeted at important, specific gaps and seem less likely to fuel instability. Small projects have a variety of beneficial features: they are often easier to manage by staff on the ground; they are less likely than large infrastructure projects to attract attention from corrupt

[46] ADB, 2017, Country Partnership Strategy 2017 – 21, Achieving Inclusive Growth.
[47] HMT, 2018, Green Book – Central Government Guidance on Appraisal and Valuation. HMG
[48] Flyvbjerg, B. 2014. What you should know about mega-projects. Project Management Journal.
[49] See for example Fishstein & Wilder (2012) 'Winning Hearts and Minds? Examining the Relationship between Aid and Security in Afghanistan.' and a parallel paper by Gordon (2011) examining similar motivations relating specifically to UK involvement in Helmand province.
[50] Iyangar, R., Shapiro, N., and Hegarty, S., 2017. Lessons learned from Stabilisation Initiatives in Afghanistan: Systematic Review of Existing Research. RAND

officials or to become targets for enemy sabotage; and outputs are small and less likely to become a source of conflict."

The World Bank has reached a similar conclusion: "The Bank's Internal Evaluation Group (IEG) has carried out a large number of ex-post project assessments and has been able to extract as one of the fundamental lessons that the likelihood of a project's failure to achieve its development objectives increases proportionally with its complexity. This is especially true in fragile and conflict-affected countries such as Afghanistan, where the capacity of State institutions is limited and governance constraints exist."[51]

This conclusion was borne out by interviews. Many interviewees commented that the best results were often obtained through projects that offered benefits at community level. Such projects were likely to obtain acceptance from beneficiaries, regardless of their view of the government or its opponents. In environments of this sort, development partners need to evaluate the robustness of their plans against a range of security scenarios, *including those which do not foresee a reduction in conflict*.

6.5 Staff turnover and capacity

Operating in Afghanistan is difficult, and it is often impossible to visit project sites. This limits the effectiveness of staff. It also means that donors and contractors have to offer special incentives to staff to work in the country under restrictive security rules which prevent them from interacting with most normal Afghan citizens and place severe restrictions on social activity outside work. Even with additional incentives, this can still lead to lower quality staff in positions of higher responsibility than would be merited elsewhere.[52]

Some donors, including DFID, have encouraged staff to regard a tour of Afghanistan as a career enhancing option. This can attract qualified staff but this tends to be only in the short term. In practice, tours are short, few are willing to extend their inputs and many eventually transfer to positions in other regions. As a result, their experience is lost to Afghanistan. Compounding the turnover issue, there is also a built-in incentive for staff who are in country on short assignments to focus more on outputs and project delivery than on longer term strategic outcomes which only be seen years after they leave.

The quality, availability and continuity of staff affects both donors and the consultants and contractors which they and the government employ. At the most basic level, many firms are unwilling to consider Afghanistan as a market or to bid for work there. This limits the level of competition and hence detracts from quality standards. In the power sector, Indian firms have been the only bidders for many projects with inputs from time to time by firms in Pakistan and Iran. The position has been slightly better in the roads sector where some projects are suitable for local bidding but overall the picture is problematic.

Even when firms do win jobs, they often put forward their lower quality staff. Many high-quality staff have alternative career options both within and outside their firms and firms will not force them to work in Afghanistan.

The problems with donors and contractors are compounded by the lack of capacity of GoA and its institutions. While there have been improvements since 2002, capacity remains limited.

These problems are well known to donors and contractors and many have defied easy resolution. There are a few possible mitigation measures that may be worth considering, in particular for DFID and other donors. These include giving senior staff part time roles that cover Afghanistan but also allow time to be devoted to other more permissive parts of Asia. It is also possible to have senior technical specialists who

[51] World Bank, 2015, Trans Hindu Kush Connectivity Project Appraisal.
[52] This point has been noted mainly in interviews, as organisations tend to be wary of criticising their own or others' capacity in public reports. We do not intend to imply any specific criticism of particular companies or donor offices. There are many highly capable and committed individuals who have worked or are working in Afghanistan.

provide technical input to particular sectors over a long period working on a visiting basis rather than a full-time role in Kabul.

6.6 *Cross cutting issues – gender, social inclusion, climate and environment*

Climate change is considered in both the power and roads sectors as a real and current challenge in the design of infrastructure. However, the case study team found comparatively little reference to the issues of gender and social inclusion in relation to infrastructure development in Afghanistan among the analytical and strategic reports reviewed.

A significant and quite recent exception is the ARTF's evolving approach to gender, which is informed by the World Bank's global 2016-2023 Gender Strategy. This, along with a joint letter from donors to the ARTF in November 2017,[53] has driven an increasing focus of the ARTF on gender mainstreaming across its portfolio, overseen by the ARTF Gender Working Group (established in 2012). This includes analysis and monitoring (e.g. requiring a gender analysis to be in place in the early stages of each project; disaggregated results measurement) but also a requirement to translate these into action: designing and implementing activities that respond to issues identified in the gender analysis. The increasing visibility of gender in the ARTF is a positive change, and there are clear entry points in the infrastructure development process where gender issues can be addressed with concrete action, understood by the World Bank more broadly.[54] Whether this has yet had a clear impact on the way infrastructure projects are selected, planned and implemented within ARTF programmes will remain unclear without additional commissioned analysis.

However, the general impression remains that infrastructure tends to be seen as not particularly relevant to addressing gender gaps, and the lack of focus on this outside the ARTF is concerning. Afghanistan is one of the countries with the most serious and ingrained gender inequality issues globally.[55] Donor experience since 2001 trying to address these issues in Afghanistan has been mixed and there is a sense of caution against unwary application of what can be seen as externally imposed values. As the World Bank noted in its recent Country Diagnostic: "From a fragility perspective … gender is an extremely sensitive issue as possible backlash on gender issues could contribute to greater fragility or even a rolling back on gains made to-date."[56]

Tackling some of the deeply engrained and sensitive issues in relation to gender roles is clearly outside the direct scope of infrastructure projects. However, a lack of attention to the needs of both men and women in relation to infrastructure development and the services this delivers is a short-term strategy – and potentially ignores some real opportunities to reduce levels of exclusion and lack of opportunity.[57]

[53] Text included in Scanteam ARTF external review (2017) accessed at http://www.artf.af/images/uploads/ARTF_External_Review_Final_Report_2017.pdf
[54] World Bank. 2015. World Bank Group gender strategy (FY16-23) : gender equality, poverty reduction and inclusive growth. **See page 42**.
[55] Afghanistan is not ranked in the WEF's annual gender inequality index, due to unavailability of data, but neighbouring Pakistan which faces similar culturally ingrained inequality is ranked 143 of 144 countries.
[56] World Bank Country Diagnostic, 2016
[57] For practical guidance on planning and implementing infrastructure development with a positive impact on gender equality and wider social inclusion, see ICED's publications at http://icedfacility.org/?s=women, http://icedfacility.org/tag/inclusion/

7 Summary of Main Findings and Lessons from Case Study

This section of the report examines the results of the interview programme and literature review to identify lessons learned.

7.1 Adapting to the context

- An essential prior requirement for infrastructure development in FCAS is a good understanding of the political, social and cultural context. This requires the use of relevant tools of analysis – together with an understanding of the history of the context and infrastructure development.
- There is some evidence of funding agencies now having a better and more widely shared and accepted understanding of context; adopting a more consistent policy approach, with less frequent shifts in approach to meet changes in political priorities
- Some agencies are institutionally slower to adapt to conflict contexts (e.g. the ADB when managing the AITF, see page 13).
- Security continues to be major challenge for implementing infrastructure projects, and Afghanistan remains an extremely difficult operating environment.
- The general lack of capacity in government agencies at all levels is a significant constraint.
- Lack of institutional memory within funding agencies, and therefore contextual understanding, continues to be a significant issue
- Optimism bias persists – particularly in relation to security. Afghanistan was prematurely believed to be emerging from conflict with an overly positive trajectory assumed.

How militant groups respond to infrastructure projects

Understanding the possible responses of insurgents to proposed infrastructure is a critical part of understanding the context, not simply an issue of how much project security will cost. There are a number of examples and observations in this case study – particularly in relation to the power sector. Insurgents have sabotaged many of the power stations under construction in the country – and some post completion. Transmission lines, on the other hand, have been less of a target. This may be related to some distribution of electricity along the transmission line, even in areas controlled by insurgents.

Insurgent views in the roads sector are less clear, although they are clearly based on a calculation of risks and opportunities for insurgent group interests during construction and post completion. For example, as observed earlier in this report, the use of faster roads by security forces to control insurgents will be fully understood as a potential threat – and is likely to elicit a response that seeks to exert control.

7.2 Delivery and sustainability

- There is a mixed picture on delivery and sustainability. Some projects are still not well planned, designed or implemented.
- The additional costs of securing a construction site are significant – and could be an indicator of whether the planned infrastructure represents a deliverable asset in the local security context.
- Important to recognise that the likelihood of a project's failure to achieve its development objectives increases proportionally with its complexity.
- There is some evidence that small scale local projects are often the most suitable mechanism for supporting development in this environment. They require less coordination with other donors. They may also be workable in difficult security environments.
- Security has regularly and repeatedly delayed many projects – with some remaining unfinished
- The rate of spend is often a higher priority than the effectiveness of spending and delivery
- Costs continue to be underestimated, and most projects have cost and time overruns
- Corruption remains a widespread issue. This was fuelled by the very high levels of funding spent post 2001 – and is now very difficult to address.
- There are few international contractors willing to work in Afghanistan, due to the security situation, which affects quality and competitiveness of bids
- Bid processes tend to exclude local contractors
- Technical issues - significant problems with quality of road construction and lack of road maintenance:
    - Some resurfaced roads broke up within five years
    - Inappropriate technical standards to meet road loadings
    - Roads often built in a hurry and technical standards often flouted
- Revenue collection in the power sector provides a cash flow to cover operations, maintenance and repair costs. This provides the resources and incentives to maintain the system.
- The roads sector suffers from lack of operations and maintenance funding, which has resulted in deterioration of the infrastructure asset base – in some cases quite rapidly.

7.3 Impact

- Most investment was predicated by a belief that development would lead to improved security and infrastructure investment was an important component of delivering development.
- Those interviewed for this case study were not able to provide any evidence to support the hypothesis that Afghanistan now enjoys enhanced peace and security as a result.
- Many projects overpromise and underdeliver – both large and small

- *However, there has also been positive progress:*

- The achievements in both the power and roads sectors over the past fifteen years are real and substantial.

- The heavy-duty investment in power has shifted from local generation capacity to transmission links to Central Asia, which is proving to be a successful strategy.

- The investments in power, particularly in the transmission grid, appear to have been implemented to higher quality standards than road investments.

- There has been substantial institution building in both sectors but there still scope for significant further progress.

7.4 Donor modalities

- When development partners became involved in Afghanistan in 2002 there was something of an unmanageable free for all. There is now better co-ordination between donors.

- Overall, trust funds have been useful in improving co-ordination amongst funding agencies, aligning with government priorities and reducing the administrative burden.

- The pooling of funding has also made it possible to finance larger infrastructure investments than would have been possible through bilateral arrangements.

- It is also important to recognise the challenges of multi-donor trust funds – particularly in relation to initial expectations of disbursement profile and what is realistic and achievable in an operational environment such as Afghanistan.

- Funding/development agencies need to be clear on ownership of the strategy they may have supported and the infrastructure they have funded – and have a willingness to hand over.

- Do not rush to change procurement rules with which civil servants are familiar – adopt a 'good enough' approach. And do not seek to cut corners with project preparation, or procurement processes, in the hope of expediting implementation and spend.

- Third party monitoring has been shown to be effective, however the risks remain to individuals and reporting is not always reliable.

7.5 Role of other actors

- It is important to see the challenges of operating in Afghanistan as intrinsically linked with the interests of neighbouring countries and regional complexities of Central and South Asia.

- Be aware of particular issues in the border areas – related both to being at the geographical periphery, as well as the implications of cross-border alignments or hostilities.

- Regional players such as Pakistan, India and Central Asian countries, as well Saudi Arabia, UAE and Iran are active in Afghanistan and have all provided funding for infrastructure in Afghanistan.

- Contractors from the region are also active – with Chinese and Indian contractors are implementing a number of infrastructure projects – sometimes as the only contractors qualified and willing to bid.

- The only involvement of the private sector is the implementation of construction projects under contract

- There are currently no significant examples of any 'public private partnership (PPP)' arrangements to deliver services – given levels of risk with the operating environment in Afghanistan. This is consistent with the downward trend of foreign investment into the country.

7.6 Literature Review and additional material

The earlier literature review, which forms part of this overall research assignment, identified some research and other documents that focused on Afghanistan. A summary of the findings is included at Annex C, together with some additional material identified in the course of this case study. The ADB undertook an extensive evaluation of the AITF in 2016 and this also included a set of recommendations, which are summarised in Annex B. These have all informed this case study. However, they are included as additional reference materials to inform future decisions on approached to infrastructure development in Afghanistan in particular, and fragile and conflict affected states in general.

Annex A - List of Consultees

Name	Affiliation	Afghanistan Role
Ifthikhar Ahmad	DFID – Infrastructure Advisor	Based in Kabul 2015 – 16 (previously Pakistan)
Hanif Ayubi	ADB	Based in Kabul - Agriculture and natural resources specialist
Areg Barseghnan	ADB	Currently based in Kabul – resident advisor on the power sector
Andy Budiman	ADB	Currently based in Kabul – AITF roads and power sector
Mark Harvey	DFID – HoP Infrastructure	Based in Helmand for 18 months from January 2009
Bill Kilby	DFID – Head of Asia Regional Team	Deputy Head of DFID Afghanistan from 2016-17
Alastair McKechnie	Current ODI – previously with World Bank	WB Country Director Afghanistan (2003 – 08)
Tim McNeil	DFID	Based in Kabul – Economic Growth Team Leader
Morgan Riley	DFID	Based in Kabul until end 2017
Geoff Robinson	Consultant with SMEC	Power sector specialist working for ADB and World Bank Afghanistan
Patrick Safran	Ex ADB now Professor in South Korea – working on green growth and climate change	Was ADB lead based in Manila on infrastructure development in fragile states
Robert Schenk	Consultant working for ADB	Worked from 2006 on power sector in Afghanistan
Nana Soetantri	ADB	Based in Kabul working in transport sector
Emma Wright	DFID – Programme Manager	Based in Kabul 6 months to April 2018

Annex B - Summary of findings from the AITF Impact Assessment, 2011-16

Principle	Explanation of Principle	Assessment of AITF's performance
1. Take context as starting point	Country strategies and programs (CSPs) are based on in-depth analysis of the country context	Unsuccessful. CPS underestimates challenges (esp., lack of capacity, civil war) and assumes that the Afghan population, which is the ultimate beneficiary of AITF activities, shares donor priorities, particularly political commitment to democracy and social reform. This latter assumption is doubtful given the protracted nature of the conflict and regional support for insurgent groups.
3. State-building is central objective	ADB emphasizes good governance and strengthening institutions. Policy reform as prerequisite for effective aid	Partially successful. Technical assistance has been provided for Inter-Ministerial Commission for Energy, Gas Master Plan, Support for Infrastructure Investment and Policy (SIIP2), and Improving Capacity and Integrity of Procurement. It is doubtful however that gains from all this training are permanent. High turnover has been experienced by all of the Afghan ministries and parastatal agencies.
4. Align with local priorities	ADB helps stakeholders to articulate their concerns and needs.	Very successful. Focus on power, transport and water sectors is crucial to Afghanistan's development.
5. Recognize the political-security- development nexus	ADB's "whole of institution" approach involves relevant departments/offices to jointly support operations in WPCs	Partially successful. Although AITF is not immediately responsible for project design, project design is frequently over-ambitious. Unrealistic budgets and timelines require amendment

Principle	Explanation of Principle	Assessment of AITF's performance
		given security challenges in Afghanistan.
6. Promote coherence between government agencies	ADB recognizes the validity of the whole of government approach and seeks to engage with a broad range of agencies and other institutions	Successful. Technical assistance to the Inter-Ministerial Commission for Energy is perhaps the best example at the national level. Similar efforts are being made at the local level as part of the Northern Flood-damaged Infrastructure Rehabilitation Project. However, in the main, AITF works with a single government agency per project. (It is the project officer who decides which agency to engage.) It has also been suggested that ADB or AITF could engage with the 'shadow' government in 'contested' districts on a 'non-interference basis.' This is a judgment call the author leaves to ADB.
7. Coordinate with international actors	ADB's approach is firmly grounded in strategic partnerships	Successful. The AITF manager is in regular contact with bilateral aid agencies and other donors such as the World Bank. However, additional work is needed to manage expectations. No project should have a timeline of less than 5 years. AITF coordinates its activities with donors at project approval and during implementation through quarterly reporting.
8. Do no harm	ADB takes into account potential risks in all its project designs	Unsuccessful. Risk assessments routinely underestimate the scope for delay and cost overruns. Risks are grouped in two classes, namely, "lack of security" and "lack of capacity." Public documentation rarely if ever describes the circumstances that led to postponements or budget shortfalls. Lessons

Principle	Explanation of Principle	Assessment of AITF's performance
		learned are not incorporated into subsequent projects. AITF has commissioned another consultant to introduce 'conflict sensitivity' into project design by adapting the PBT to Afghan circumstances.
9. Mix and sequence aid instruments	ADB is committed to a sequential approach, considering absorptive capacity and appropriate sequencing	Partially successful. As delays have mounted, AITF project mix has shifted from capital spending on 'hard' infrastructure to technical assistance with a view to removing bottlenecks.
10. Act fast…	ADB interventions when early warning signs of fragility appear	Unsuccessful. With few exceptions, disbursements have fallen short of expectations, resulting in tension with certain of AITF's donors.
11. … Stay engaged long enough to give success a chance	ADB engages with its DMCs on a long-term basis as long as the government requests such support	Successful. ADB entered Afghanistan in 2002 and has remained there ever since. However, the appropriateness of the timing remains in doubt. In contrast to humanitarian assistance in conflicts, reconstruction assistance flows only after the fighting is over.
12. Avoid creating pockets of exclusion	ADB does not move in and out of countries. ADB's investment decisions are not driven by political considerations	Partially successful. ADB remains active in Afghanistan and projects are driven by infrastructure needs. However, pockets of exclusion remain since ADB and AITF operations are not targeted according to geographic equity principles.

Annex C Summary of Afghanistan Related Research

The following are extracts, specific to Afghanistan, from the literature review completed as an earlier output from this assignment, and some additional texts identified as part of this case study. Authors' views have in come cases been interpreted through summarising. Text is partly extracted from the text of original papers.

Gordon, S. (2011). Winning Hearts and Minds? Examining the Relationship between Aid and Security in Afghanistan's Helmand Province. Feinstein International Centre.	• This highlights the challenges of using aid, including Quick Impact Projects (QIPs) as an instrument of security policy. • It concludes that the UK's ability to project a sense of security and development was insufficient to match the Taliban threat in 2006, and subsequent to that to only control limited territory around key district centres. The Taliban, on the other hand, were highly effective at exploiting the dissatisfaction of marginalised groups and controversies around, for example, the poppy eradication programme. • This suggests that the stabilisation model adopted focused on the wrong drivers of the conflict. • The initial 'ink spot' model was not effective. • The UK approach of community identified development of small scale infrastructure projects did not meet expectations of benefits. • The British experience in Helmand highlights a creditable capacity to adapt the strategy to the prevailing situation and unforeseen tactical challenges. • It highlights the severe information gaps in operating within complex conflict environments. • It concludes that the complexities of perceptions of 'stability' and government legitimacy can be derailed where security and controls on development processes are insufficient. • In such situations 'aid' may have as many negative, unintended effects as positive ones. • The evidence also found that aid flows to Afghanistan have inadvertently helped to fuel corruption; large amounts of money have reportedly been spent so quickly as to prevent adequate anti-corruption, transparency and accountability controls and safeguards.
Iyengar, R et al. (2017). Lessons Learned from Stabilisation Initiatives in Afghanistan. RAND.	• A systematic review of 89 projects in Afghanistan • This highlights concerns that despite the amount of research and evidence, and the lessons learnt, which it found were largely ignored in the theatre of a new fragile and conflicted affected context. • The research team concluded: *'It is unsurprising that programmes did not accomplish the desired outcomes: few were designed, implemented or modified to take into account existing recommendations that may have improved their chances of success. It*

	is precisely for these reasons that stabilisation efforts should focus on not simply implementing projects, but also ensuring a mechanism for effectively integrating evidence-based recommendations and, when appropriate, modifying policy and strategy.'

Jones, S. and Howarth, S. (2012). Supporting Infrastructure Development in Fragile and Conflict Affected States: Learning from Experience. OPM, Mott MacDonald.	• Commissioned by DFID, The Afghanistan case study focused on projects in Helmand implemented under a stabilization programin, the context of the Taliban insurgency. These were:
	  ○ Gereshk Electricity Services Improvement Project (GESIP);
	  ○ Lashkar Gah to Gereshk Road Project;
	  ○ Roads in Central Helmand Programme;
	  ○ Helmand Growth Programme: Canals and Irrigation.
	• The researchers questioned DFID's theory of change and found that the DFID log frames were inaccurate and not regularly reviewed.
	  ○ Shifts in political focus resulted in changing requirements.
	  ○ In 2008/09 the priority was developing and delivery of large scale infrastructure projects to demonstrate political will.
	  ○ In 2010, with US troop deployment, this shifted to showing quick results on the ground, with lots of largely uncoordinated small scale infrastructure projects.
	  ○ In late 2011, following the announcement to withdraw troops (UK) by 2014, the focus dramatically shifted to operation and maintenance and training and capacity building of line ministries.
	• These changing objectives were detrimental to delivery on the ground.
	• However, the from relatively uncoordinated short-term small projects to a coherent programme with long-term objectives was considered positive.
	• They concluded that value for money was very difficult to assess in the context of Helmand, where security costs are so high and arrangements uncertain.
	• They also identified several possible negative impacts: particularly as a target for insurgents and becomes a symbol of anti-western sentiment; and too much security around infrastructure causing resentment, particularly where perceived as displacing possible local (low skill) employment.
	• They highlighted issues around selection processes for contractors. Better vetting of contractors

	would help in the delivery of quality products – highlighting the preference to contract to "English speaking" contractors leaving others (who speak no English) at a disadvantage. In their view those who speak no English have the needed experience of construction. **Lessons:** 1. **Develop a strategy, popularise it, build Afghan ownership, get buy-in and implement it.** Lack of a strategy leads to ad hoc piecemeal interventions. Align the strategy with higher-level national strategies, and preferably develop in conjunction with the host government. 2. **Support the strategy with simple, programmatic financing and robust management procedures.** DFID/ADB Lashkar Gah road should have resulted in financing and political benefits gained through working with the ADB - this was not achieved in practice. The approach adopted standards which were too onerous for the context and led to excessive time delays and costs. 3. **Support implementation of the strategy through capacity building and long-term specialist support – "Afghanisation".** It is normal development practice for partner governments to be in the lead, but this was not the initial focus in Helmand. 4. **Be clear on ownership of the strategy and the infrastructure**. A particular problem in fragile states is that many donors, especially non-conventional donors, are reluctant to let go and handover responsibility to host governments. 5. **Manage expectations.** Communities often assume projects will be more comprehensive and far-reaching than is realistic. The risk is a loss of good relations and trust with communities. Good communications with communities and other stakeholders is essential.
McKechnie, A. (2011) Post-war programme implementation and procurement: Some lessons from the experience of Afghanistan. ODI.	• **Donor-delivered construction projects had a reputation for high cost and low quality** and maintenance standards, largely **attributable to the haste of quick-impact projects – QIPs**. This fuelled discontent among the Afghan population, who believed it indicated widespread corruption. In fact, this was not usually the case but Afghans and donors have different conceptions of corruption. This helped to fuel a resurgence in the conflict from 2005-6 onwards. • **Preparations for larger, slower infrastructure projects should start immediately**, even while quicker reconstruction tasks are being planned and implemented. • **Organisational alignment** within donors helps to direct adequate resources and overcome internal hurdles

	• **Work with national capacity and systems that already exist**, rather than damaging this by setting up parallel systems. • **Use of community-based approaches can be more effective than working through local government**, where resources and capacity exist (including technical/financial O&M capability) and local government is weak. • **Do not rush into changing procurement laws and regulations**, as it is preferable to find ways of making the existing systems – with which civil servants are most familiar – work with donor funding in the short and medium term. • **Take time to consider the most appropriate level of fragmentation for procuring large projects**. It can be more effective to split large projects into multiple small projects, which are better suited to the local commercial environment and can be used to manage delivery risks. The capacity of procurement bodies should be factored into these decisions. • **Sustainability was a key failure of wider donor programming in Afghanistan**. The World Bank sought to use government systems. However, other donors created large parallel delivery structures (through which around 2/3 of all aid was channelled) which undermined the authority and capacity of GoA and led to the development of infrastructure that was impossible to maintain after the end of the donor projects which created it. • **The security sector was one of the major implementers of short term projects which had questionable long-term impact**.
MoD. (2016). Shaping a Stable World: The Military Contribution. HMG	• Stabilisation operations may inadvertently exacerbate corruption levels through unintended support for malign local actors • This can fuel the growth of criminal or terrorist networks. • Injecting significant resources into the operational environment (for example, through contracts or military assistance projects), combined with a lack of effective monitoring, can result in wasting scarce resources if project implementation is not verified. • In Afghanistan, a lack of accountability within some military supply chains led to the armed forces' resources being redirected to the insurgents, and directly strengthening those opposing the NATO International Security Assistance Force forces.
Zyck, S.A. (2012). Corruption & Anti-	• Corruption in Afghanistan is a key challenge for governance and rule of law and an obstacle for sustainable, private sector led economic growth.

Corruption Issues in Afghanistan. Civil Military Fusion Centre.	• Despite several commitments to address corruption (including the establishment of an anti-corruption body: the HOOAC), the problem remains widespread. • Consistent with global research findings, the main reported cases of corruption in Afghanistan's infrastructure sector are related to irregular practices during procurement processes. • It cites a Washington Post report, from the US government's Commission on Wartime Contracting, which estimates that between USD 30 – 60 bn in American funding was been wasted due to fraud, corruption and weak reporting and accountability mechanisms in Iraq and Afghanistan. The same article notes that corruption not only involved Afghan officials and private companies, but also foreign personnel within Afghanistan. • Highlights the Gardez to Khost road, in Afghanistan, where the project was jeopardized by insurgent attacks. As a result, the construction company sub-contracted security to a local powerbroker known to have strong connections with the local insurgent group, the Haqqani network. The cost of this informal protection is estimated at around USD 1 million per year, with evidence that part of this money directly benefitted insurgents.

Literature reviewed subsequent to the the summary issued in March 2018

Ball, N. et al., (2016) Development Cooperation in Afghanistan, Lessons Identified 2001 – 14, Landell Mills for DANIDA	**Approaches to Monitoring in Insecure Environments** • Deteriorating security from 2005 meant that donors were less able to visit projects. • A Management Review of the National Area Based Development Programme (NABDP) noted that 'implementing agents and programme officers were quick to point out that effective M&E was not possible in the insecure provinces,' stating that 'the Taliban will kill us if they find us with a camera or a GPS'. • However, some suggested that the inability to monitor was also a disingenuous excuse for utilising project funds without the controls of being monitored. And the review went on to question why any serious investments should be made in priority infrastructure in any area where there is a claim that normal monitoring and reporting tools cannot be used. • Third-party monitoring was adopted by some implementers (including ARTF). This was preceded by a long period during which accountability for expenditure and results was low. • Even when external monitors were contracted they faced the same challenges of insecurity and some of the same risks that reports may not be credible. • Donors have subsequently learned that even third-party monitors also need to be closely monitored. Some programmes have demonstrated that innovative and reliable methods of distance monitoring are feasible. • National Solidarity Programme's community monitoring in high risk areas is a prime example of this. However, the mechanisms employed are very costly and labour intensive and not likely to be widely replicated.
Bizhan (2017) Building Legitimacy and State Capacity in in Protracted Fragility – the Case of Afghanistan. International Growth Centre.	**Main conclusions:** • **Too little investment in the first years after war.** Donors provided little aid for reconstruction and recovery and invested little in building public administration and the security sector in the first years following the fall of the Taliban. In the two years following international intervention, Afghanistan received 5 to 10 times less per capita in aid, in comparison to Bosnia and East Timor.

	• **Overconcentration on short-term objectives.** The war on terror dominated the US and its allies' engagement in Afghanistan. This type of engagement and the subsequent state building strategies did not foster effective state building in the long run. Defeating Al Qaeda, and keeping the Taliban at bay, diverted much of the political attention and financial resources away from building the economy and state institutions. A lack of balance between short and long-term objectives had adverse affects on building state legitimacy and effectiveness as well as the economy. • **An extreme neglect of external adversaries.** A major caveat in the state building process and international support for Afghanistan was the neglect of external adversaries. The support from Pakistan's state in the form of safe havens, impunity, and logistics enabled the Taliban and Haqqani Network to reorganise and fight against the GoA and international troops. • **Ineffective aid modality and aid fragmentation.** Donors and the international institutions in Afghanistan adopted different aid modalities. This unintentionally undermined the development of permanent state institutions, private sector, and in some cases state legitimacy. • **Neglecting the legitimacy of state institutions.** Too much attention was paid to personalised politics and personal legitimacy. • **Underestimating the role of local public institutions.**
Jessica McDiarmid, (2013), Costs of Security on Infrastructure Projects in Afghanistan,	This study reported that Canada spent US$10 million for security measures for an Afghan dam project, which amounts to 20% of the total construction cost. It highlights that "paying for security is a necessity of doing development work in conflict countries…(but) use of private security contractors ate through development funds and undermined the Afghan government's authority, because at times they operated outside Afghan law". And that "paying for security is a necessity of doing development work in conflict countries…(but) use of private security contractors ate through development funds and undermined the Afghan government's authority, because at times they operated outside Afghan law". It also refers to a USAID audit that estimates security costs ranging from 0.5 to 34% of overall project costs with an average of 8.3%.

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Case Studies: Delivering Inclusive Growth Through Infrastructure Programming in FCAS

Somalia - Building infrastructure in a ‘failed state’

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Contents

Acronyms

Acronym	Definition
ADB	Asia Development Bank
ADF	African Development Fund
AfDB	African Development Bank
AMISOM	African Union Mission in Somalia
AS	Al Shabaab
B2B	Business to Business
BEC	Berbera Electricity Company
CPA	Country-Programmable Aid
DAI	Development Alternatives International
DDR	Disarmament Demobilisation and Reintegration
DFID	UK Department for International Development
EC	European Commission
EDF	European Development Fund
ESP	Energy Services Provider
ESRES	Energy Security and Resource Efficiency in Somaliland (Programme)
EU	European Union
FAO	UN Food and Agriculture Organisation
FCAS	Fragile and Conflict Affected State/Situation
FDI	Foreign Direct Investment
FGS	Federal Government of Somalia
FMS	Federal Member States
GBP	Pounds Sterling
GDP	Gross Domestic Product
GEEL	Growth, Enterprise, Employment & Livelihoods (Project)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Development)
HSDG	High Speed Diesel Generator
ICED	Infrastructure and Cities for Economic Development
ICT	Information and Communications Technology
IDPs	Internally Displaced People
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFI	International Financial Institution
IGAD	Intergovernmental Authority on Development
ILO	International Labor Organization

Acronym	Definition
IoM	International Organization for Migration
IsDB	Islamic Development Bank
JSP	Jubba Sugar Project
KfW	Originally 'Kreditanstalt für Wiederaufbau' – German development bank now known solely by acronym.
LAMPS	Learning and Monitoring Programme, Somalia
LC	Line of credit
LPG	Liquified Petroleum Gas
MDAs	Ministries, Departments, Agencies
MoD	UK Ministry of Defence
MoPIED	Federal (Somali) Ministry of Planning, Investment and Economic Development
MoPND	Somaliland Ministry of Planning and National Development
MoPWRH	Federal (Somali) Ministry of Public Works, Reconstruction and Housing
MW	Megawatt
NDP	National Development Plan
NESHA	North East Somalia Highway Authority
NGO	Non-Governmental Organisation
NIS Foundation	Nordic International Support Foundation
ODA	Overseas Development Assistance
ODI	Overseas Development Institute
OECD	Organisation for Economic Cooperation and Development
OPM	Somalia Office of the Prime Minister
PIMS	Promoting Inclusive Markets in Somalia (Programme)
PREMIS	Public Resource Management in Somalia (Programme)
PSAWEN	Puntland State Agency for Water Energy and Natural Resources
PV	Photo-voltaic
SAPS	Support to Agriculture Programmes in Somalia
SDF	Somaliland Development Fund
SDRF	Somalia Development and Reconstruction Facility
SEAP	Somalia Energy Access Project
SEEA	Somaliland Electrical Energy Act
SIF	Somalia Infrastructure Fund
SNA	Somali National Army
SOAS	School of Oriental and African Studies
SSF	Somalia Stability Fund
SUIPP	Somali Urban Investment Planning Project
SWALIM	Somalia Water and Land Information Management
TA	Technical Assistance
TIKA	Turkish development agency

Acronym	Definition
TIS	Transition Initiatives for Stabilization
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNCLS	UN Convention on the Law of the Sea
UNDP	UN Development Program
UNOPS	UN Office for Project Services
US	United States
USA	United States of America
USAID	US Agency for International Development
USD	US Dollars
WB	World Bank
WHO	World Health Organization

1 Executive Summary

Background

Somalia has suffered a marked decline since independence in 1960 as a result of three decades of civil war. Neglect of maintenance and lack of rehabilitation has resulted in the almost total destruction and loss of its historic infrastructure base. Roads networks, electricity supply and infrastructure for irrigation have all been decimated over recent decades. Although some gains have been made, conflict and instability still dominate the country and the remit of central and state governments extends only to a few main cities, their immediate surrounding areas and some road corridors.

Although once served by an extensive roads network, over 90% of this is now reduced to tracks through the bush. Air transport is often the only viable means of travel between locations because of long sections being under the control of militia.[1]

At the end of the 1980s, following the destruction of power sector infrastructure operated by the national energy corporation, small family companies emerged to supply power at low voltage in their immediate vicinity. Although they have been expanded and consolidated over the years, these local, family funded, systems continue to be the sole provider, with wires distributing electricity directly from generators to the homes or businesses of the customers. The current high prices keep the poor at the margins of electricity supply.

Irrigation, with water from the Juba and Shabelle rivers, once played an important role in the agricultural economy of a large area of southern Somalia, which was considered the country's bread basket. A number of irrigation projects were developed following independence. However, most of the systems are now inoperable because of siltation and inoperable control structures, due to lack of maintenance of the canal systems.

Development Assistance and Other Funding

The London Conference in 2012, attended by Somalis and the development community, was instrumental in achieving a more co-ordinated approach to funding support, based on the Busan Partnership for Effective Development. The Somalia New Deal Arrangement (succeeded in 2017 by the New Partnership for Somalia) emerged from the process – together with a funding framework the Somalia Development and Reconstruction Facility (SDRF). It also resulted in the Somaliland Special Agreement.[2]

The Somalia Infrastructure Fund (SIF) is the principal instrument for major infrastructure funding under the SDRF. The SDRF also includes World Bank and UN Multi-Partner Trust Funds that cover some infrastructure funding. The capitalising and operationalising of the SIF have been slow, which appears to reflect contextual and institutional challenges similar to those experienced by the Asian Development Bank in establishing the Afghanistan Infrastructure Trust Fund (AITF).[3]

Official development assistance (ODA) for Somalia was at a record high in 2017 according to the annual Federal Government of Somalia (FGS) report on aid flows. This was mainly due to the 80% increase in 2016 in humanitarian funding, to over $1bn, in response to the drought, with a more modest increase of 6% for development funding. With an ODA to GDP ratio of 26% this highlights Somalia's continuing aid dependency. On a per capita basis, Somalia received similar flows of aid as Afghanistan.

Official remittances from the diaspora are substantial, and estimated at about $1.4 billion a year, equivalent to about 23% of Somalia's GDP. They estimate that about 3.4 million people—roughly 40% of the population—depend on remittances for their daily needs, and about 80% of all new business ventures are funded by remittances. This includes funding of electricity supply companies. The diaspora has also contributed substantial funds for roads rehabilitation.

[1] AfDB, 2016, Transport Needs Assessment and Infrastructure Plan

[2] Also known as Somaliland Special Arrangement, this agreement between donors and the Federal Government of Somalia (FGS) enabled donors to channel aid directly to Somaliland. It had a limited duration and FGS objected to its extension in June 2018.

[3] Some detail on these challenges is provided in section 3.4.4.

Infrastructure Development

Somalia is a challenging operating environment, with multiple contexts and varying shades of complexity across the states. There are few major high-profile infrastructure investments. There are significant levels of infrastructure investment as components of larger multi-donor humanitarian and stabilisation/development funding mechanisms/instruments.

Total funding to infrastructure in 2017 was $50.9m. Although an increase over the 2016 allocation ($39.1m), it represents a very small amount in relation to the infrastructure deficit, and just 20% of the levels needed for priority projects in the National Development Plan.

Somaliland has seen an increase in infrastructure investment over the last 5 years, as a result of the substantially higher level of stability compared to elsewhere in Somalia. There have been some impressive achievements in roads and solar energy that have demonstrated that infrastructure development at reasonable scale is possible.

This contrasts with donor funding for infrastructure in the other states, which has been far more limited, with Jubbaland, South West and Hirshabelle being particularly hazardous states in which to operate.

In transportation, the lack of security in key areas of Somalia has led to funding agencies being cautious about funding roads generally, and particularly in areas at risk from Al Shabaab and clan militia. The existence of extensive roadblocks is heavily constraining trade and commerce throughout Somalia as well as much needed humanitarian assistance. This is symptomatic of the current security situation: the government and its military partners are unable to ensure free movement throughout the country. There has, however, been some progress with national airports and local airstrips, and a few major sea ports.

In the electrical power sector, the highly innovative approach of private sector providers has created a unique environment. The sector has grown largely without governance or regulation and private companies are now in a very strong position. This is arguably a barrier to public sector engagement and traditional donor activity in the sector, albeit some donors including the UK have been able to engage with the private sector. The structure of the market and the political economy and conflict dynamics of Somalia mean there is limited scope for high value investments such as large power plants. There are, however, proposals for local transmission ring grids in some cities.

Progress with use of water for productive purposes has been limited. However, in water resources management some limited progress has been possible with the rehabilitation of canal networks for production of cash crops. This has been despite the extremely challenging operating environment in South-West Somalia, including the proximity of Al Shabaab to the project areas, as well as disputed land titles and vested interests of large farmers. Implementers have developed an approach based on operating at the local level and gaining the trust of the community and its leaders. This has led to the community making a stand against the large landowners and Al Shabaab, to allow the rehabilitation work to proceed – albeit at relatively small scale.[4]

Findings

Strong contextual analysis, including the use of standard tools such as conflict analysis and early community engagement and participatory planning, is clearly essential for developing infrastructure in highly fragile contexts like Somalia.

Poor contextual understanding and community engagement has resulted in the failure or partial failure of many local level infrastructure projects in Somalia, with the lack of access to project sites for security reasons a strong contributor to misunderstandings and mistrust leading to these issues. In highly insecure environments with access issues, more resource will need to be dedicated to context analysis and community engagement, and this should be expected to take more time. **Development implementers and donors in Somalia have developed considerable experience in remote management, applicable to other contexts**.

From successes and failures in Somalia, there are clear advantages in infrastructure sectors which involve assets that are less likely to be targeted (e.g. communications), are distributed and not dependent on vulnerable bottlenecks (e.g. small-scale electricity generation) or have the potential for strong community ownership (e.g. irrigation infrastructure). By contrast, roads and inter-city electricity

[4] See section 4.3, page 44, for discussion of some of these political economy challenges based on interviews with project implementers.

transmission are very high risk in an environment like Somalia, with inter-city roads in particular providing attack opportunities and revenue potential for non-state armed groups.

There are strong arguments for building infrastructure that is simply designed and within local capabilities to maintain, both within FCAS and any developing environment but **there is evidently a danger that designers and implementers understand 'simple' to mean lower standards of planning and design.** This attitude has been responsible for the rapid failure of some infrastructure assets in Somalia.

Donors need to have the technical capacity to oversee infrastructure projects to ensure appropriate project management and engineering, particularly in a context where little major infrastructure is planned and institutional expertise is balanced toward humanitarian or stabilisation programming. **Some programmes in Somalia delivering infrastructure are implemented by organisations without specific infrastructure expertise**, which can lead to gaps in planning and implementation.

The positioning of many donor staff outside Somalia in Nairobi due to the poor security environment has been useful, but also leads to challenges. It has resulted in longer deployments than are typical in FCAS contexts, which has aided the strategic approach of the donor community in recent years. However, it has isolated donors from the ground level in Somalia, requiring more trust in implementers and third-party monitors. In circumstances where the living environment in the beneficiary country is severely detrimental to long postings, a combination of options – potentially involving both in-country and regional offices – can provide the continuity of experience required for more strategic approaches to development in FCAS.

Somalia donors have exhibited a patient approach which has incrementally built up development programming over time as the security situation has improved and has involved dedicated and sustained support to political and governance institutions and the decentralisation process. The caution in relation to infrastructure development has been appropriate to the context and has avoided causing harm familiar from other FCAS contexts where pressure to spend has resulted in wasted effort and failed projects. **However, donor efforts in infrastructure up to the recent past seem to be broadly failing in terms of sustainability, which will only come with more concerted and coordinated efforts to improve infrastructure governance and local technical authorities.**

Full findings are outlined at the end of this report, in section 5.

2 Introduction and methodology

This Somalia case study forms part of an ICED research project for DFID's Growth and Resilience Department to investigate infrastructure programming in Fragile and Conflict Affected States, comprising case studies examining lessons learned from donor experiences in these contexts. This addresses a recommendation from the 2015 ICAI report 'Assessing Impact of the Scale-up of DFID's support to Fragile States', to provide guidance on targeted infrastructure components to ensure sustainable impacts in fragile states programming. It also responds a recommendation from a 2017 ICAI review, which recommends that (UK) '*Departments operating in Somalia, should adopt a more systematic approach to the collection and dissemination of learning of what works in addressing conflict and fragility, particularly for programmes that are intended to be experimental or adaptive in nature'.*[5]

The research team carried out a literature review of mainly recent research (post 2011), prior to beginning the case studies, leading to an annotated bibliography which collates some early findings and identifies knowledge gaps to address in the case study phase of work. Two case studies will focus on country assessments – Somalia and Afghanistan. A third sectoral study will look for lessons from urban water supply and sanitation programmes in FCAS.

The objective of the overall assignment is to make practical recommendations on approaches to infrastructure development in FCAS. The primary audience is DFID advisers and programme managers; however, the findings are also expected to be of interest to other donors and sector stakeholders.

Specific issues derived from the broader literature review which were considered as part of this case study:

1. **Understanding the context** – to what extent was this adequately considered in the planning and design, and was the changing nature of the context recognised and monitored in order to adapt/modify approaches to a changing context?
2. **Delivery of infrastructure** – were basic good practice and principles applied throughout the project cycle – or were these overridden by other political imperatives or for other reasons? Is the infrastructure that was built sustainable? Are viable arrangements in place for operations and maintenance? How will costs be covered?
3. **Impact of infrastructure** – were the services delivered and outcomes from the completed infrastructure consistent with the theory of change/intervention logic; and were there unexpected positive and negative consequences?
4. **Donor modalities, instruments and approaches** – how did these influence the success or failure of the infrastructure project?
5. **What was the role of other actors** – private sector, non-traditional donors - how was this affected by/did this impact on the operating environment?

Approach

The research was qualitative, involving some additional desk review of academic and grey literature and project reports and interviews with key staff, implementing agencies and others with knowledge and understanding of the issues. The research team also drew from information gathered during a separate ICED assignment to develop an infrastructure scoping strategy for DFID Somalia, which included a visit to Somaliland. A short visit to Nairobi for some further meetings with key informants followed in March 2019.

Focus of Study

The sectoral focus is on the power, roads and water sectors, covering experience from Somalia and Somaliland.[6]

Readers already familiar with the Somalia context with regards to its history, infrastructure priorities and donor engagement may want to go to Section 4 - Case Study Findings.

[5] ICAI, 2017, Review: Reducing Conflict and Fragility in Somalia

[6] For the purposes of lessons learning Somalia has several quite different internal contexts, with the largest distinction being between the context for infrastructure programming in Somaliland compared to the rest of the country.

3 Background Somalia

3.1 *History*

As a result of its strategic location and extensive coastline, Somalia was historically an important centre of commerce. During the colonial era there were five Somali regions: Italian Somaliland (most of today's Somalia), British Somaliland (today's Somaliland),[7] French Somaliland (today's Djibouti) and Somali enclaves in Ethiopia's Ogaden region and Kenya's North Eastern province.

Following the Second World War British Somaliland continued as a British protectorate. It gained independence from the British in 1960 as the State of Somaliland and opted to join Italian Somaliland to form the Somali Republic with the ambition of uniting all five territories with Somali populations – the five points on the flag of the Federal Republic of Somalia. However, in June 1961, Somaliland rejected a unitary constitution.

During colonial rule, the colonies that make up modern day Somalia were considered to be some of the most developed in East Africa in terms of standards of living for the colonialists and Somalis.

The civilian government lost power in a military coup in 1969 with the commander of the army Siad Barre becoming president. The Ogaden war started in 1977 with Barre seeking to claim the areas of Ethiopia occupied by ethnic Somalis. Despite significant early gains, the Somali army were ultimately overrun by Cuban troops when Ethiopia turned to the Soviet Union for support. This marked a profound turning point in Somalia's fortunes. Barre's increasingly totalitarian regime saw the establishment of numerous opposition militia groups, with increasing levels of violence. Barre held power until 1991. In 1993 a UN task force led by the US was established to maintain stability and provide humanitarian support. However, the levels of losses to the task force resulted in it leaving Somalia in 1994.

The trajectories out of fragility have been markedly different between Somalia and Somaliland. With the collapse of the Siad Barre regime in 1991, Somaliland declared itself independent from Somalia.[8] By 1991, Hargeisa, the capital of Somaliland was largely reduced to rubble by the Barre regime. Some 70% of the city was estimated to have been destroyed, almost 5,000 people killed, and 500,000 people internally displaced.[9] Since then, however, backed by a number of peace conferences led by traditional leaders, Somaliland has managed to effectively halt internal conflict,[10] construct a government, write and ratify a constitution, hold several democratic elections and considerably outstrip the rest of Somalia in economic development. It is now considered a successful case study of bottom-up state-building.[11]

[7] The regions of Sool and Sanaag were considered part of British Somaliland. Today these are disputed areas claimed by both Somaliland and Puntland.
[8] This move remains officially unrecognised by the international community, although several foreign countries including the UK maintain links with the government of Somaliland.
[9] World Bank. Somaliland: Private Sector at the Cross Roads. Political Economy and Policy Choices for Prosperity and Job Creation. Link. Pg 7.
[10] With the exception of very limited Al Shabaab activity and the border conflict with Puntland.
[11] Mary Harper. 2012. Getting Somalia Wrong: Faith, War and Hope in a Shattered State. International Affairs Institute.

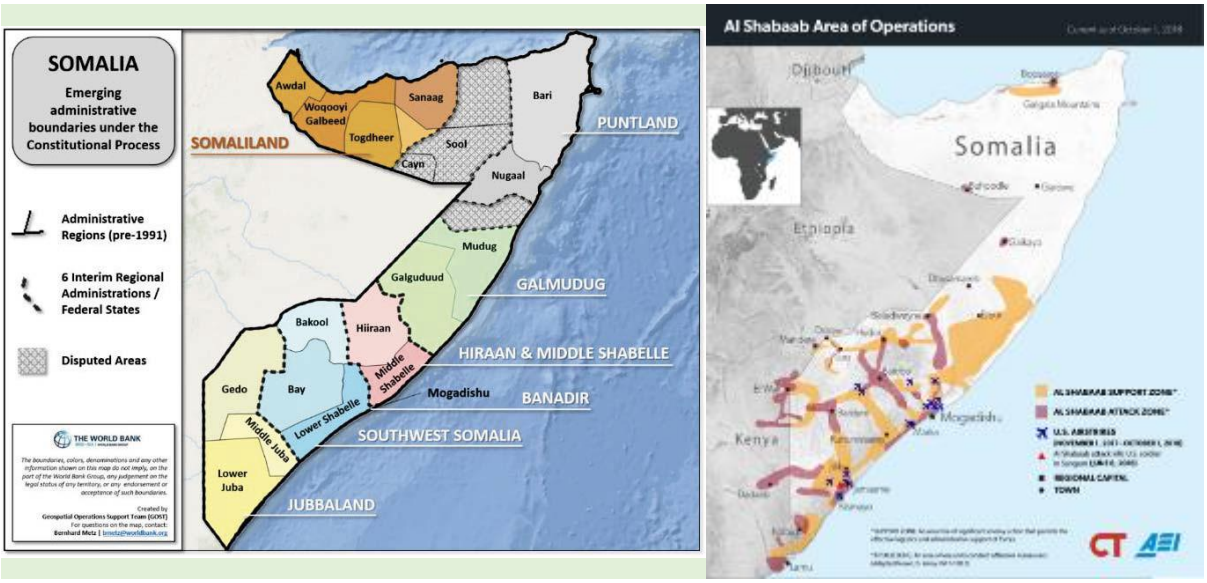


Figure 1: Maps showing administrative divisions and conflict areas

The rest of Somalia, on the other hand, has experienced a quarter-century of instability, severe conflict and power struggles, from state collapse to civil war, the emergence of the Union of Islamic Courts and eventually al-Shabaab. A recent Danish Institute for International Affairs (DIIA) report[12] recounts that these prolonged conflicts have caused innumerable civilian casualties, millions of internally as well as internationally displaced persons, enormous economic losses and severe destruction of the country's infrastructure, as well as deep mistrust among people. However, Somaliland and to a slightly lesser extent Puntland have experienced peace for more than 20 years - apart from some clashes in the disputed borderland areas between the two states. Puntland has operated as a semi-autonomous region but has chosen to be part of Federal Somalia.

The DIIA further relate that there have been many peace building attempts for Somalia, of which some have been partially successful but none have fully succeeded. Reasons for this they cite as fear and mistrust because of clan interests, with state building efforts creating conflict rather than reducing it – particularly because of the perceived prize of securing power. A further factor is mistrust in the role of the international community. Some also feel that there is a disproportionate focus of power and cooperation in Mogadishu and marginalisation of the periphery.

- Somali median age is 16 (2012)
- 70% are under 30 (same as South Sudan)
- 67% of 14 – 29-year-olds un- or under-employed
- Population is 14.7m and 2.2m are displaced within Somalia or elsewhere in the region

Box 1: Population statistics

Puntland, though more stable than Banaadir (Mogadishu) and the other Federal Member States, still has pockets of both Al-Shabaab and Islamic State in the north. There have been sporadic attacks by Al Shabaab, including a major attack against the UN in May 2015.[13] Somaliland and Puntland share a disputed border in Sool and Sanaag which is the source of sporadic and localised clan conflicts. These are some of the most deprived areas in the Horn as many international development actors, including the United Nations, do not work in Sool and Sanaag, although humanitarian actors are engaged there.

[12] Webersik, C. et al (2018), Somalia a Political Economy Analysis, Norwegian Ministry of Foreign Affairs

[13] www.unicef.org/media/media_81639.html

According to a World Bank report on Somaliland:

"Somaliland has been the site of impressive levels of economic recovery due to: (a) the ability of the government and society to maintain peace and security; (b) a durable social contract ensuring a sufficient degree of inclusivity and negotiation in matters of politics, disputes, and allocation of resources and employment across clan lines; (c) high flows of remittances from the large Somaliland diaspora; (d) a robust private sector which has emerged since 1991; and (e) a powerful cultural tradition of honouring mutual obligations within extended lineage groups, which facilitates greater social trust, the flow of finances in the form of informal loans or gifts, and mutual indebtedness."[14]

A recent ODI Report[15] sets out the following summary of the political situation:

"After more than two decades of conflict and over a dozen failed peace processes, Somalia has made important progress in the past decade in re-building its state and consolidating peace. The country has almost completed its transition to a federal structure; a peaceful transfer of power at the national level took place in February 2017; a National Leadership Forum (and latterly a National Security Council) has provided a space for consultation and compromise between the Federal government and the states; and the African Union Mission in Somalia (AMISOM) and the Somali National Army (SNA) have made progress in reclaiming territory from Al Shabaab. But these gains remain fragile. The status of the newly formed states is precarious; elite and clan-based political competition present obstacles to the transition to an inclusive and multiparty democracy; there is no consolidated political settlement at either national or sub-national level; state capacity is weak; and state-building continues to be undermined by numerous sources of instability. Somalia's policy arena is also populated by external actors who routinely pursue conflicting interests – including the eight African countries that make up the Intergovernmental Authority on Development (IGAD), Gulf states, and Western powers."

3.2 *Infrastructure – a national historic perspective*

Somalia's decline since independence, including the decades of civil war, and consequent neglect of maintenance and rehabilitation, has resulted in the almost total destruction and loss of its historic infrastructure base. Roads networks, electricity supply and infrastructure for irrigation have all been decimated over recent decades.

In Somaliland, with relative security compared to Somalia, funds such as the multi-donor USD 60 million Somaliland Development Fund (SDF) (2013-2018) have been the primary mechanism used by the government to deliver infrastructure. According to Somaliland's National Development Plan II (2017 – 2021): "infrastructure contributes to almost 14% of national GDP, having housing (construction and real estate) as the most important segment of the sector accounting [for] at least 9.8% of the GDP."[16]

3.2.1 Roads

A recent AfDB/EU assessment[17] identifies a total of 4,124 km primary/main roads (2,977km excluding Somaliland). 2,860km are black top and 1,264km unpaved. It suggests that the general coverage of primary, secondary and local feeder roads is in place to meet the needs of Somalia's largely dispersed population. However, the reality is that over 90% of the roads are in poor or very poor condition and as such are not fit for purpose – mainly because of poor maintenance, dilapidation and/or destruction, or design and construction specifications that do not meet current needs. Their dire condition, with roads that were once highways now only tracks through the bush, and the control of long sections by militia, mean that traffic flows are very low.

Restoring and enhancing the roads/transport sector is, therefore, a huge challenge for Somalia. Roads and transportation are critical for the pursuit of local level livelihoods, and regional/national and international trade.

[14] World Bank. Somaliland: Private Sector at the Cross Roads. Political Economy and Policy Choices for Prosperity and Job Creation. Pg xiii. Link.
[15] Laws, E. 2018, Thinking and Working Politically in Somalia: A case study on the Somalia Stability Fund, ODI
[16] MoPND, 2017, Somaliland National Development Plan, 2017 – 21, Government of Somaliland,
[17] AfDB, 2016, Transport Needs Assessment and Implementation Plan

Figure 2: Administrative map showing transportation infrastructure – red main roads, black feeder

Somalia is not well connected by roads to its neighbours, and this limits economic activities such as trade within the region. Trade corridors contribute significantly to regional integration and economic development, and trade routes between Kenya, Ethiopia and Somalia are critical. A transport corridor between Addis Ababa and Mogadishu through Belet Weyn played an important role in the past, but its road surface is greatly deteriorated and the area it crosses suffers from intermittent insecurity. Kismayo in southern Somalia could also provide competitive routes to Nairobi, Kampala, and south-central Ethiopia through either the Kismayo Liboi and/ or the Mogadishu/Baidoa to Dolow and Mandera corridors.

The geography of Somalia presents particular challenges for roads and transportation planning. At 3333 Km (and a territorial sea limit of 350 Km) it has the longest coastline in Africa and the Middle East. The area of Somalia is just over 635,000 Km^2, with a length of 1850 Km and a maximum width of around 350 Km.

Another facet of its geography is the length of its borders (Kenya 682 Km, Ethiopia 1636 Km, and Djibouti 56 Km) and the levels of development and economic activity in the border regions. Its population density is 16.9 inhabitants/Km^2, placing it in the lowest quintile amongst African countries.

A recent research report examining the long-term economic effects of roads infrastructure using Somalia as a case study[18] provides an insight into Somalia's current road network as a legacy of the Italian colonial era. Prior to the 1930s the Italian colonies were too poor to justify extensive road building. However, Mussolini's plans for Italian East Africa and occupying Ethiopia changed that. In 1934, Italian engineers started building roads (gravel and paved) in Somalia and Eritrea to the Ethiopian border. These were aligned to allow troops and supplies to quickly reach the front. The Italians occupied Addis Ababa and some other cities in 1936, but little of the rest of Ethiopia. Local resistance fighters started to attack the areas held by the Italians. In the face of this situation, the Italian Government ordered a major roads construction programme. This included what was known as the Strada Imperial from Mogadishu to Addis Ababa. The length of this road, which is recorded as having been completed, was 1500 km. In total 6,000 km were completed (3,500 km paved, and 2,500 km gravel). Italian attention and funds then turned to the Second World War, and their defeat combined British and Ethiopian troops in 1941. The war resulted in major destruction of roads, bridges and tunnels. The Italian roads were refurbished in the 1950s and a rural roads programme extending the network implemented in the 1960s following independence. In the 1970s, China constructed the main arterial route from Berbera to Kismaayo. The onset of war in the same decade marked the beginning of a period of broad decline in road infrastructure across the country.

In Somaliland, the Ministry of Planning and National Development (MoPND) led a prioritisation process of its NDPII in 2018. For the infrastructure sector, investment in road infrastructure (which is the primary form of transportation) has been prioritised. The rationale for identifying roads as a priority is to improve

[18] Bertazzini, M (2018), The Long-Term Impact of Italian Colonial Roads in the Horn of Africa, 1935-2000, London School of Economics.

access to services as well as broader inclusive economic growth and development.[19] Currently, the majority of the population live in seven districts that are covered by paved roads in Borama, Gabiley, Hargeisa, Berbera, Sheikh, Burao, Ainabo and Las Anod.[20] The Somaliland NDP II Sector Priority: Infrastructure Booklet states:

"While the government implemented a number of projects focused mainly on trunk road rehabilitation along strategic trade routes, much remains to be done to connect people to services and catalyse economic activity. It is estimated that only 3 percent of the population lives within 2 km of the existing road network … Community contributions play an important role in rebuilding roads in both urban and rural areas. The Somaliland Development Fund alone invested in the rehabilitation of 149.5 km roads."

Figure 3: Map of Somaliland from the NDPII

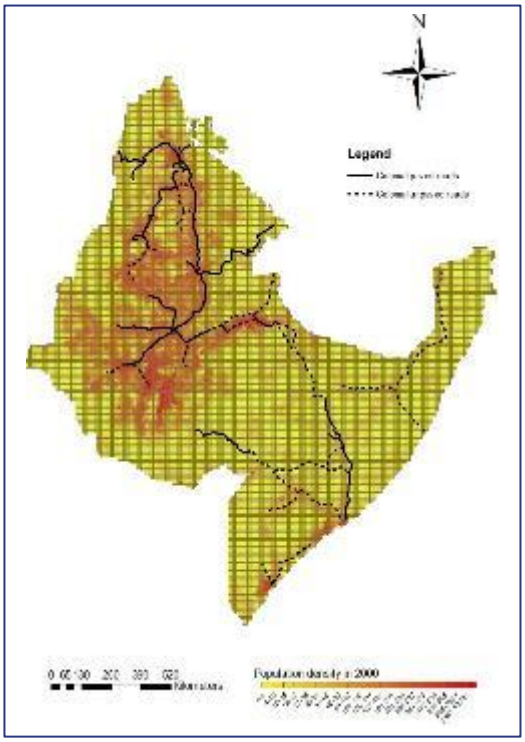


Figure 4: Bertazzini, M (2018), Population density and transport Ethiopia & Somalia

3.2.2 Air transport

Airports and airstrips are critical to the internal and external connectivity of Somalia. Without air infrastructure it is not possible to export high value/perishable products. The security situation also means that it is the only viable means of transport between many locations because of long sections of road being under the control of militia and the very poor condition of the roads themselves. The humanitarian situation also means that air transport is often the only reliable means of delivering emergency supplies. As a result, airports/airstrips and particularly their routine maintenance are a core part of the AfDB's 2016 Transport Sector Needs Assessment (TSNA).[21]

The AfDB's plans focus on regulation alongside infrastructure, reflecting the complexities of air transport services and the importance of a structured approach to planning. This will take account of the geography, sparse population, and requirements for disaster relief and economic recovery. A particular recommendation of the TSNA is that overflight revenues are earmarked for investment in air transport infrastructure.

In summary, there are currently eight main airports, seven major feeder airports and 18 other important airstrips across Somalia. Further key locations for airports/airfields are under assessment.

[19] Somaliland Ministry of National Planning and Development. 2018. NDP II Sector Priorities: Infrastructure. Pg 6-7.
[20] Op. cit.
[21] AfDB/EU, (2016), Transport Sector Needs Assessment, FGS

3.2.3 Ports and Harbours

Somalia's rich history is closely linked with its maritime trade. As with other sectors, this has been ravaged by the effects of state fragility and civil war. For many years (2000 – 15) its coastal areas were known for piracy and resulting danger for shipping. International action through an international anti-piracy coalition (Combined Task Force 150) has reduced the threat.

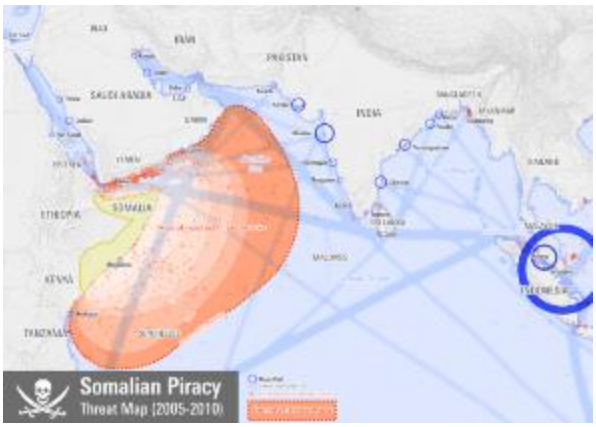


Figure 5: Somalia piracy threat map showing 2005-10 data

As a result, ports and their opportunities and importance for local livelihoods and international trade are an important development opportunity. An AfDB report[22] assessed key ports in Somalia, including both major and minor/beach ports. They found four major operational ports in Somalia: Mogadishu, Berbera, Kismayo and Bosaso. Three of these are deepwater ports, and all four operate throughout the year. Despite the vagaries of war and time, the infrastructure at the major ports appears to be in reasonably good condition. However, operating performance is poor with low handling speeds. There are also ten 'feeder' ports.

The country's economy is heavily reliant on informal livelihood activities and those mainly linked to the key economic sectors of agriculture, livestock and fisheries. For example, the ports of Berbera and Bosaso exported more than 4 million head of livestock (camels, sheep and goats) in 2011 to Arab states such as the United Arab Emirates and Yemen.

Trekking of livestock is a way of life for many Somalis – moving from the coast inland at the start of the rains, and back towards the end of the rainy season. There are similar movements into Ethiopia and Kenya from Western Somalia when the rains start in April. Cattle are also trekked from Somalia to Nairobi.

Somalia's strategic location has resulted in increasingly complex regional and global geopolitical dimensions. This is being shaped by the competition among aspiring regional powers of the Middle East — particularly Gulf Arab states and Turkey — and China for influence in the Horn of Africa. Some commentators are dubbing this a 'new scramble for Africa', as major powers seek to strengthen positions with ports and airports in the highly strategic Horn of Africa/Gulf of Aden area. Along with the competition by outside players has come greater leverage for Horn of Africa countries - and in the case of Somalia, between states. The UAE is seen by some to be adopting a softer collaborative model, similar to that of Turkey in Somalia, in providing a broad package of support for infrastructure and training. Whereas China's approach – as elsewhere in Africa – has been seen by some as more extractive in nature.[23]

In broad terms, Qatar and Turkey are closer to the Mogadishu Government, whereas UAE has closer links with the Somaliland Government. This raises the internal geopolitical stakes, in an already fragile and unstable environment. It also reflects current political alliances and tensions in the Middle East region.[24]

The $ 442 million concession awarded to the UAE's Dubai Ports World (DP World) over 30 years is a major investment, alongside a planned UAE military base in Berbera, which promises significant economic investment for Somaliland. While the UAE has a 50% stake, the Governments of Ethiopia and Somaliland hold 19% and 31% respectively.[25] The UAE is also planning to establish a free trade zone in Berbera as an alternative to Jebel Ali, which is operating at full capacity. The deal with DP World was particularly significant because it followed the Government of Djibouti's termination of its long-

[22] AfDB, op. cit.
[23] Khan, T. 2018, Ports Development in Somalia (and Djibouti) – the roles of UAE, Turkey and China, Arab States Institute, Washington
[24] Baskan, B (2019), Turkey and the UAE: A Strange Crisis, Middle East Institute
[25] As with most deals and contracts struck by the Government of Somaliland independently, this has been objected to and deemed invalid by the Federal Government. As a self-declared independent state, Somaliland considers it an expression of sovereignty to conduct external relations without consulting Somali federal authorities on matters it deems to be the business of an independent state.

standing partnership with DP World. This leaves China as a dominant partner in Djibouti, linking with its strategic support for infrastructure development in Ethiopia.

The agreement created a political storm in Somalia (and in the greater Horn of Africa) between Somaliland and Mogadishu, since the Federal Government were neither parties to the negotiations, nor signatories to the agreement in 2018.[26] Bosaso port (in Puntland), was also taken on in 2018 by DP World without the official blessing of the Federal Government of Somalia. The Southwest State of Somalia has reportedly entered a similar deal with Chinese and Djiboutian companies to develop Marka and Brave ports, with the UAE seeking to develop Baraawe.

The commercial and geopolitical stakes, and the players involved, mean that there is heightened international tension around the key ports and airport infrastructures in Somalia and the region. In the eyes of many Somalis, these deals are neither transparent nor fair from the perspective of the national or local (economic) interest. The FGS has stated that the deals agreed bilaterally at state level are a violation of national sovereignty. They have also led to some local protests.

This leaves little space for development partners to support major ports development, although there has been some interest in smaller ports and jetties.

3.2.4 Power and Electricity Sector

At the end of the 1980s, just before it collapsed, Somalia as a whole had installed power generation capacity of about 175–180MW, of which nearly 100MW is in Mogadishu. In the past many cities had grids, and service varied in quality according to the availability of fuel. Except for the major cities (Mogadishu, Hargeisa and Kismayo), which had conventional grids, other smaller cities and towns relied on diesel generators and mini-grids for electricity, much like today. No two cities were interconnected. Tariffs were low and level nationwide, so the main cities – which tended to be less costly to serve since all load centres were served by same utility, the Somalia National Energy Corporation (ENEE) – subsidised high-cost isolated systems. According to historical estimates, electricity production in Somalia in 2008 was just 33 kWh/capita/year, compared to the world average of 2,777 kWh and the African average of 579 kWh.

The power sector has suffered from over two decades of neglect, including absence of investments, due to widespread insecurity, the disappearance of public resources and public oversight and the degradation of the rule of law. In addition to neglect, destruction and stealing of equipment decimated what little infrastructure there was before the collapse of 1991. This has affected quality of life in Puntland, Somaliland and Southern Somalia, all of which are now struggling to extend and improve energy supply, especially electricity. However, there is insufficient demand side data from domestic, commercial and industrial sectors to know whether demand is suppressed at current tariff levels on grounds of cost/affordability.

From the destruction, small companies emerged to supply power at low tension in their immediate vicinity. Following the political and social breakdown of the early 1990s, these companies started generating electricity for ice production when the city services collapsed – to preserve meat and other foods.[27] These local systems are largely the only type of electricity supply available, with wires going directly from the generators to the home of the customer.

The total installed generating capacity in the whole of Somalia in 2014 was estimated to be 100MW,[28] with about 250,000 connections. This number of connections implies an average load per connection of 400 Watts (at generation before line losses), which is very low but plausible in the Somalia context. The high costs of generation, mainly using diesel generators, and the low usage and inefficiencies and losses in the system, means that the costs of supply are high. Although the private companies are significantly reducing their prices well below $1/kWh, and have dropped an earlier $400 connection fee, it is likely that most households able to afford the high costs of supply are already connected.

The current situation of high prices, private sector dominance in the market, and no public sector involvement or regulation, keeps the poor at the margins of supply for electricity. The day to day reality

[26] Since 2018, relations have gradually thawed and the deal has become a less prominent issue.
[27] Meeting with Blue Sky Energy 26 June 2018
[28] AfDB, 2015, Somalia Energy Needs Assessment

for most (90%) is a reliance on traditional biomass (charcoal/wood) for cooking, with some paraffin usage. The poorest are using whatever they can find to burn – including plastics.

3.2.5 Irrigation Infrastructure

Somalia and Somaliland are water stressed. Both surface water and groundwater resources are scarce. Rainfall is very low – ranging from less than 100 mm in the northeast, rising to 200 mm to 300 mm in the central plateaux, and between 500 mm and 600 mm in the northwest and southwest. The low levels of rainfall are compounded by the high potential level of evapotranspiration – 1500 mm on the south coast to 2900 mm on the north coast.

Renewable Water Resources

Surface water: 556 m^3/capita/year

Renewable Groundwater: Total 600 million cubic metres/year

Despite the challenges, the AfDB report takes the view that water resources can meet the needs if properly harnessed. By comparison – annual availability of water resources per capita in other countries: Israel 93 m^3, Kenya 449 m^3, and Ethiopia 1227 m^3. However, particular challenges for Somalia/Somaliland are the location of surface water and depth and quality of groundwater.

The Juba and Shabelle rivers play an important role in the economy of a large area of southern Somalia.[29] A number of irrigation projects were developed following independence in 1960. However, this stopped in 1991 with increasing instability and the civil war. Over this period ten irrigation barrages were built together with the Fanole dam on the Juba river to regulate flows. This was the only dam in Somalia and provided irrigation, generated hydropower and served to mitigate floods. In addition, an extensive network of irrigation canals was constructed, to irrigate over 160,000 ha of land. The Juba river supported the Juba Sugar, Mugaambo rice, and the Arare banana plantation projects. An FAO report[30] suggests that the Juba and Shabelle river basins were in the past, and could once again be the breadbasket of Somalia.

There was no dam on the Shabelle River, although the river water was drawn from the river with pumps and used intensively for irrigation and agricultural production. There was also substantial bankside storage developed, near Jowhar, with a capacity to store 200M m^3 of water. Irrigation projects on the Jubba river include the Jubba sugar project (JSP); Mugaambo rice irrigation project and Arare banana irrigation project.

The civil war, and subsequent neglect meant that the ten barrages, the Fanole dam and the irrigation network went out of operation and needed major rehabilitation work to re-establish the irrigation system and agricultural production in the area.

Ethiopia's plans to construct dams upstream on both the Juba and Shabelle rivers threaten the downstream river flows. These also have the potential to increase tensions between Ethiopia and Somalia, at a time when there are signs of improving bilateral relations.

Groundwater is of huge importance in Somalia.[31] Apart from the areas along the Juba and Shabelle Rivers, all regions depend on groundwater for domestic water supply, livestock and small-scale irrigation. However, accessing groundwater is difficult and expensive in much of the country. Most boreholes are between 90 m and 250 m deep, but in some areas reach over 400 m deep. Most shallow wells are less than 20m deep. Yields vary from one aquifer to another, but most shallow wells, where these exist, yield between 2.5 and 10 m^3/hr, compared to the typical range of borehole yields of between 5 to 20 m^3/hr (FAO/SWALIM 2012). Several deep drilling projects have been undertaken with the aim of developing groundwater resources further, but due to lack of prior hydrogeological knowledge, the success rate of groundwater development has been very low. Groundwater quality is also a major issue in some areas. Many groundwater sources have salinity levels above acceptable (WHO) and palatable levels for humans although animals are able to tolerate higher levels of salt. The Norwegian government is in the process of launching a project for exploring hydrological resources to a depth of 2000m based on deep aquifers in the Turkana region in Kenya at these levels.

[29] Mohammed, Elmi, (2013), Managing shared river basins in the Horn of Africa: Ethiopia's planned water projects on the Juba and Shabelle rivers and effects on downstream uses in Somalia, Royal Institute of Technology Stockholm.
[30] SWALIM (2009) Hydraulic Analysis of Juba and Shabelle Rivers, FAO
[31] Africa Groundwater Atlas, Hydrogeology of Somalia, 2018, British Geological Survey

Somaliland is considered to be arid or semi-arid with an average rainfall of about 300 mm. According to the Water Sector Priority Booklet, there are no lakes or permanent rivers. Access to clean and safe water is considered a priority particularly as around half of Somaliland's population are classified as agro-pastoralists or pure nomadic.[32] A study conducted for the Somaliland Development Fund (SDF), identified 10 broad agro-ecological zones. Only two of these zones are suitable for agriculture – i.e. only 3% of the total surface area of Somaliland (between 350-400,000,000 ha.).[33]

3.3 *Federal Government of Somalia Infrastructure Priorities*

The Federal Government of Somalia and the Federal Member States prioritise infrastructure in the National Development Plan (NDP)[34] because of its perception as a potential peace dividend and a critical factor in the success of post-conflict recovery. It also suggests that the state of a nation's infrastructure is an indicator of the possibility of it falling back into conflict or continuing on a transition out of a conflict cycle. The Plan goes further to suggest that the '*larger scale rehabilitation and expansion of infrastructure systems will have an enormous effect on the perceptions and improvement of stability in the country*'. A new National Development Plan together with an Economic Development Roadmap have recently issued – both of which prioritise infrastructure development.

Roads and transportation are given a particular priority because of the need to re-establish physical links across areas devastated by years of conflict and instability. It also highlights the need for improved connectivity to increase the volume and value of trade with its regional neighbours – Kenya, Ethiopia and Djibouti. Ports and aviation are considered as fundamental to the plan given both Somalia's comparative advantage with the extensive coastline and the sparse population across more of the country. The Plan emphasises the importance of improved spatial planning to reduce disparities between regions and parts of the country. And through this creating regional production bases – located on a rational basis of comparative and absolute advantage.

Lack of availability and high cost of energy are seen as a significant drag on economic growth prospects. This applies both to the electricity sector, and also biomass (mainly charcoal and firewood) which provides for 80 to 90% of Somalia's energy needs. Lack of investment, policies and regulations, and low human resource capacity have all hampered progress of the past almost three decades. The Plan concludes that '*the sector operates in a vacuum*'.

Given the challenging hydrology and predominantly arid nature of Somalia, agricultural infrastructure is also highlighted as a priority – in particular irrigation systems and feeder roads. Despite the importance of the Juba and Shebelle river basins for agriculture, it describes the infrastructure as being in 'disarray and dilapidated' and lack of marketing infrastructure affecting income for farming families. The Plan therefore prioritises restoration of irrigation infrastructure and canals and effective management and utilisation of water resources for agriculture.

It also seeks to transition from a major focus on humanitarian actions – with a shift towards longer term development models that will enable social and economic inclusion in order to move more rapidly from relief to development.

However, despite the prioritisation of infrastructure in the National Development Plan and the Somali Compact[35] there has been a lack of visible progress and impact at scale. Disbursement for infrastructure are around 20% of the $365m for priority projects. A review of the Compact[36] concludes that where there have been investments these have '*typically been small scale, dispersed and linked to other programmes*'. The report cites evidence from other post-conflict situations of rehabilitation projects, such as road upgrading, which has not happened at any significant scale in Somalia. The researchers suggest three key reasons for this being:

[32] Somaliland Ministry of National Planning and Development. 2018. NDP II Sector Priorities: Infrastructure. Pg 6.
[33] Op. cit.
[34] Ministry of Planning, 2017, Somalia National Development Plan 2017 – 19, FGS
[35] The Somali Compact was the outcome of a conference in Brussels co-hosted by the EU and the Somali Federal Government, setting out a new deal for Somalia. This included funding commitments and a new architecture to provide the structure and process for collaboration and prioritisation.
[36] Taken from Manuel, M. (2015), The New Deal in Somalia – An Independent Review of the Somali Compact, 2014 – 16, ODI.

- lack of security;
- limited government implementation capacity; and,
- limited finance.

The report highlights further factors such as risk avoidance, and also significantly poor links to humanitarian investments. Somalia's debt arrears have precluded until recently larger scale International Financial Institutions (IFI) finance with the AfDB Somalia Infrastructure Fund only established late in the Compact project, and has remained underfunded.

The Somaliland Ministry of Planning and National Development (MoPND) undertook a prioritisation of Somaliland's National Development Plan II over a period of six months in 2019 involving regional consultations and with 54 of Somaliland's Ministries, Departments and Agencies (MDAs). The need for investments in strategic infrastructure to foster transformational economic growth was the overwhelming key message from MDAs, as well as the message that Somaliland's "frontier state" status provides an opportunity for getting investments right from the beginning, particularly in relation to innovation and green technology.

3.4 *Development Assistance and Infrastructure Funding*

3.4.1 Development assistance

Official development assistance (ODA) for Somalia was at a record high in 2017 according to the annual FGS report on aid flows.[37] This was mainly due to the 80% increase over 2016 in humanitarian funding[38] to over $1bn, in response to the drought, with a more modest increase of 6% for development funding. An ODA to GDP ratio of 26% highlights Somalia's continuing aid dependency. There was also an increase in the proportion of treasury grants to more than $100m – mainly from the World Bank's Multi-Partner Fund and budget support from Saudi Arabia and Turkey. Some 20% of the development aid was channelled to funds under the Somalia Development and Reconstruction Facility (SDRF).

	2014	**2015**	**2016**	**2017**	**Total**
Development	607	611	681	742	2641
Humanitarian	672	588	563	1011	2834
Total ODA	**1279**	**1199**	**1244**	**1753**	**5475**

Table 1: Reported Development and Humanitarian Aid, 2014 – 17, US $ millions (Source FGS)

An earlier FGS report noted the following:

> *'On a per capita basis, Somalia received similar flows of aid as Afghanistan, US$ 130 and US$ 141 respectively in 2015 (Figure 5). However, the composition and potential for long-term impact of this aid differs significantly. Whereas 76% of ODA to Afghanistan consisted of Country Programmable Aid (CPA),[39] only 42% of Somalia's aid was categorized as CPA.'*[40]

3.4.2 Donor staffing and engagement with Somalia

The security situation throughout Somalia has meant that residence of the development community in Mogadishu or elsewhere in the country has been difficult to support (with the notable exeption of Hargeisa). For this reason, many development agency staff, contractors and research organisations working on Somalia policy and programmes are based in Nairobi. From this base, staff are able to make

[37] Ministry of Planning, 2018, Aid Flows in Somalia, FGS

[38] Two-thirds of which was from three donors: the US, UK and EC

[39] Country Programmable Aid (CPA) excludes humanitarian aid and debt relief. It also attempts to exclude aid that does not involve flows to the recipient country, such as administrative costs, research and advocacy, and refugee spending in donor countries. Some donor recipient and other commentators suggest that CPA is therefore a better measure of aid spent in country for longer-term development goals.

[40] OECD define CPA as the portion of aid that providers can programme for individual countries or regions, and over which partner countries could have a significant say.

very short visits to Somalia for meetings. In the case of Mogadishu, donor staff are often confined to the secure airport complex unless there is a security case for moving further into the city for that trip.[41]

There are significant benefits from this arrangement. Nairobi is a popular posting for singles and families and for this reason there is a good level of interest in postings to work on Somalia.[42] Postings also tend to be long term, with the possibility of extensions. For contractors, programmes have a duration of several years. One of the benefits of this much longer-term engagement is that it enables a deeper understanding of the context and complexities of operating in Somalia. It also strengthens the institutional memory – which is likely to result in more measured decision-making processes consistent with a longer-term perspective. There is however some criticism of this arrangement – referring to the 'Nairobi mafia' making decisions about Somalia, operating from a remote location with little direct experience of or contact with the country.

A comparison with Afghanistan is interesting, where tours are often only 6 months with little or no handover to successors. Inevitably, this means a lower level of understanding of the country or the context – and potentially short-term decision making in light of the length of postings. Donor strategies in Afghanistan have been plagued by imperfect knowledge of the history of donor engagement and learning from what worked and what did not.

3.4.3 Infrastructure funding summary

Funding to infrastructure projects in 2017[43] was $50.9m, up from $39.1m in 2016. In terms of geographical allocation 45% went to Somaliland; 17% to Puntland; 10% to the Federal Government and the balance (28%) distributed between the remaining states. The allocations correlate with levels of security and the track record of delivery in the different states.

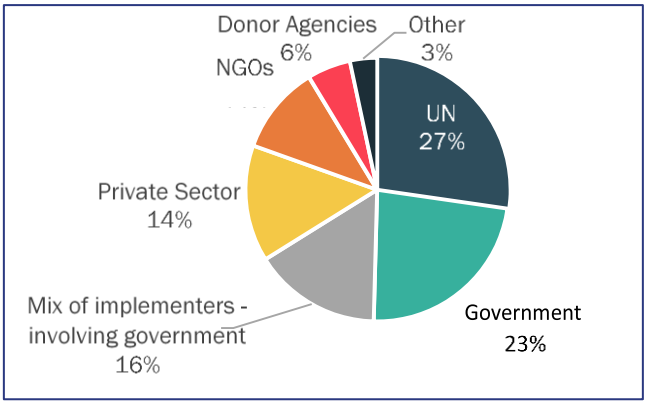


Figure 6: Major funders of infrastructure (FGS 2017)

3.4.4 The Somali Compact and pooled funding

Following the London Conference in 2012,[44] the UK hosted a follow-up conference in London in 2013 to discuss a coordinated approach based on the principles of the Busan Partnership for Effective Cooperation. This second conference agreed a framework for the compact – which was constituted as the Somalia Partnership Forum covering development and stabilisation. The EU then hosted the Somalia New Deal Conference on 16 September 2013 where the Somali New Deal Compact (also

[41] This applies to most donor staff, however there are several private sector aid implementers which lean further into having a presence in Somalia, and UN agencies have an increasing number of staff based in-country. While long-term residency of international staff in Somalia is unusual, some implementers retain substantial Somali national teams based in Mogadishu and other major cities and international staff will regularly spend time working in-country.

[42] Although two major Somali-linked terrorist attacks over the past few years, the most recent appearing to have targeted expats specifically, emphasise that Nairobi is not entirely protected from the conflict.

[43] Covering roads, ports, airports, energy and ICT, urban water & sanitation and mixed infrastructure.

[44] The London Conference on Somalia took place at Lancaster House on 23rd February 2012, attended by fifty-five delegations from Somalia and the international community. It focussed on the underlying causes of instability, as well as the symptoms (famine, refugees, piracy, and terrorism). www.gov.uk/government/news/london-conference-on-somalia-communique--2

known as simply the 'Somali Compact') and the Somaliland Special Arrangement (2013 – 2016) were endorsed and pledges made for the priorities set out in these documents. The compact was succeeded by the New Partnership for Somalia in 2017,[45] following a peaceful transition of power in February 2017.

The Somalia Development and Reconstruction Facility (SDRF) was established as the preferred financing architecture for the Somali Compact to achieve 'greater alignment of international aid, reduction of fragmentation and increased Somali ownership'.[46] The Somaliland Special Agreement specified a separate financing mechanism. The SDRF provided a coordinating framework and a financing architecture in support of the now-expired Somali Compact, but continues to exist to coordinate international financing for Somalia's National Development Plan (2017 – 2019), the first NDP in over three decades. It has a common governance framework for the three multi-donor trust funds that form part of the SDRF. These are the:

- **African Development Bank Somali Infrastructure Fund (SIF)**
- **UN Multi-Partner Trust Fund**
- **World Bank Multi-Partner Fund**

The largest contributors to the SDRF are the EC, UK, Sweden, Germany, Norway and Denmark.

	UN Multi Partner Trust Fund (MPTF)	WB Multi Partner Fund (MPF)	AfDB Somali Infrastructure Fund (SIF)
Thematic focus	Flexible financing instrument across all thematic pillars of the NDP	Coordinated financing primarily focused on core state functions, socioeconomic recovery and sustainable development.	Rehabilitation and development of infrastructure, and related skills development and institutional capacity building
Delivery modalities	*UN execution:* Participating UN organizations are eligible to receive funding. Financing may be provided to Government institutions, international NGOs, academia and the private sector as implementing partners of the recipient UN agency. *Government execution:* Under the National Funding Stream, financing can be provided directly to the national entities. *CSO execution:* The UN MPTF will also enable fund transfer to the civil society and youth organizations through UN funds and programs as a pass-through mechanism	*Government execution:* The majority of MPF projects are recipient-executed, which supports the Somali authorities to be the leaders of their own reconstruction and development and ensures that reforms and knowledge transfer are sustainable and replicable by Somali institutions. *WB execution:* The MPF also funds small-scale Bank-executed activities, for which the World Bank has implementation responsibility.	*Government execution:* Recipient execution by the federal or regional governments or their agents, which is the preferred modality. *Third party execution*, where a non-state actor such as an NGO, private company or UN agency implements the project component with the consent of the Government. *AfDB execution* on behalf of the government, when the government is unable to implement efficiently and effectively itself, and explicitly requests the AfDB to execute the project for them.
Links	http://mptf.undp.org/factsheet/fund/4SO00	www.somaliampf.org www.twitter.com/mpfsomalia	www.afdb.org/en/topics-and-sectors/initiatives-partnerships/multi-partner-somalia-infrastructure-fund-sif/

Figure 7: Summary overview of the SDRF[47]

The development partnership is now organised around nine **Pillar Working Groups (PWGs)**, one of which (Working Group 9) covers infrastructure. The Infrastructure PWG was chaired by the Minister of Public Works, Reconstruction and Housing, and co-chaired by KfW and the Head of Development Cooperation for the German Government in Somalia. The international lead has recently passed over to Italy.

A recent ODI review[48] of the Somali Compact suggests that it has been a 'bold experiment in an extremely challenging context' and the scope and timelines 'ambitious', with unrealistic expectations on both sides. However, despite these concerns, the overall view from the ODI report is that the Compact has had positive benefits, and that there are signs of increased momentum. It has also encouraged the re-engagement of International Financial Institutions. However, a lack of capitalisation implies that donors are not using the SDRF to the expected levels.

Building effective working relationships have also proved difficult – due in part to the security situation in Mogadishu limiting donor presence, and the political changes within the Federal Government of Somalia (FGS) in the early years. Significantly, the Compact dialogue processes are seen as burdensome and provide limited space for Somali engagement.

[45] https://www.gov.uk/government/publications/london-somalia-conference-2017-communique
[46] https://eeas.europa.eu/sites/eeas/files/20130916_the_somali_compact.pdf. Pg 4.
[47] https://somaliampf.net/wp-content/uploads/2019/03/MPF-Progress-Report-July-Dec-2018.pdf
[48] Manuel, M et al. (2017), The New Deal in Somalia 2014 – 16 – An Independent Review, ODI

The Compact has unfortunately 'become the public focus for concerns about lack of tangible improvements in ordinary people's lives'.[49] A related issue is the lack of visible delivery or impact of new infrastructure – despite it being a priority. **Investment in infrastructure has typically been small scale, dispersed and linked to other programmes**. This contrasts with other post-conflict settings, where some major rehabilitation projects, such as road upgrading, have been possible. This reinforces the reality that context matters and progress is hard in the absence of basic security and a stable political settlement. However, the Somali Compact 'has proved useful and all parties want to continue with some form of partnership agreement'.[50]

Somalia Infrastructure Fund (SIF)

The SIF is the principal instrument for major infrastructure funding under the Somalia Development and Reconstruction Facility. Its goal is to support and accelerate Somalia's inclusive and sustainable economic recovery, peace and state building within the context of AfDB's Strategy for Addressing Fragility and Building Resilience in Africa. The focus of the SIF is the rehabilitation and development of infrastructure, and related skills development and institutional capacity building. It covers transport, energy, ICT, and water supply & sanitation. Although set up in 2016 as one of the instruments under the SDRF to support the FGS National Development Plan's infrastructure plans, it has remained significantly under-capitalised. One of the reasons is that the FGS is not currently able to secure AfDB loan finance. However, until recently, donors had not provided funding to the levels required for large infrastructure. DFID was an early mover in providing some initial early seed funding – which was allocated to water supply and sanitation and implemented through the UN's International Organisation for Migration. More recently the EU has committed reasonably substantial funding, with additional contributions from the AfDB, Italy and the IsDB.

AfDB has faced a number of challenges in operationalising the fund in Somalia:[51]

- The length of time between inception and implementation of any major infrastructure project. In Somalia this is exacerbated by the limited funds and the scale of the infrastructure deficit, which makes prioritisation difficult particularly given the different interests within the FGS and the relevant ministries.
- The internal pressures on donors to commit and disburse. Most do not have patient money that donors can commit to the SIF knowing that it may be one year at best, and probably longer, before construction begins enabling committed funds to be drawn.
- The risk of non-traditional donors stepping in when a project is bankable, despite commitments already in place for the SIF to fund, and doing a deal with the FGS to fund.[52]
- The structure and lack of projects means that there is no possibility of hedging across a range of infrastructure and non-infrastructure projects in order to smooth the disbursement profile.[53]
- AfDB international tendering procedures are difficult to apply in a context in which few foreign contractors are willing to operate – resulting in very high rates. In order to speed implementation of some smaller infrastructure projects, funded through the SIF, the AfDB has implemented through UN agencies. Although this has enabled some flow of funds through the SIF, from a donor perspective it has added little value for the donor as they could have funded directly.[54]
- AfDB's lack of presence in Somalia.

The challenges facing the SIF have some resonance with those the Asian Development Bank faced with the establishment of the Afghanistan Infrastructure Trust Fund (AITF),[55] although the AITF had the advantage of significantly higher initial funding commitments from donors.

[49] ODI, op. cit.
[50] ODI, op. cit.
[51] These reflect the views - conveyed via interview - of donor organisations and others in the development sector, rather than the AfDB's, with additional observations by the ICED team. There has been no in-depth public review of the SIF, as little has so far been operationalised through it.
[52] See section 3.4.6.
[53] This is the approach of World Bank Multi-donor trust funds with infrastructure windows. SSF has a balance within its portfolio for the same reasons.
[54] Interviews with experts involved in donor coordination structures under SDRF.
[55] ICED, 2019, Afghanistan Case Study for DFID

World Bank Multi Partner Fund

The World Bank Multi Partner Fund (MPF) was established in 2013 as a vehicle to engage with Somalia. The MPF is one of the three multi donor trust funds within the SDRF. The MPF has been complemented by a USD140m grant from IDA's Pre-Arrears Clearance grant facility to finance priority Country Partnership Framework 21012 - 2022 (CPF) investments in the normalisation process. The MPF currently has 12 investment projects and six analytical/advisory projects, with three under development/pipeline. Between 2014-2018, USD 152.6m (83 %) have been disbursed through Recipient Executed projects. As of December 2018, donors had committed a total of USD 435.4m to the MPF, of which USD 335.2m had been paid in. The World Bank has disbursed a total of USD 215.6m.[56] The lack of IDA availability to Somalia has been a significant constraint to infrastructure funding. With the current process in place it is possible that IDA funding will be available to Somalia in the next few years.

The MPF focuses on three pillars: effective and accountable governance, enabling economic growth and urban infrastructure. Infrastructure components are included in the last two pillars and include support to the power sector, urban investment planning, urban resilience and recovery and a special financing facility for local development. Importantly, the World Bank is also conducting an urbanisation review financed by DFID and the German Government to inform donor engagements in Somalia given that Somalia has one of the highest rates of urbanisation due to conflict, returnees and climatic shocks. The total value of projects related to actual infrastructure investments and related analytical work is an estimated USD 32.3 million. An estimated USD 40 million project related to Water and Livelihoods is also in the pipeline.

The World Bank holding the urban infrastructure mandate may also explain some of the difficulties faced by the AfDB with the SIF. Urban areas tend to be more secure and present fewer of the uncertainties that cause delays to major infrastructure projects.

UN Multi Partner Trust Fund (MPTF)

The UN MPTF is the core programmatic and funding instrument of the UN's support to the Somali National Development Plan 2017-19 (NDP) and serves as a mechanism to coordinate funding and implementation of the UN's Strategic Framework 2017-20.[57] The UN MPTF has two funding streams:

- UN Window
- National Window

Under the UN Window, UN organisations implement joint programmes that are funded through the UN MPTF. As of now, the UN Window has more than 20 active joint programmes, implemented by 17 UN entities and funded by 13 donors.

Since its establishment in 2015, USD 357m has been committed by donors. UNOPS is the UN organisation with an explicit infrastructure mandate, however, organisations such as IOM, UNICEF and UNDP also deliver infrastructure projects, with the first two being primarily involved in water infrastructure. Most of the infrastructure projects that UNOPS delivers are largely outside the SDRF framework, and usually involve the construction of Ministry buildings or justice infrastructure.

Within the same framework, the Pilot Project for National Service Delivery worth USD 863,636 was involved in five infrastructure projects. The Joint Programme on Local Governance delivers some infrastructure based on community priorities.

3.4.5 Other multi-donor funds and programmes with significant infrastructure components

Somalia Stability Fund (SSF)[58]

The Somalia Stability Fund is a multi-donor fund with contributors from Denmark, Sweden, Netherlands, Norway, the European Union (EU), Germany and the United Kingdom UK). It is an adaptable instrument that develops a portfolio of projects aimed at strengthening local governance and reducing conflict in

[56] World Bank. 2019. Multi Partner Fund Progress Report, July – December 2018. p 38.
[57] https://www.uninsomalia.org/aid-coordination-architecture
[58] Further information: www.stabilityfund.so/about-us/

Somalia (SSF does not cover Somaliland). Although not principally an infrastructure fund, SSF includes a significant number of programmes that have infrastructure and buildings as a significant component, representing 30 – 50% of SSF expenditure depending on definition/classification of investment. These components include transport, energy, water and productive infrastructure. The funding of infrastructure is as a tactical tool to achieve a range of outcomes that may be economic, political or humanitarian – with an overall stabilisation objective.

In keeping with its mandate, the SSF operates in unstable areas, many of which are vulnerable because they are cut off from other centres of population. The success of projects in these areas depends on the security guarantee provided by AMISOM and the SNA, and the extent to which SSF considers this gives adequate cover to proceed safely. The level of security has been progressively increased through the project implementation.

Somaliland Development Fund (SDF)[59]

The SDF is a pooled funding arrangement with funding from the UK, Netherlands, Denmark and Norway of around USD 60 million and primarily focused on infrastructure. The UK contributed £25m to Phase 1 (2012 – 18). The SDF delivers priority investments in support of the Government of Somaliland's National Development Plan. It focuses principally on roads, rural and urban water supply, and infrastructure for agriculture and livestock. The theory of change and purpose have evolved over time. The second phase started in late 2018, and the objectives for SDF 2 have changed, with a better understanding of what a fund like SDF 2 can do best. The objectives of SDF 2 are:

- Support increased inclusive economic growth through investment in productive, strategic infrastructure to enhance economic growth and revenue generation.
- Strengthen and maintain the capabilities of the government of Somaliland to prioritise and manage the sustainable and equitable development of Somaliland's infrastructure.
- Support strong government ownership of development priorities aligned with the National Development Plan.

SDF Phase 2 focuses on sustainable infrastructure investments and according to its operational guideline, "… it will only invest in projects that are supported by robust Operations and Maintenance (O&M) systems and budgets, thereby ensuring the longer-term sustainability of economic assets",

Energy Security and Resource Efficiency in Somaliland (ESRES)[60]

Programmed over 6 years (2014 – 21) the UK funded ESRES programme aims to support Somaliland in diversifying its energy mix, into renewables (mainly Solar PV), enhancing resilience of supply and providing support for the institutional and regulatory environment.

Somalia Humanitarian and Resilience Programme (SHARP)

Programmed over 3 years from 2018 – 2022 SHARP is a very large (£250m) DFID funded programme with substantial components focused on resilience and emergency response. The nature of the programme is diffuse, with a range of humanitarian activities. The links between SHARP and infrastructure are not publicly articulated. It does, however, include water supply and sanitation, some water for productive purpose (in particular livestock), as well as shelter and other structures such as health centres. A very provisional estimate[61] suggests that around £13m is allocated to infrastructure. There is limited design and implementation information in public records regarding infrastructure projects funded by the programme, although the usual documentation covering the entire programme at a higher level is available from DFID's Devtracker website. It is common across the humanitarian sector for project-level data concerning the design and management of infrastructure not to be shared publicly. Often such information is not even shared with donors by humanitarian implementing agencies, despite the significant overall levels of funding allocated within this aid sector.

Public Resource Management in Somalia (PREMIS)

PREMIS is programmed over 7 years (2015 - 22) with joint funding from DFID and the EU with total allocation of £28m. Its objective is to build the capacity of Somalia's new federal system of government by establishing and improving systems for tax, spend and civil service management at all levels.

[59] Further information: www.somalilanddevelopmentfund.org

[60] For more detailed information on ESRES see section 4.1.5 of this report

[61] Based on an estimate from NRC in 2018 on the intentions of the NGO consortium (BRCiS) that delivers the programme.

Although its focus is public finance management and public administration, it does include some local level infrastructure investments.

Promoting Inclusive Markets Programme (PIMS)

This DFID funded project (2014-19) with a budget of £13m seeks to expand private sector investment. It aims to provide 9000 long term jobs, and 500,000 employment days for the poor, women and youth in agriculture and light manufacturing, including small scale construction.

3.4.6 Non-Traditional Donors

As referenced elsewhere in the report, there is significant involvement of non-traditional donors in infrastructure development in Somalia.

In November 2017, Qatar pledged USD 200 million for infrastructure projects which were not earmarked at that stage. Turkey has provided over USD1 billion support to Somalia since 2011, including the establishment of the 10,000-person military base in Mogadishu, the largest Turkish base outside Turkey. Turkey is said to have pledged over USD 400 million for infrastructure investments in Somalia, including rebuilding of the extensive irrigation system originally built by the Italians on the Shabelle river.

UAE completely pulled out of Mogadishu in April 2018 when the Government seized USD 9.6m from an Emirati plane at the Mogadishu airport. While the Government claimed that the funds were intended to meddle in Somali affairs, the UAE claimed that it was for salaries for the Somali soldiers it was training at its base in Mogadishu. The UAE closed the base, pulled all staff out and abandoned all aid projects almost overnight.

In 2018, it was announced that the strategic roads between Mogadishu and Afgoye (30km) and Mogadishu and Jowhar (90km) that were initially meant to be completed with financing from AfDB's Somalia Infrastructure Fund, would be rebuilt by Qatar. This was "awarded" to Qatar without consultation with the Minister of Public Works, Reconstruction and Housing, as well as the Federal Member States which led to tensions between ministries of Planning and Public Works and Federal member states. After some delays due to allegations of political interference, the contract has been awarded to an unnamed Turkish company in February 2019.

While the international community and traditional donors go about agreeing to national priorities through the SDRF structure, there has been continued criticism of the lack of transparency of the non-traditional donors. Some Somali authorities prefer the non-traditional donors because they are perceived to just "get-on" and deliver. However, Turkey has been criticised in the past for bringing their own people to deliver infrastructure when they conducted projects such as the Mogadishu port, airport, schools, hospitals and municipal roads.

3.4.7 Foreign Direct Investment Including Diaspora Funding

According to the World Bank,[62] Somalia's GDP was $6.8 billion in 2016 and $7.0 billion in 2017. The report notes that GDP is dominated by private household consumption expenditure, representing 132% of national income.

Remittances are a dominant feature of Somalia's economy and a key factor in the welfare of its people. Most of those who left the country to escape war and famine were the relatively well educated and well off. This, combined with a strong Somali entrepreneurial streak, enabled many to thrive overseas. Strong family and clan ties mean that a significant proportion of their income is sent home – and is a key driver of the economy.[63] Although recent research suggests that the poorest are not benefiting from remittances. The dominant role of remittances and ODA is demonstrated in the striking figure below (Figure 8).

[62] World Bank, (2018) Somalia Economic Update

[63] Hammond, L et al (2012) Cash and Compassion: The Role of the Diaspora in Relief, Development and Peace Building, Chatham House

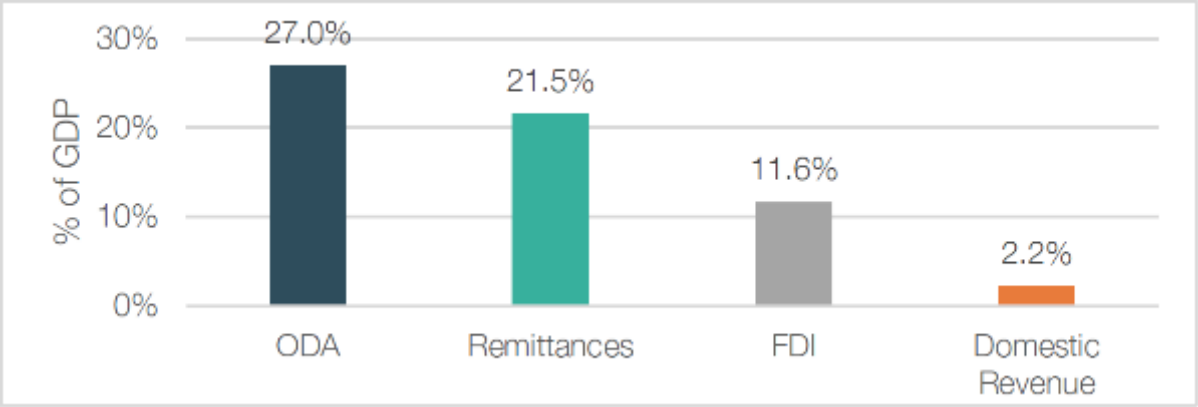


Figure 8: Financial flows as percentage of GDP (FGS, 2017 data)

Official remittances from the diaspora are estimated at about $1.4 billion a year, equivalent to about 23% of Somalia's GDP. It is estimated that about 3.4 million people—roughly 40% of the population—depend on remittances for their daily needs, and about 80% of all new business ventures are funded by remittances.[64]

According to the Pew Research Centre,[65] between 1990 and 2015 the number of Somalis born in Somalia but living in other countries more than doubled from 800,000 to 2 million. Nearly two-thirds of Somali migrants lived in neighbouring countries, with an estimated 280,000 in Europe and 150,000 in the US.

The UNHCR[66] estimates that in 2018, 870,000 Somali refugees were registered in the Horn of Africa and Yemen (the majority in Kenya[67] and Ethiopia), with 2.1 million internally displaced.

A recent survey[68] investigated the financial engagement of the Somali diaspora in relation to money transfers to family and businesses. This found that:

- **remitters** sent an average of $423/month to family and friends in the Somali region for basic needs – food, education and medical care.
- **investors** (nearly 60% of respondents were active investors) committed funds generally in the range of $5,000 to $50,000 with some to the level of $100,000. One third had invested in the last 3 years. The bulk of contributions (78%) came from the Somali region, UK, Canada and the US (in descending order). They are most likely to trust business partners and family members for recommendations. For the most active, the preference was for direct investment into single businesses. Others prefer co-investments or mutual funds to reduce risk. Investments were distributed across sectors, with the highest to agriculture, real estate and education – but also included canal rehabilitation and wells/boreholes for water supply. Of the motivations; the report cited financial return (protecting and growing capital), social good and the potential to return in the future to the Somali region.

Somalia has one of the most active mobile money markets in the world – outpacing most other countries in Africa – with about 36% of GDP flows through mobile money systems. In 2017 about 73% of the population had access to a mobile money account, with only a 5% gap between men (75%) and women (70%).

It is also important to recognise that there is an increasing anti-diaspora sentiment within Somalia. This is because of their dominance of important institutions in the central region, as a result of Somalis returning to the country with some taking up lucrative donor funded positions.[69]

[64] World Bank op. cit.
[65] Connor, P. et al (2016), 5 Facts about the Global Somali Diaspora, Pew Research Centre
[66] www.unhcr.org/somalia
[67] 250,000 of these are in the Dabaab camp near the Somali border. The Kenyan government plans to close the camp on security grounds – something that Human Rights Watch is lobbying against (www.hrw.org/news - March 2019).
[68] Benson, J. et al (2016) Somalia – Diaspora Investment Survey Report, IFAD and Shuraako
[69] Webersik, C et al. (2018) Somalia – a Political Economy Analysis. RVI for Norwegian Ministry of Foreign Affairs

3.4.8 The Somali Banking System

A recent internal DFID report by ICED[70] highlights the lack of any effective or recognised banking system in Somalia. The traditional Somali money transfer companies (known also as *hawala*) have played a crucial role to facilitate money transfer within the Somali financial ecosystem. This comes in several forms including; remittance from the diaspora community; finance from relatives overseas; or, business to business (B2B) transfers. Ultimately, hawala cannot replace a formal banking system, and hawala companies have come under increasing international scrutiny over recent years within the framework of the 'war on terror'. Similarly, the Somali business community are unable to benefit from entering into international business partnerships to further develop their companies because the Somali system was, and continues to be, deemed to be too risky by potential international partners and creditors. Importation is also very difficult without the ability to open Letters of Credit (LC).

[70] ICED, 2018, Scoping DFID Infrastructure Development in Somalia, DFID

4 Case Study Findings

4.1 *Energy[71] and Electricity*

4.1.1 Private Companies Control the Energy Sector

The energy sector in Somalia and Somaliland is almost fully controlled by private companies, with the exception of a few municipalities in Puntland.[72] Despite the serious problems facing the sector, private parties continue to invest their own capital in power supply, as well as in the import and distribution of petroleum fuels.

Somali businesses have had to develop creative and innovative plans to protect themselves in a highly insecure environment. They have also had to accept very high levels of risks both domestically and internationally - without a Somali government protecting their interests.[73] In the eyes of many business people, the Somali state had lost its legitimacy. However, the private sector is increasingly recognising the potential advantages of working with government.

Equally, key stakeholders such as the government and the donor community are also showing an increasing interest in engaging the private sector. This is both a very interesting and beneficial development for a number of reasons. Until very recently, the electricity companies (just like the rest of the Somali private sector) formed cartels. This enabled them to maintain a quasi-monopoly market position with little price flexibility. In this environment the connection fee for electricity to a single house or a small business required an upfront payment of up to $400. Today, in Mogadishu, this connection fee is no longer levied in most cases due to increasing competition between the electricity companies.

There is a consolidation of small electricity companies that are grouping together to be able to make the high investments necessary to offer state-of-the-art power supply services. This makes power companies more efficient as they exploit economies of scale that did not previously exist.

There is significant competition between power companies in some of the major cities like Mogadishu for potential customers (e.g. Beco and Blue Sky).

Secondly, perhaps for the first time since the collapse of the central Somali state in December 1990, a Mogadishu-based company (Blue Sky), with major shares and management members from another Somali region (i.e. Puntland), is able to compete without major hinderance with the traditional energy provider in Mogadishu whose owners are mainly from Mogadishu itself. One private sector interlocuter suggested that the rules and ethos of Somali private enterprise go beyond clan-based allegiances and are based on business interests and alliances. This is reinforced by findings from the University of Pennsylvania (see box).

As national political reconciliation conferences have failed time and again to deliver either results or a sense of hope, Somali businessmen and women have gone ahead in efforts to expand their activities. Defying the tendency toward endless political fragmentation, they have found ways to cooperate ….. across clan and territorial boundaries.

Casanneli,L. 2010, Private Sector Peace Making – business and reconstruction in Somalia, University of Pennsylvania,

There is significant involvement of cellular communications companies in electricity services. Some communities have two or three providers, and

[71] The oil and gas sectors are beyond the scope of this report, and also the role of most development actors. However, there is substantial political and private sector interest in the exploitation of Somalia's offshore reserves. These were the subject of a controversial meeting held in London in 2019. Sovereignty over offshore reserves is also the source of a major and ongoing political dispute between Somalia and Kenya.

[72] Some sections of Hargeisa and Berbera up until 2015, most of Bosaso and Qardho where the electricity provision seems to be a semi-public service.

[73] These include for instance the significant difficulties Somali businesses have been facing to transfer money through the formal international financial and banking circuits due to the absence of effective Central Bank of Somalia in the past decades, lack of trust on the part of international potential business partners and lack of foreign investment to mention but a few.

where these are part of a mobile phone network, the same owner may supply power to several communities. However, the mobile phones business tends to dominate where this is the case, which tends to limit their interests and incentive to interconnect neighbouring communities.[74]

4.1.2 International Investment

It is clear that one major comparative advantage of the Somali private sector is the ability and relative ease with which it is able to mobilise and raise investment funds from the diaspora to expand local networks.[75] The overwhelming majority of companies operating in the energy sector are said to be fully equity-based financing (one company confirmed that it had declined an offer of loan finance from KfW).[76]

However, the fully equity-based financing model for the private sector has its own limits. For example, within the energy sector the Somali private sector has been unable to upscale and modernise the energy sector beyond fragmented mini-grids mainly powered by diesel generators with a highly inefficient and unsafe distribution network. Both the private sector interviewees and KfW stated that the biggest constraint on investment is investment security.

As reflected by the recent experience of the (solar) energy companies working in Somalia, when small-scale companies are given the opportunity to get access to affordable credit, this can have a significant impact on improving their productivity and they can successfully pay back their creditors in time.

4.1.3 Sector Governance and Institutional Capacity

The lack of effective governance and absence of a meaningful regulatory environment is one of the main reasons for the high cost of electricity in Somalia. The sector lacks much needed guidance, incentives and coordination. A key consequence is the absence of meaningful domestic public revenue[77] which makes it almost impossible for the government to invest in infrastructure. The situation is compounded by conflicting and overlapping mandates of the public agencies both at the Federal and State level within the regulatory environment. The lack of capacity is probably a major contributing factor to the lack of safety surrounding energy infrastructure for both the general public and technical operators.

Federal

In Mogadishu, the FGS has created a Ministry of Energy and Water Resources to define and implement overall energy sector policies and to regulate the sector. The ministry has limited staff and limited budget. The FGS has little capacity to develop policies, and there is little or no legislation governing electricity. Nor is there any element of regulatory framework. As in most of the country, there is a legal/regulatory vacuum, and the industry is more or less self-regulating. The World Bank, through the recently approved Somali Electricity Access Project, aims to provide technical support to the Ministry with a view to introducing regulation to the sector.

[74] UNICON, 2018, Somaliland Power Roadmap, Ministry of Energy and Minerals, World Bank
[75] Based on interviews with both the management of Somali electricity companies and Somali donors.
[76] Meeting 2018 with one major private electricity provider
[77] African Development Bank (2015). Somalia Energy Sector Needs Assessment and Investment Programme

Somaliland

In Somaliland, the Ministry of Energy and Mineral Resources has responsibility for energy sector policy and oversight. It has few qualified staff and thus limited capacity to manage the sector. Currently all energy in Somaliland is provided by the private sector.[78]

With EU support, Somaliland adopted its National Energy Policy in November 2010. USAID then supported drafting of the Somaliland energy and electricity regulations and submitted in 2013. However, the process was delayed until ESRES, revisited the Somaliland Electrical Energy Act (SEEA) in March 2015.[79] Following extensive consultations with the energy services providers (ESPs), the SEEA was finally submitted to the Parliament in early 2018. The SEEA was swiftly passed, but two key sections, related to tariffs and the structure of the energy sector, had been removed.[80] It is speculated that the ESPs lobbied Parliament members to remove these two key chapters. The current Somaliland President, Muse Bihi, has asked for these chapters to be reinserted – although this has not as yet happened. This exemplifies the challenge for the government to play a regulatory role, given the strength of the private sector lobby to maintain the status quo, where this is in their own commercial interests.

> The problems pertaining to institutional capacity are exacerbated by a lack of technical skills within Somalia. The African Development Bank and USAID have both reached similar conclusions in their sectoral needs assessments.
>
> *"Many donors have supported vocational training, with mixed results. The critical skill shortages in several key industries are not addressed in vocational training programs. Higher level technical skills are required, for example, ….. to design and install transmission systems for renewable energy facilities."*
>
> USAID (2014) Somalia Strategic Economic Growth Assessment

4.1.4 Somaliland – Power Sector

According to various assessments, about 70% of Hargeisa's capacity is generated by SomPower (which is also generating about 60% of electricity country-wide). There are four more private generators in Hargeisa. The tariff is US $0.75 per kWh with certain discounts for bulk users.

Berbera is served by BEC (Berbera Electricity Company), which recently became entirely private after a period of private-public partnership with the country, Dahabshiil Bank and Tayo Energy have invested in the utility and are currently running it. At the time of their original investment the tariff was US$1 per kWh. The investors committed to lowering the tariff to US$0.30 by 2019 and it is currently available at US$0.50 per kWh. They are running about 7 MW of installed capacity. One of the generators is newly installed. They have also installed three wind turbines that have yet to be commissioned.

The recent WB masterplan[81] states that in larger urban centres, with more than one ESP, there is no common shared network, which contributes to high levels of inefficiency. Some users needing higher capacity to meet demand have multiple connections with separate ESPs, often together with some captive power capacity. The masterplan also confirms high levels of inefficiencies with High Speed Diesel Generators (HSDGs) that are operating well outside optimum levels – causing diesel fuel waste and an increased rate of wear on the generator.

Stranded Wind Power Assets in Somaliland

Hargeisa has had a negative experience installing wind turbines. These are in place by the airport but are not operational due to faults in installation or production, which they are not able to have the supplier address.

There are currently 11 non-operational wind turbines dispersed between Hargeisa, Berbera, Borama and Erigavo. Only the five Hargeisa and three Berbera wind turbines were considered as potential generators in the survey. These are 22kW turbines mounted on 18m towers. While three of the five

[78] Ministry of Planning and National Development, 2018. NDP II Priorities: Energy and Extractives Sector. Pg 10.
[79] Rima das Pradhan-Blach, (2016). Mission Report of the Renewable Energy Fund Advisor, ESRES.
[80] Ministry of Planning and National Development, 2018. NDP II Priorities: Energy and Extractives Sector.
[81] UNICON, 2018. Somaliland Power Master Plan. Pg 70.

turbines at the Hargeisa airport are considered potentially operational, their history has created safety and liability concerns for the local ESPs who own and manage the airport distribution network.

The wind turbines were installed with the support of the USAID financed Partnership for Economic Growth. An interviewee advised that the equipment was of poor quality, and prone to regular breakdowns.[82] SOMPOWER is the ESP for the airport, which may limit incentives to make the wind farm viable.

Detail of the reasons for the failures of these programmes are not clear. However, it does imply that ventures into new renewables technologies require careful prior research, and highly competent design and construction using tried and tested equipment appropriate to the operating environment.

4.1.5 Donor Efforts

Donor projects in the energy sector have to date been small scale, with the largest one being the DFID-financed ESRES. These have tended to focus mainly in the area of renewables, governance and regulation of the sector.

This situation has required funding agencies to invest a lot of effort in understanding the sector, and seeking to identify opportunities that will not distort, through for example, public subsidy or otherwise undermine existing arrangements.

Donors have also been held back by concerns about the security of investments.[83] What investment there has been from donors has been mainly focused on Somaliland and Puntland. The Somaliland Ministry of Energy and Minerals has been a difficult partner.[84] Funding agencies have wanted to support reform of the sector, but without any energy policy or regulatory framework this not, as yet, been possible. As a result, most interventions have not aimed to effect any immediate systematic or transformative change in the sector.

Donors have tended towards supporting renewable energy projects – both 'plug and play' and mini-grids where there are fewer complexities remote from a pre-existing market and private providers, capacity building, and policy issues.

The highly innovative approach of the private sector has created a unique environment that discourages traditional donor engagement in the sector. Given the human geography, political economy and conflict dynamics of Somalia, there is no scope for high value investments in large power plants, extensive transmission grids or distribution networks. There is also, generally, neither the need nor the opportunity for sector unbundling – given the role that the private sector already plays.

Hargeisa is an exception where the grid is in multiple ownership. Funding agencies have so far declined any involvement in unbundling because of the complexities of the current arrangement.

The AfDB's Power Sector Needs Assessment and the World Bank's Masterplan

The AfDB's Energy Sector Needs Assessment[85] recommended a programme of expanding electricity supply in cities that would invest in rebuilding the grids and improving generation in a number of agglomerations, such as in all regional capitals. The first cities to be considered for this programme would be those whose status is currently defined as safe and where work could start soon. These cities are likely to include Hargeisa, Garowe, Berbera, Bosaso, Qardho, possibly Mogadishu, etc.

AfDB's estimated cost, based on the needs assessment, to electrify all regional capitals, other large cities and a number of smaller centres (via minigrids) is about USD 580 million (2016-25). However, there has been no substantive progress with implementing this programme, as it did not address the challenges of working in an electricity sector dominated and run by private companies.

[82] This is a commonly held view among sector stakeholders, although the ICED team was unable to verify it.
[83] Somalia Energy Sector Needs Assessment FGS-AfDB, 2015
[84] From above reference (p53): "The strengthening of [the MoEM] is absolutely necessary, on pain of there being no-one with whom to discuss and exchange views, let alone come to an agreement on energy sector development and expansion issues"
[85] AfDB (2015) Energy Sector Needs Assessment and Investment Programme

World Bank Masterplan[86]

Given the lack of progress, following the AfDB Sector Needs Assessment, The World Bank co-ordinated a power sector master planning process for Somaliland, and Puntland and South Central. Given the dominance of private companies in the electricity supply market, this has involved significant dialogue with these companies. The objective with the Masterplan process is to move beyond the earlier needs assessment to an agreement, with the private power providers, on priorities that will enable progress in the sector.

One pillar of the WB masterplan is the development of a medium voltage ring transmission line around a city, into which generators could supply power and from which the electricity would be distributed to consumers.

This could be an area for donor support, although it may be that private companies would be willing and able to invest in this part of the system as well. For example, the team was told that a major telecoms investor/operator has offered to construct a medium-tension distribution grid (between 600 V and 69 kV) in Mogadishu and reportedly would be ready to pay a fee of USD 4 million to the FGS for the privilege. Such a transaction would give a complete monopoly to this group, as it would own both the generation plant and the distribution system. However, groups of small generators are reportedly trying to form cooperatives or similar joint ventures in order to make the heavy investment required to ensure proper electric power supply (presumably including a proper medium- tension distribution grid). Alternatively, the government could build the grid (with donor funding) and make it accessible (for a modest fee) to all generating companies that meet the technical requirements.

The complexities of the operating environment in Somalia mean that the challenges of addressing systemic and structural issues within the electricity supply sector will continue to be difficult despite these efforts. Funding agencies involved in the sector have a choice whether to focus on the development of renewables at household and mini-grid level or, in addition, engage with the critical longer-term needs for supporting the development of a more effective and efficient private sector, appropriately regulated.

Energy Security and Resource Efficiency in Somaliland (ESRES)

This DFID funded programme (£20.68m) aims to support Somaliland in diversifying its energy mix, enhancing resilience and facilitating an enabling institutional and regulatory environment for the expansion of access to electricity. It has been structured as two phases over a total of 7 years:

Phase 1 (2014-18)

- TA to the Somaliland Ministry of Energy and Minerals to develop a policy and regulatory framework for the sector;
- Pilot the development and implementation of hybrid mini-grids;
- Create a Renewable Energy Fund towards the end of Phase 1.

Phase 2 (2018-21):

- Expand activities on the basis of lessons learned. Activities are to be confirmed, but expected to include further minigrids, potentially broader work on transmission and distribution (rather than generation), supporting new energy regulation bodies.

A review at the end of Phase 1 found that concrete results were achieved in relation to moves towards tariff reduction, increased connections, and UK financing catalysing financing from Somaliland's ESPs. It found that the project provided important lessons for other donor efforts which are now being launched or in the pipeline, and demonstrating sector coordination and how effective division of labour can work to complement efforts. Proof of concept for renewables (Solar PV) technologies was also a significant result.

The Somaliland Renewable Energy Fund to be established under ESRES 2 will have three windows:

> The scale of ambition of the IPPs is significant. For example, Sompower has installed a 4 MW solar plant on the outskirts of Hargeisa. A possible role for ESRES could be to support its successful commissioning and operationalisation.

[86] UNICON, 2018, Power Masterplan for Somalia, Ministry of Energy and Water Resources, World Bank

- Support to ESPs Grants to ESPs, other than existing 6 pilots, to support capital expenditure for renewable energy generation and system improvement (USD 7.2m). million).
- Captive Power Users: Grants to productive and domestic energy users to support capital expenditure for renewable energy generation and system improvements (USD 1.8m).
- Operational Enhancement and Project Preparation: Grants to applicants with innovative ideas to help transform the technology or market structure used to deliver electricity services in Somaliland (USD 0.24m).

ESRES 2 continues to provide support to the ESPs to reduce operational costs, however this time with a focus on reducing technical and commercial losses. Under ESRES 1, all pilots except one adhered to the grant agreement on tariff reduction.

ESRES, as a provider of grant funding, is operating in a market that is entirely dominated by the private sector. This brings particular challenges regarding the preferencing of ESPs and providing some with competitive advantage over others. The leverage to reduce tariffs is the tool the programme is using to reflect the value of support to the ESP. However, not all agencies agree this approach and one interlocuter expressed a view that all funding of ESPs should be structured as government equity in the business – because of concerns about possible market distortions from providing grant finance to private companies. Recognising these risks, ESRES sees itself seeking to play a small role in disrupting the current monopolistic status quo. It also has the potential to encourage earlier uptake of clean technologies.

> One private service provider, interviewed as part of an earlier ICED assignment, was asked what they would do if they did not receive an ESRES grant in the next round of funding. They answered that they would probably go ahead with their own investment in solar generation regardless. This could be seen as both a success, but also a warning sign that the approach may need to evolve as time goes on to consider the issue of ESRES additionality now that the business model and technology have been demonstrated.

The World Bank is also funding the $5.75 m Somalia Energy Access Project (SEAP) approved in December 2018. This relatively new programme comprises three components:

- Standalone plug and play Solar PV
- Urban and rural Mini-grids
- Capacity building

It supports mapping of renewable resources, and a potential large-scale grid and transmission/distribution projects with the possibility of regional inter-connection.

DFID has specifically requested ESRES to coordinate closely with the World Bank SEAP project which includes building capacity to Energy Regulator in Somaliland. The agreement between ESRES and SEAP is to have a structured platform for coordination. This is an important development in an environment where there are a number of standalone initiatives, which could, arguably, achieve more through closer collaboration and reduce transaction costs for partners. It was also important in avoiding MoEM playing donors off against each other – and required a significant effort.

The EU is also supporting the Somaliland Energy and Livelihoods Project, and Somaliland Energy Policy Dialogue (now complete), a proposal for biomass fuels substitution and vocational training for infrastructure skills ($30m), as well as the support and installation of the Pilot Renewable Energy Systems and Somali Energy Transformation Projects.

USAID, through its Transition Initiatives for Stabilization (TIS) programme, assisted in drafting legal and regulatory texts relating to the energy sector and supported a pilot project of wind energy, all of which have valuable lessons for future engagement in the sector.

Smaller Projects in the Energy/Electricity Sector

A variety of donors implement many smaller projects which are very focused on local impact, do not have large scale impact and cannot be used as examples for demonstrating best practice for upscaling. There are also some concerns about the quality of solar PV systems being imported into Somalia, that is creating some distrust in the technology. The World Bank is seeking to support quality controls on imports of equipment for solar systems.[87]

[87] Meeting with World Bank, March 2019

Notable projects - that are indicative of the fragmentation of the donor landscape - include:

Stabilisation projects such as SSF, TIS+ and NIS Foundation support initiatives that include energy components, such as solar street lighting, solar-driven pumps for pumping water out of boreholes.

The EU funds a Natural Resources Management Program in Puntland which includes a component to contract the private sector to commercialise Liquified Petroleum Gas (LPG). Indications from the EU[88] regarding a recent study suggested that a private bulk tank and bottling facility in Bosaso would be viable based on costs and levels of demand. The objective is to substitute charcoal for LPG for cooking given the levels of denudation of tree cover – particularly in Puntland.[89]

4.2 *Roads and Transportation*

The lack of security in key areas of Somalia has led to funding agencies being cautious about funding roads in general, and particularly in areas at risk from Al Shabaab, and clan militia. The current situation heavily constrains agencies in providing funding for renovation and re-building of the roads network through much of Somalia.

The existence of extensive roadblocks is heavily constraining trade and commerce throughout Somalia as well as much needed humanitarian assistance. It is symptomatic of the current security situation and the lack of control that the FGS has over these roads and its ability to ensure free movement.

A recent DFID funded study[90] identified an urgent need to reclaim the roads to facilitate and sustain safe transit. Interventions should be relevant and effective at meeting local needs, because local people have clearly demonstrated that they know what their needs are, and they have knowledge about what will and will not work. Somali-led interventions, with outsiders in a supporting role, are also much more likely to be sustainable because they will be grounded in local capacity and motivation. This commitment is not shared by all those with an interest in the current political economy.

Security

The transportation sector is highly sensitive to security conditions, with technicians and crews repairing roads particularly vulnerable. Building or repairing roads requires a minimum of security for work crews, who must spend considerable time along the road. The lack of security makes transporting goods and construction materials hazardous and costly, especially for the proliferation of checkpoints where, generally speaking, some form of “toll” must be paid in order to be able to proceed. Therefore, road projects are the most difficult to implement under conditions of insecurity. Ports and airports are easier to work on because they can be secured more easily and are often secured at all times in any case. For these reasons, port and airport projects have often been given preference in the more fragile southern regions (i.e. Hirshabelle, South West, Jubbaland and Benadir).

This research mapped existing roadblocks on the road between Beletweyne and Mogadishu. It uncovers key information to understanding the ways in which roadblocks cause harm, and calls for collaborative action to reclaim Somalia’s roads.

The overall finding was that **roadblocks are restricting the ability of people, goods and aid to move safely and freely by road, and are impeding progress towards the long- term stability and reconstruction of Somalia.** The current political economy of roadblocks is a complex one with competing and conflicting interests, power struggles, corruption and crime all converging within a challenging and hostile physical environment. Further findings conclude that:

- **All three political power networks in Somalia use roadblocks for purposes of territorial control and revenue generation -** the State, Al-Shabaab (AS) and clan-militia groups.
- **Roadblocks foster a culture of corruption across all three power networks.**
- **Roadblocks have a disproportionately negative effect on society,** particularly people’s daily

[88] Meeting with EU March 2019

[89] The LPG component of this important multi-year EU program seems to have eventually faltered although the rest of the program has been reportedly a success.

[90] Transparency Solutions, 2017, Reclaiming Somalia’s Haunted Roads, IAAAP (DFID funded)

life. Many are excluded from travelling, because of their clan affiliations or because they are a potential target for Al-Shabaab.

- **Roadblocks contribute to a widening social inequality.** Many road-users are excluded from travelling through Al-Shabaab or clan-militia roadblocks because of their personal profiles, due to the jobs they do, or because of past trauma. Those who can afford to do so, choose to fly.
- **Al-Shabaab roadblocks are well organised and comparatively safe.** For those who feel able to pass through AS-controlled territories passing through Al- Shabaab roadblocks is their preferred route because it is efficient, quicker and, once initial screenings have been completed, is relatively safe.
- **Unemployment is one of the main drivers of illegal roadblocks.** This is undoubtedly the case with clan- militia, many of whom are desperate young men with families to feed, no skills and no visible opportunities. Al-Shabaab continue to exploit these young men who are more susceptible to radicalisation and recruitment.

> The first Al-Shabaab checkpoint is approximately 25km west of Beletweyne town at Luqjeelow. Here, for example, the driver of a passenger bus pays a fixed sum of $200 and is issued with a set of payment vouchers, one for each of the following AS checkpoints until Daarusalem, the final Al-Shabaab-controlled checkpoint and 53km south west of Jowhar.

- **There is significant public support for the FGS to legitimise roadblocks and to run them efficiently and effectively.**
- In Somaliland roadblocks have made the successful transition to safe and functioning security control posts. This is largely attributed to the so-called “home-grown disarmament, demobilisation and reintegration (DDR) processes in the early to mid-1990s.”[91] Others also attribute this to the bottom-up process of state building in Somaliland.

4.2.1 Roads in Somaliland: A Success Story

Two sections of road, the Hargeisa-Berbera Road and the Berbera-Sheekh Road, have been repaired and upgraded through SDF and EU/German government funding.

Experience in Somalia and elsewhere has been of a lack of maintenance following capital funding for roads (and other infrastructure). However, the assets once complete are left to degrade in the expectation of future donor support for repair and rehabilitation. This is a particular issue in situations of stabilisation, including humanitarian support.

Wider Benefits of the Somaliland Roads Programme

- Reduced public transport costs as a result of lower maintenance costs – a journey to Burao has dropped from up to 20 USD to only 3 USD per person.
- Improved road safety along the Berbera-Hargeisa main road, with car accidents down by an estimated 90%.

However, the support for roads work in Somaliland was subject to an O&M commitment by the Government. This reflected a broader concern that authorities dedicate the necessary funding for O&M of donor-provided infrastructure assets, which has not previously been honoured, despite written commitments. The SDF and EU/German programmes both included capacity building components with the Somaliland Roads Authority as part of their programmes for roads rehabilitation in Somaliland.

These programmes were structured to enable Somaliland to both implement government led projects, and to improve local infrastructure. In allowing Somalilanders to lead the process, it has strengthened local technical and management capacity (e.g. by putting in place proper bidding and procurement systems). They have also bought, operated and maintained roads construction assets and equipment including materials testing laboratory for the construction. The leading construction company has also invested in new testing/verification equipment.

[91] Small Arms Survey, Somaliland 2010. http://www.smallarmssurvey.org/fileadmin/docs/A-Yearbook/2012/eng/Small-Arms-Survey-2012-Chapter-05-EN.pdf

Somaliland has a culture of community and private-sector finance for roads. The road from Burco to Erigavo (375km) is one such road. Initially, the Government had wanted the SDF 1 to finance this road in 2013 – however, unfamiliar at the time with international procurement processes, and design requirements, the Government were concerned that SDF 1 would take too long to "deliver" the road.[92] The Government stated that a Chinese company could complete the road much faster having purchased road construction equipment from China. The Government committed to reconstruct and repair the roads separately from SDF 1. Members of the Government, private sector and the community travelled across Somaliland, Europe and the USA, reaching out to the diaspora and raising substantial funds. It is unclear how far the project has got through planning and implementation, however.

With the Dubai Ports World concession to upgrade and operate Berbera Port, there is now a renewed interest and urgency to upgrading the Berbera – Hargeisa corridor through to the Ethiopian border. This is essential to enable much greater volumes through the port for both export and import to/from Somaliland and the region. The support of funding agencies for roads rehabilitation, and to the Somaliland Roads Authority should provide a good foundation for the current plans underway for this new highway that is currently estimated at $272m.

An EU financed study (undertaken by Gauff) estimated the cost of the 240 km road upgrade to be USD 272 million. There have been claims that this is high and the road was over-engineered.[93] The Abu Dhabi Foundation has pledged USD 90 million and a company from UAE has commenced work on the road between 150 km road from Berbera - Hargeisa. The Berbera Corridor has been assessed since 2006, and lifted interest in financing the corridor. However, the Abu Dhabi Fund seems to have had the effect of unlocking funds from traditional donors, with EU donors committing funds to this important initiative.

Subsequent to the Gauff study, the UK funded Trade Mark East Africa (TMEA) to undertake a diagnostic of the Berbera Corridor – on the basis of a phased upgrading.

The UK's Prosperity Fund has recently approved GBP 25 million towards the financing of the Berbera Corridor. The Business Case[94] states that 'The UK [will] play a pivotal role to ensure the expansion of a transport route along the Berbera corridor into an economic development corridor. This will generate benefits not only for the people of Somaliland and Ethiopia but also the wider region, and the UK's development, prosperity and trade agendas'.

The main project output is to upgrade the currently poorly functioning Berbera corridor into an effective 'economic corridor'. Over four years to 2022, the UK will provide:

- **Hard infrastructure pillar** (£18m accountable grant with Trade Mark East Africa (TMEA) to finance the new 22 Km Hargeisa Bypass (currently known as Route 200).
- **Trade facilitation pillar** (£2.5m accountable grant with TMEA) which will support 'soft infrastructure,' i.e. the overarching regulatory work on trade, transit and customs on both sides of the border, enabling more equitable and efficient trade routes.

The UK's investment through the Prosperity Fund will coordinate with:

The Abu Dhabi Fund for Development – including a US$90 million contribution towards corridor road upgrading. It is also funding all detailed design and supervision, and capital costs for 4 out of 5 sections of the road;

The World Bank – potentially re-directing part of its US$150 million Ethiopian loan on trade logistics. Coordination with the World Bank will be crucial to benefit from its technical expertise;

The EU – influencing the shape of EUR83 million 'Inclusive Local and Economic Development Project', some of which will be focused on the Berbera corridor; and,

The UK is also able to use its assets and networks to assist with attracting commercial investments, including through CDC and the UK Somali diaspora.

Prosperity Fund, 2018 (op. cit.)

[92] And in any case, the SDF had already elected to move to a position of financing only road rehabilitation and upgrade, not new roads. The reasoning for this was based on the recurring failure to maintain roads which suggested new roads will simply fall into disrepair.

[93] In the authors' view, prima facie this does not appear an exorbitant cost (around $1m/km) for an international highway linking Berbera with Ethiopia, particularly giving the axle loading of the trucks that will be carrying goods to and from the port.

[94] Prosperity Fund, 2018, Business Case – Unlocking Prosperity in the Horn of Africa, HMG

- **Local economic development fund** (£3m – delivery agent to be determined in start-up phase). This will link the large scale "anchor" businesses in the port and wider corridor area with Small and Medium-sized Enterprises (SMEs), via financing and development interventions.

The overall risk rating for the programme is assessed as 'major' (in particular in relation to support for Somaliland as an unrecognised state), but within the level of risk appetite within the overall DFID portfolio. The Business Case raises the issue of the extent to which there is sufficient flexibility within the programme to adjust to changes in context – considering that the implementing partners will cover this through strong monitoring and evaluation to provide real time evidence of the context and results.

At a much smaller and more local scale DFID's Promoting Inclusive Markets (PIMS) programme supported feeder roads programmes in Somaliland and Puntland. The objective of these programmes, implemented by DAI, was to improve access to markets for agricultural products (including milk) and doing this using a cash for assets approach. The programme included support to rehabilitate 8 km of feeder roads, which were successfully completed. However, later inspection[95] found problems with one of the Irish bridges, which was damaged by trucks using the route that had axle loadings far higher than the size of vehicles expected at design stage. According to DAI[96] the benefits to the community were such that they are planning to extend the road using their own resources.

This highlights the importance of fitness for purpose of the completed road – and applies to all infrastructure development. Design standards should be rigidly applied, and assume the highest axle loadings based on a range of scenarios over the design life of the road. Adopting lower loadings to save short term costs will in many cases be a false economy in the long term.

4.2.2 Challenges with Roads Rehabilitation in Puntland

A roads rehabilitation programme in Puntland has faced significant challenges as a result of corruption. This EU funded project, being implemented by GIZ, was intended to rehabilitate 400 km of roads and provide Technical Assistance to the Roads Authority. The project was long delayed because the Federal Ministry of Public Works did not agree the introduction of an axle load limit. This was ultimately agreed. However, the contract and implementation of the rehabilitation were fraught with problems. All potential bidders submitted a single offer as a consortium and the work did not go well, with issues concerning the standards of work and the quantities for payment.[97] An article was published in the local media on tender malpractice and GIZ launched an investigation.[98] As a result, GIZ twice walked away from the project – and subsequently closed its operations in Puntland. However, the EU recently confirmed that they are exploring opportunities to conclude the work in Puntland – and utilise the remaining balance of funds - possibly through UNOPS rather than GIZ.

[95] LAMPS, 2018, Infrastructure Report
[96] Meeting June 2018 – organisation/individual redacted
[97] Meeting March 2019 – organisation/individual redacted. We were not able to independently verify this information.
[98] This case is referenced in a report from DFID's IAAAP programme: From research to action: Puntland's anti-corruption platform. December 2017. IAAAP: http://www.somaliaccountability.org/files/Resources/Eng/IAAAP_CaseStudy2_PSU.pdf

4.2.3 Roads in South-Central Somalia – Years of Neglect Due to Insecurity

Despite the extent and importance of the roads network through South-Central Somalia, there has been almost no investment in maintenance or rehabilitation for over 25 years. As a result, roads that were once main routes are now reduced to little more than tracks through the bush, some of which are impassable particularly during the rains. The reason for the neglect is that levels of insecurity across these states have meant funding agencies have considered the operational, security and reputational risks too high to consider supporting road rehabilitation.

However, funders are now taking a more positive view about funding construction of important sections of principal highways.

One of the few roads to have been rehabilitated is a 67km section of road between Hobyo and Beledweyne. This was financed through crowd sourcing from the Somali diaspora, and private sector implemented, following the SSF construction of an airstrip at Hobyo. Part of the EU funding of the SIF has been earmarked for completion of this road.

Particular priorities for the FGS have been the Mogadishu – Jowhar and Mogadishu Afgooye sections. There has for some time been donor interest in funding these roads. However, the political sensitivities and interests have revealed competing interests between ministries – including the Office of the Prime Minister (OPM), Federal Ministry of Planning (MoPIED), and Federal Ministry of Public Works (MoPWRH). In 2017, the Government of Qatar pledged USD 200 million for infrastructure development in Somalia. Following this commitment, MoPIED and the OPM decided that the two roads would be financed with Qatari financing. AfDB finance through the SIF already allocated for these roads was as a result directed elsewhere. The AfDB then had to wait for the Government to identify other roads.

The Qatari's have awarded the contract for the road construction to a Turkish contractor. The 'ground breaking ceremony' has already taken place. Construction is expected to start soon. However, recent developments with increased Al Shabaab activity along this road and the taking of Balcad mid-way between Mogadishu and Jowhar reinforces concerns about safety and security along the route during construction and after completion. The road will be constructed in short sections with protection from the Somali National Army (SNA), which received some of its training from Turkey.

Four different roads were agreed to at the sidelines of the Brussels Conference in 2018 to be financed by the EU and Italy. However, there was continued jostling between the OPM, MoPIED and the Minister of Finance on which roads were to be financed, and the delivery time. The Minister, MoPIED in particular was adamant that the timelines for road construction be reduced from approximately 60 months to 36. The Minister of Finance also wanted to change one of the four roads to the old "Chinese Road" linking Burco in Somaliland to Mogadishu. However, as this involves crossing a disputed border between Somaliland and Puntland it would be a very high-risk venture.

The EU is expected[99] to provide 42m Euros for roads construction from the EDF. This will be channelled through the SIF. The AfDB is providing 12.3 m Euros from African Development Fund (ADF) funds – which importantly gives the AfDB a financial stake in the programme. In addition, Italy is providing 2.5 m Euros, and FGS is committing 3.5 m Euros for ancillary services (e.g. markets).

It is also significant that the SIF funding is to be channelled through the Ministry of Finance, in the same way that the WB is now funding projects. This means that UNOPS will not be implementing the programme, as was the earlier plan for the Mogadishu Jowhar road. EU is also including TA and capacity building as part of the package. However, there is as yet has no Operations and Maintenance component. Capacity building will focus, as least initially, on the construction.

The four sections of road currently earmarked under this programme are:

- a relatively short section (60 km) of gravel road linking Doolow on the border with Ethiopia with Luuq Ganaane in South West. This is a high productivity area for irrigated agriculture on the Jubba river. The border area with Ethiopia is stable.
- Beledwayne to Gaalkayo (90 km of rehabilitation with a budget of 15m Euros)
- Galalkayo to Garoowe (85 km budget 13m Euros).
- Gaalkayo to Hobyo road (this is the highest priority for the government) and will complete the unfinished section of road started with diaspora funding (see above).

[99] Meeting with EU Somalia March 2019

Although challenging, it is likely that these sections of road will be easier than the Qatar funded sections of road.

After decades of inactivity in roads (re-) construction in South Central Somalia these developments are an encouraging sign. These undertakings are clearly not without risk. The stakes for Somalia are high. Their success is likely to encourage further investment in the roads sector. Failure could mean many more years of neglect before funding agencies are prepared to take another chance. The programme is due to be submitted to the AfDB Board for approval in July 2019. Some interlocuters expressed concern that the approval process had been very slow – which is a valid comment. However, the more important test will be whether the implementation is successful, and the rebuilt sections of road are safe, accessible to all, and support economic development and livelihoods.

4.2.4 Urban Roads

UNOPS had an agreement with the World Bank to conduct feasibility studies and preliminary designs for community/secondary roads in the 17 districts of Mogadishu. The Somali Urban Investment Planning Project (SUIPP) supported the final detailed designs and civil work contracts to the selected roads. The project will also provide financing and technical assistance for the community /secondary roads in the seventeen districts to be tendered, the community-based contracts awarded, and the roads constructed to ultimately improve the quality of life in the participating districts while at the same time providing for some district-based employment through the contracting. The UNOPS role will be limited to quality assurance of the works. It is an indication of the World Bank's perceptions of risk in the current operating environment that they have committed funding to urban roads, but not to any trunk roads linking urban centres.

DFID's PREMIS programme has funded some urban road upgrading in Puntland. In relation to these, the project's third-party monitors refer to communities raising concerns about safety issues regarding the proximity of the road edge to the entrances of shops and roadside stalls, with no sidewalks. The ICED team was unable to assess these claims, but it raises the important issue for all road projects of integrating road safety from the outset. Improving road safety is an important DFID policy priority.

> Globally, road traffic accidents are the leading cause of death for young people aged 15 – 29 – with the worst statistics for road traffic accidents being in Africa. The WHO concludes that 'road infrastructure has not improved to accommodate the increased number of commuters and ensure their safety and many people are exposed daily to an unsafe road environment'
>
> www.who.int/bulletin/volumes/94/7/15-163121/en/

The end of project review for SDF highlighted the issue of road safety in relation to roads in Somaliland, with a recommendation that "More attention needs to be paid to road safety by passing requisite legislation and purchase of speed monitoring equipment. The SDF has invested in road signs and speed bumps but a culture change is required to prevent accidents."

4.2.5 Strengthening Roads Maintenance Systems

The **EU and GIZ** currently have the **Sustainable Road Maintenance Project** which is a follow up to work done by the ILO in the 2000s to establish institutional capacities and best practices in the areas of labour-based works, introducing concepts such as standards, transparency, engineering capacities, community dialogue and community contracting (something which for example SSF-2 and TIS+ have capitalised on through work on airstrips and roads).

Attempts[100] have been made to establish local level government capacities to monitor and maintain road infrastructure, initially through the Somaliland Roads Authority and the Northeast Somalia Highway Authority (NESHA now called the Puntland Highway Authority).[101] Previous efforts to consolidate these efforts were victim to the short time horizons of donor funding and the requirement of demonstrating immediate results. As government infrastructure oversight is essential, donors have continued to support the highway authorities in a variety of ways.

[100] ILO initiated this in the 2002-2008 period with DFID funding.

[101] In Puntland, the Puntland Highway Authority is placed under the Ministry of the Presidency. And there are also ministries for public works, housing and transport, civil aviation and airports, and seaports and sea transport.

4.2.6 Airstrips and Ports

The DFID led Somalia Stability Fund has provided funding for two airstrips/runways in Somalia – the first in Hobyo, and the second, which is still under construction, in Baraawe. Both in or close to areas of Al Shabaab activity.

Various donors have provided funding to airports. Most notable from our interviews is Italy, which funded Bosaso airport (implemented by UNOPS) in the more secure environment of Puntland, and is interested in funding the second phase – airfield ground lighting and freight terminal/storage.

Because of the strategic importance with regards location on the Indian Ocean and regional trade ports, development is a major area of interest. It is a sector mainly dominated by the non-traditional donors – with substantial investment from the UAE and Dubai Ports World in Berbera, and through P&O has a 30-year concession from 2017 to develop and run Bosaso port in Puntland.[102] Turkey has invested heavily in both port rehabilitation and management in Mogadishu.

Somaliland - Berbera Port

The UAE with their investment in the Berbera Port has already brought about marked improvements at the Berbera port. Construction started in October 2018, and the first phase will consist of building a 400-meter quay and 250,000-square meter yard extension as well as the development of a free zone to create a new regional trading hub. The introduction of new cranes has already more than doubled handling capacity.

On-the-job training of Somalilanders has seen a visible difference in how the port is being managed professionally. Workers have been banned from chewing the narcotic khat in the work place – meaning that the ports continue to function past 1300 hrs, when everything else shuts down to “chew”.

The SSF has supported the construction of two airstrips as part of its stabilisation efforts. The first during phase 1 was in Hobyo, an area renowned for piracy. The second airstrip is in Baraawe, a strategically significant port city south of Mogadishu, once held by Al Shabaab. The initial justification for the investment was for the capital of South-West State to move to Baraawe. This is now unlikely to happen. However, an operational airstrip for the town is likely to have a significant impact – not least in terms of access, given the very real dangers of travel by road from Mogadishu. The length of the runway will enable large cargo planes to land – and is likely to be used by AMISOM for supplies. However, its proximity to areas held by Al Shabaab could make it a target for attack. The airstrip is due for completion by mid-2019. In anticipation of this, SSF is funding some further work to ensure that potential benefits are realised and shared across the community. While this is a positive intervention, it implies that the realisation of economic benefits and livelihood opportunities were not integrated into the programme from the outset. As with Hobyo, it may be that entrepreneurs in the community will benefit from the airstrip. However, earlier engagement ideally from inception phase, may have enabled greater and more widely distributed benefits in Hobyo, and possibly Baraawe.[103]

Hobyo Airport

“The rehabilitation of Hobyo airport (at a cost of $275,000) opened up economic opportunities for the local communities, including youth involved in the fishing industry. In an area that was dominated by piracy, a particular objective was to reduce youth unemployment. The report claims the airport has increased the price that fisherman can obtain for their catches (revenues up by 60%), despite the 4-fold increase in the number of fishermen. There are now 3 flights a week between Hobyo and Mogadishu to transport high value fish (SSF interview 2019).”

DFID, 2017, SSF II Annual Review

In Somaliland, there are two main airports – Hargeisa and Berbera. The Hargeisa Airport has been upgraded to meet international standards with the support of the Kuwaiti Government with a number of international carriers such as Ethiopian Airways, Fly Dubai, Saudi Air amongst other international carriers providing up two flights a day. There are four unpaved airstrips in Borama, Burao, Las Anod

[102] However, a P & O Executive was killed in February 2019 in Bosaso – with Al Shabaab claiming responsibility. www.reuters.com/article/us-somalia-security-p-o/gunmen-kill-dubai-owned-po-ports-executive-in-somalias-puntland-idUSKCN1PT0IO

[103] Further information on this project is in the box in section 5.1.

and Erigavo, which are capable of handling light aircraft.[104] The UAE are also in the process of upgrading Berbera airport, which be used by both military and civilian aircraft. The military landing strip in Berbera was considered to be the longest in East Africa and originally built by the Russians in the past. As part of the concession, the UAE are also building a military base in Berbera. Funding of the airport is also linked to the Berbera corridor upgrading.

4.2.7 Institution Building

An independent Roads Agency at the federal level does not exist, but the NDP states that it could significantly contribute to coordination of rehabilitation and maintenance efforts in the country. Competences for road construction, rehabilitation and maintenance are so far distributed between several ministries decreasing the efficiency of all on going and intended interventions.

Federal - At the federal level, the Ministry of Public Works, Reconstruction and Housing is in charge of road construction and maintenance as well as supervising projects. At the federal level there are no roads or highways authority, but one is under consideration. Ports come within the ambit of the Ministry of Transport and Roads, but the Port Authority reports directly to the President's Office.

Somaliland – In Somaliland the institutional structure is similar to the federal one, except that transport falls within the Ministry of Public Works, Housing and Transport, also containing the Roads Development Agency. The Agency has some operational capacity, as it is builds and maintains some roads (despite extreme resource limitations). The Roads Development Agency has received technical assistance from the EU, SDF 1 and is currently receiving technical assistance, and assistance with training and capacity building from GIZ. In addition, there are separate ministries for ports and maritime transport, as well as for civil aviation and airports. The port of Berbera enjoys relative managerial autonomy. Although our interviews indicated that Somaliland is keen to establish a Somaliland Ports Authority, and seek to accede to the UN Convention on the Law of the Sea (UNCLS) in their own right – separate to Somalia – there are clearly challenges with an entity not recognised by the UN General Assembly as a state acceding to a state convention. The main objective of the Somaliland authorities is to maintain and improve the connectivity between main cities and agricultural areas, as well as with border crossings/neighbouring countries.

Puntland - In Puntland, the Puntland Highway Authority is placed under the Ministry of the Presidency. And there are also ministries for public works, housing and transport, civil aviation and airports, and seaports and sea transport.

Southern Somalia - The international community is doing a lot to improve capacity within Somali institutions, but most of the focus is given to the federal government, upper tiers of government and policy. Capacity within the ministries is important, but so too is the middle layer. It is the middle layer that is responsible for the procurement process, construction, supervision of contractors, operations and maintenance of infrastructure. The problems pertaining to institutional capacity are exacerbated by an extreme lack of technical skills, particularly in Somalia across all infrastructure sectors.[105]

[104] Somaliland Ministry of National Planning and Development. 2018. NDP II Sector Priorities: Infrastructure. Pg 7.
[105] ICED, 2018, Infrastructure Scoping Report for DFID Somalia

4.3 *Water for productive uses*

With Somalia's economy depending so much on its agricultural production – particularly livestock – the safeguarding of its water resources for current and future generations is an important priority. Given its importance and scarcity, access to water is a highly sensitive and, in some places, a contested issue. FAO expressed concerns that both the Shabelle and Juba rivers have no flow towards the end of the dry season – whereas historically flows were perennial.

A director in the Federal Ministry of Irrigation expressed his concerns[106] about transboundary issues on the Shebelle and Jubba Rivers. Somalia is concerned about the dams being built upstream in Ethiopia on the Shebelle and Juba rivers. There is currently no water sharing agreement. He said that water is at the top of Somalia's political agenda and that the President raised this with the Ethiopian President during a visit in 2018. The flows from these rivers have dropped to almost zero in recent years – although SWALIM[107] is not clear whether this is due to climate change related drought or upstream storage in Ethiopia. Somalia's current state of fragility and insecurity makes negotiation of water sharing arrangements with Ethiopia problematic and without the necessary legal and technical capacity.[108]

SWALIM is based in Nairobi with a presence in Mogadishu. However, it is now under pressure, from the EU as its principal funder, to integrate operations within one of the relevant ministries, on the basis that current arrangements are not building capacity in the Ministries of Agriculture and Irrigation or Water Resources. This is seen as particularly important because of the quality of some of the graduates from the region, Ethiopia in particular, with training in water resources management who would benefit from this. This highlights a broader point about the high level of capacity based in Nairobi for data gathering and analysis on Somalia – which inevitably limits the level of knowledge transfer to Somalis. However, safety and security, the ability to operate and attract good quality staff will be major challenges.

A recent World Bank/FAO report[109] provides information on the level of investment along the Shebelle River's upper, middle and lower reaches in the 1980s prior to the start of the civil war. This included:

- an FAO-funded primary canal to a depression south of Jowhar, with storage capacity of 200 million cubic meters. In addition to irrigation the reservoir also supported a commercial-scale tilapia fishery for both local consumption and export by air. This was run by a businessman using local labour, motorised fishing boats, and cold-storage facilities and trucks. This $34 million project was funded by Saudi Arabia and built by a Chinese construction company SIETCO, and supervised by the Ministry of Agriculture.
- the Chinese government funded the Dududble barrage and its relief canal (known as the Chinese Canal), also constructed by SIETCO, mainly to safeguard against flooding when the Jowhar reservoir became full and the level of the river at Belet Weyne was still high.
- the Democratic People's Republic of Korea funded Balad barrage, built in 1987 in Balad district of the Middle Shabelle, providing irrigation for up to 10,000 hectares, mainly to small-scale farmers growing cotton for the (state-owned) clothing factory in Balad.
- to protect all low-lying areas along the river from floods, flood control embankments were constructed and maintained annually during the dry season. In addition, various river gauges (in Mustahill, Ethiopia, and in Belet Weyne, Bulaburde, Mahadday Weyne, and Jowhar) provided regular monitoring of water flow and early flood warnings downstream.

[106] Meeting June 2018

[107] Recognising the need for better quality data and analysis on surface water and groundwater, the FAO/SWALIM project (Somalia Water and Land Information Management) was set up in 2001. This has done extensive work relating to water resources, including preparing more accurate and adequate hydrogeological maps of the northern part of Somalia, which are essential for planning any groundwater exploration and exploitation (FAO/SWALIM 2012).

[108] Meeting June 2019

[109] World Bank, FAO, (2018), Rebuilding Resilient and Sustainable Agriculture in Somalia

Now operating at a much smaller scale the FAO, with SWALIM providing design and technical support, have funded some repair and rehabilitation of the irrigation canal system and associated control structures on the Shabelle River. They have focused on the sections of canal from Jowhar through Afgooye in the Merka area – a total length of roughly 200 km. During the colonial era this was an area of high productivity with significant involvement of private companies – mainly Italian. Some of these companies maintain an interest. Given the high value of the land within the irrigation command area, ownership is also complex and contested.

There are two projects funded on sections of the canal known as the 'Primo Secondario' section of canal downstream of Afgooye in a contested and insecure area. These are being funded through the Rome based UN agencies, FAO and IFAD. The Italian NGO, Terre Solidali, is implementing through the IFAD's Support to Agriculture Programmes in Somalia (SAPS).[110]

> *With most farmed land currently privately owned (under long-term leases), traditional and religious leaders' recommendations and decisions are usually accepted by parties in conflict in rural areas where there are no armed clan conflicts. However, many prime farms in the Lower Shabelle are still occupied by militiamen from outside the region who fought against the Siad Barre regime. Landholders who left those farms for safety after the start of the civil war are still unable to reclaim their land, despite documentary or traditional evidence and rulings, because of insecurity, the weakness of traditional arbitration, and the absence of modern judicial institutions.*
>
> World Bank, FAO, (2018), Rebuilding Resilient and Sustainable Agriculture in Somalia

IFAD[111] recognises that prior to the destruction of irrigation and agricultural systems in the region, Lower Shebelle was the 'bread basket' of Somalia, and key to overall agricultural and food production systems. The Primo Secondario canal is targeted by the project (along with the activities geared towards alternative water sources and allied activities) as key to rejuvenating production in the region.

The programme comprises four main components:

- Conflict risk management and community engagement.
- Rehabilitation of 37 km of irrigation canals.
- Enhanced water sustainability, operational sustainability of the canal system, and development of pilot solar pumping from tubewells for irrigation.
- Agricultural support for small farmers.

The IFAD project report[112] describes the operating environment as being 'highly risky' – and sees community engagement as an essential part of mitigating this early in the programme. The programme is scheduled for 2 years at a total cost of 2.8 million Euros.

However, despite the challenges and risks due to the proximity of Al Shabaab to the area, disputed land titles and vested interests of large farmers, Terre Solidali have established an approach that has enabled them to make progress with project implementation. This is based on operating at the local level and gaining the trust of the community and its leaders. This has led to the community making a stand against the large landowners to allow the rehabilitation work to proceed. There were, however, issues when Terre Solidali planned to award a large contract for some of the implementation work. This was opposed by the local authorities who insisted that the work be packaged to allow smaller local contractors to bid for the work. IFAD and Terre Solidali agreed to this change of approach.

FAO is also planning a similar project on the Primo Secondario. However, FAO did not provide any information on current status, which implies that the project has not yet started. FAO did, however, confirm that they were planning a similar approach to that adopted by IFAD.

Further upstream to the IFAD project, DFID has funded some canal rehabilitation through its Promoting Inclusive Markets in Somalia (PIMS) Programme. DAI implemented the project, again working in an area of significant hazard – particularly in relation to Al Shabaab and clan militia. The project is now complete. It was undertaken on the middle reaches of the Shebelle River, near Jowhar, working closely with large companies. It has provided irrigation water for 25,000 smallholder outgrowers, who sell the Sesame harvest to these companies, which has resulted in 4000 Ha being brought under cultivation

[110] https://operations.ifad.org/documents/654016/3a4472fc-9423-4614-ac88-a0ec93b04845
[111] IFAD, 2017, Support for Agricultural Production in Somalia (SAPS)
[112] Op. cit.

through a cash for assets[113] programme. DAI's approach was similar to that of Terre Solidali in working closely with the local community, and using their support as a significant part of their security strategy. They tried to ensure a low profile, working 'under the radar'. As a result, there were no security incidents – despite DAI not hiring any additional security for the project.

Irrigation canal. DAI

DAI did, however, provide some comments on the programme. In particular they felt that the programme missed opportunities through taking a short-term approach. The information provided by DAI suggests a substantial amount of early work in gaining understanding of the local context and the trust of the community. This investment could have been used to do more to ensure the sustainability of the restored assets, and investigate the extent to which the improved irrigation was resulting in the expected outcomes, and whether there was a reasonable distribution of benefits.

USAID has a similar programme – Growth and Economic Empowerment for Livelihoods (GEEL) – although time did not permit exploring the learning from this programme.

There are some ambitious plans for further work on the Shabelle. One is an off-stream storage project close to Jowhar that is on a much larger scale to the FAO/IFAD projects. The Turkish development agency (TIKA) is reported[114] to have signed an agreement for the funding of this project – that will include reconstruction of a major barrage on the Shabelle for controlling the flow. This will reduce the downstream risk of flooding by ponding the water, and holding it back for irrigation after the end of the rainy season. Mott MacDonald undertook the study and design of the project. This would be a major undertaking with an indicative cost of around $200m. However, despite earlier indications of support, the research team were not able to ascertain its status or possible start date for implementation.

The Somaliland Development Fund (SDF 1) has pursued some water resources development projects in Sool and Sanaag, close to the disputed border areas between Puntland and Somaliland. These were challenging on a number of levels (see box). Revealingly, access to these projects was not possible for the third-party monitoring consultant, LAMPS, due to security concerns.

Challenges of Operating in Providing Access to Water in Eastern Somaliland (SDF 1)

The learning from the SDF 1 water projects exemplifies the challenges of operating in disputed areas, with local tensions, to improve access to water that is a contested resource in an extremely arid context.

It became apparent, during the implementation of the Hadaaftimo mini-water system in Sanaag that tensions between two local sub-clans were masked during the project feasibility process. This arose over the borehole location and pipeline distribution. Despite the drilling contractor cancelling the contract, it was successfully completed. The problems were resolved by involving the chief of the two sub clans that resulted in an agreement to work together. A full-time community mobilisation officer was engaged throughout to ensure continuous engagement with, and information flow to, the communities. A water committee was created and continues to function.

Another two – related - projects in Kulaal and Fiqifuliye were halted (and handed over for completion to the Ministry of Water) due to a combination of technical and security factors. Adverse ground conditions and poor water quality meant that drilling was not an option and the decision was taken to develop sand dams. However, there was limited interest from contractors to carry out the work, and the selected contractor had difficulty leasing the required equipment because of security concerns from the owners. Ultimately the contractor abandoned the contract after their project manager was attacked by members of the local community. The projects were delayed and SDF 1 found it necessary to close them due to the impending end of its implementation period. They may be revisited under SDF 2.

These projects illustrate the difficulties in getting local context analysis right first time, the value of continual community engagement throughout a project and the practical limitations of subcontracting work in areas with very low security.

From Mott MacDonald email communication with authors, 2019

[113] Call with DAI April 2019

[114] www.skyscrapercity.com/showthread.php?t=2068321

The Somalia Stabilisation Fund undertook water resources development in the Sanaag and Bari Regions of Somaliland and Puntland, also close to the disputed border area. Using a different approach to SDF, SSF have supported the development of public-private partnership arrangements for the management of water reservoirs. This was done with a view to preventing local conflict over scarce water resources, and reported to have been successful.[115]

SSF has also been supporting some borehole drilling for basic water supply but has concerns about costs and relatively high proportion of dry boreholes.

Further DFID support for water related initiatives in Somalia has been as sub components of larger programmes – the most substantial being through the Humanitarian programme. This has supported access to basic water supply and sanitation (mainly for IDPs).

There is evidence that humanitarian interventions in the water sector in Somalia have been short-term, whether addressing flood or drought. Information collected during the research[116] indicates that the same water projects are routinely rehabilitated every 2 – 3 years by different agencies. This suggests water interventions that are short term, relief orientated and do not consider sustainability. The lack of government capacity to oversee the work and maintain records further reinforces the short-term nature of the approach. In connection with humanitarian water interventions, a UN water systems expert interviewed by ICED expressed concerns about the general lack of quality and consistency of planning and designs – as a result of processes being rushed, or designs being handled by staff or consultants poorly qualified for the task.

[115] As was the SDF's approach, in spite of initial problems due to an incomplete understanding of the context prior to implementation in Hadaaftimo.

[116] This reflects the views of interviewees from implementers and donor organisations with long experience in the water sector.

4.4 *Environment, Climate Change, Gender and Social Inclusion*

Environment and climate change

Somalia suffers from the dual challenges of ongoing conflict and regular drought, with increasing variability and vulnerability due to climate change. As noted by the World Bank: "In the last quarter century, Somalia has experienced three droughts and two famines – a pattern that is predicted to continue and intensify … Meteorologists predict the Horn will experience more erratic and more extreme rainfall patterns in the coming half century, threatening the long-term viability of the already fragile ecosystems underpinning Somali agriculture and related livelihoods … Persistent conflict in Somalia has contributed to environmental degradation, recurring humanitarian crisis, waves of displacement, and high levels of youth unemployment, trauma, and inter-personal violence."[117]

The centrality of water to the environment with regards to ecosystems and related services is not well understood. There is a risk that planners and funders will overlook the interconnectedness of water with ecosystems and related services. For example, river control systems can have significant effects on downstream ecosystems – potentially the most significant being Ethiopia's plans for upstream development on the Shabelle and Juba rivers. Mining of groundwater, where extraction exceeds replenishment is a further risk. A greater understanding of the water ecosystem is required to avoid unintended consequences of water extraction.[118]

Conflict also impairs the ability to monitor and prevent malign environmentally damaging activity. There are many opportunities for powerful groups to operate illegally – for personal gain and to fund extremists and other militia groups. Kismayo has the reputation of being a pirate port, from which illicit cargos can be exported. This observation reinforces this report's earlier assertion that roads infrastructure can serve both positive and negative ends depending who has the power to control the road – or sufficient funds to bribe whoever does have control in order to gain safe passage.

Charcoal Smuggling – Environmental Degradation and Economic Terrorism

According to the Kenyan newspaper The Daily Nation (16 November 2018, online), charcoal is smuggled through Kismayo port despite it being controlled by the Kenya Defence Forces. It cites a UN monitoring report that Al Shabaab levies $7.5m in 'taxes' for transit of charcoal through Middle and Lower Jubaland. An estimated three million bags of charcoal was smuggled in 2017 from Somalia within East Africa and to the Middle East, with a value of $150m. This is denuding trees, and threating the future availability of this basic fuel source upon which most Somalis depend.

Gender and Social Inclusion

Principles of inclusion apply to the most vulnerable men, women, girls and boys. However, there are many ways in which cultural, social and religious norms in Somalia combine to make women and girls particularly vulnerable.

A recent brief on gender[119] in Somali summarises how clan-based forms of political representation have meant women are excluded from most political and judicial structures, particularly with the post 1991 emphasis on customary law, with the application of Sharia. With the tradition of "Male Traditional Elders" women are not allowed to go under the tree where decisions are taken by this group. This means that if they want to bring a case, they can only do this through a male relative.

The ongoing conflict, and social instability have weakened women's position regarding their access to land and property. Widows rarely inherit land under customary norms and are often deprived of access

[117] World Bank, 2018, Somalia Country Partnership Framework
[118] ICED, 2018, Infrastructure Scoping Report for DFID Somalia
[119] UNDP, 2015, Brief on Gender in Somalia

to their husband's land if they have no children. Where that are children, the land is often held by uncles or other male relatives as trustees, and inherited by the children when they become of age.

Although women are facing increased economic opportunities, many women still work in menial positions, involving "sacrifice, risk and humiliation," and often only making enough money to sustain themselves and their families.

> Some religious figures in Somalia view the 30% female quota in parliament as a Western imposition.
>
> Unless the quota is enshrined in Somalia's constitution, activists' hard-fought gains could be lost.
>
> Mahmood, O (op. cit.)

Women's participation in Somali politics has traditionally been low, and a controversial topic in the country.[120] In 2016/17, the 30% quota was enacted again, but with renewed vigour on the part of women's groups, who pushed for the fulfilment of the 30% threshold. This resulted in the selection of 80 women, or 24% of parliamentarians – an increase from 8% in 2012. However, it still didn't meet the legal requirement and, in some cases, men occupied seats that were reserved for women.

Generally, women in Somalia who wish to pursue a political career struggle with a number of factors. One is the Somali clan system which permeates political life and is a male-dominated institution. Clan elders are almost exclusively male, and clans themselves struggle to accept changes to this. Another dynamic relates to whether women represent themselves as women first, or their clan. Attempts to mobilise female parliamentarians to unite around a single candidate, in Mogadishu, failed to ensure women's representation. This was because many women chose to vote along clan lines instead. This shows that female politicians should not be viewed as a homogenous group solely based on gender, and that advancing female representation is not everyone's priority.

However, women activists are concerned that without the 30% quota being enshrined in Somalia's constitution, which is currently provisional, their hard-fought gains could be lost. This is because most people (including women) will likely vote along clan lines, and thus for male candidates.

Gender-based violence (GBV) is also a significant challenge in Somalia. Drivers of GBV in Somalia include pervasive insecurity, impunity, increased vulnerability and displacement—linked both to conflict and climate-related disasters—and deteriorating social and customary structures. Displaced women and girls are among the most vulnerable populations—to extreme poverty, marginalization and conflict and climate-related shocks."[121]

This background reinforces the importance of prioritising issues of gender and inclusion in relation to planning and access to infrastructure services.

SSF

The ODI report on SSF as a case study for Thinking and Working Politically (TWP),[122] highlights other research findings that there has been a lack of focus on gender equality in the literature on TWP. This is a surprising finding, given the significance of gender in power relations. Evaluations of SSF Phase 1 found that while gender issues were considered to some extent, procedures were not in place to mainstream gender into implementation plans. SSF has committed to much greater attention to gender and women's participation in Phase 2 of the programme. It also now includes a commitment that 30% of funds for community-level projects will be invested in line with women's priorities, in recognition of the fact that women tend to be poorly represented in consultation processes.

The SSF 2018 Annual Review suggested that more should be done to improve wider coordination with other stabilisation actors, and to specifically target minority clans and make meaningful progress on gender. SSF's forthcoming revised Gender and Social Exclusion (GESI) strategy should aim to determine what is 'good enough' in the context of stability interventions building on the large evidence base for shifting gender norms for stability outcomes in fragile states.

[120] Mahmood, O, 2018, Women Claim Their Place in Somalia's Politics, ISS Addis Ababa
[121] World Bank, 2018, Somalia Country Partnership Framework
[122] Laws, E. 2018, Thinking and Working Politically in Somalia, op. cit.

Significantly SSF's Theory of Change refers to operating in a manner that is context-appropriate, putting the right people in the right places, putting politics first to understand incentives and priorities, is adaptive and iterative, building coalitions around shared information and commonality of intent, ensuring local ownership by both communities and government institutions, gender and conflict sensitive, and balancing risk and return. The logic being that as a result government legitimacy is enhanced and political and communal conflict is reduced, and consequently, stability in Somalia will be enhanced.

SDF

One of the findings from the SDF Completion Report[123] is that SDF (arguably) failed to fully consider the issue of gender. The Mott MacDonald team has learned lessons from the political economy, gender and inclusion analysis from the SDF 1 inception. This analysis should have been updated during the SDF 1 implementation phase and focused on informing project delivery. This finding was further reinforced by the more recent external review report.[124] This recommended that stronger social science and political economy inputs would help conceptualise the dimensions of equity that the SDF could seek to address. It highlighted including more emphasis on promoting gender equality and monitoring gender impact, and looking at the geographic dimensions of equity and considering the realistic options for sustainable investment in isolated regions. As a result, there are new frameworks in place to underpin all aspects of project development.

Addressing Issues of Inclusion in the IFAD irrigation programme on the Shabelle River

Source: IFAD, 2017, Design Report, Support to Agricultural Productivity in Somalia

***Clans**: Somali people are organized into clan groupings, which are important social units; clan membership plays a central part in Somali conflict, peace building and politics. Clans are typically divided into sub-clans. Through the xeer system (customary law), the clan structure has provided governance rules in places where the state has limited reach. Because of this, a political decision-making method based on Clans has been developed. The clan decision making has even permeated politics, which uses the 4.5 formula. The 4.5 formula gives equal quota to the four "major" clans, and a half-point to a cluster of "minority" clans in politics. It is possible that there will be interest in the 4.5 formula in sharing of goods and services from the project. It is however important to note that clans are led by male elders and exclude youth and women.*

***Organised groups of women and youth**: The project will work with women and your people in the planning, implementation, monitoring and evaluation. The project will interact with elders and religious leaders to increase the participation of youth and women in the project. While there are agricultural groups of women, which will be the entry point in communities, the project will create, mentor and promote groups of youths to participate in agriculture. These groups, working together with elders, will form peace and conflict mitigation committees that will be selected along the length of the canal, particularly in locations that have latent conflict. There will be 10 committees formed along the canal length. The consortium partners have a history of working with youth who have been demobilised and also women's' groups. The project will dig into this historical connection and get champions who will lead the entry of both youth and women into the project.*

Any works undertaken on the canal (whether complete or sections of the canal) will be undertaken based on community consultations and consensus of all clans.

[123] DFID, 2018, End of Project Review for SDF Phase I

[124] Duncan, A. et al. 2018, Somaliland Development Fund Joint Review, The Policy Practice

5 Summary of Main Findings and Lessons from the Case Study

This section of the report examines the results of the interview programmes and literature review to identify lessons learned.

Somalia is an extremely challenging operating environment – with multiple contexts in the different areas of the country.[125] There are varying shades of complexity in the states. Somaliland has seen an increase in infrastructure investment over the last 5 years, although this has been mainly focused in the west. Whereas donor funding for infrastructure in the other states has been far more limited, with Jubbaland, South West and Hirshabelle being particularly hazardous states in which to operate.

As a result of the relatively low level of infrastructure investment there are far fewer examples of significant failures in infrastructure delivery in Somalia compared for example with Afghanistan – where there are many examples of failed, incomplete and abandoned infrastructure investments. There are also limited examples of success in infrastructure delivery at scale in Somalia.

With the exception of the repair and rehabilitation of roads in Somaliland (Hargeisa– Berbera, Dilla – Kalabaydh, and Berbera – Sheikh) there has been no major road construction or rehabilitation elsewhere in Somalia for over 30 years. Elsewhere in the transport sector, some major airports have been upgraded (Mogadishu, Hargeisa and Bosaso), and major ports (Mogadishu and Berbera) – as well as some smaller airstrips and jetties (although even some of these have proved challenging).

The research team found no examples of implementation of projects supporting water use for productive purposes (e.g. irrigation) at a major scale. There are, however, some examples of local small-scale canal rehabilitation, and small dams/borehole development.

The power/electricity sector is an example of the entrepreneurial, innovative and resourceful character of Somalis – despite the levels of destruction and extreme challenges. However, the informal structural and governance arrangements have limited opportunities for funding agencies to engage at a sectoral level, until now, in direct investment beyond institutional support and sector planning. Support has been limited to involvement in the renewables sector mainly solar PV, and some wind energy. Collaboration with the private sector providers has mainly been limited to Somaliland.

The figure below, prepared for DFID Somalia,[126] provides a conceptual framework that provides a basis for considering what infrastructure investments may be possible in the different operating environments that comprise Somalia, and many other fragile and conflict affected states. However, inherent within the framework is the recognition that the transition from instability to stability is neither guaranteed nor linear. This reinforces the importance of a realistic assessment not just of the notional position of any area on the curve, but the forces at play, any momentum and potential for progression or regression as a result.

[125] DFID Somalia's Senior Governance Adviser suggested that there are as many as eight different contexts. Chatham House has published a series of reports on Somali federalism and political economy, for further reference.

[126] ICED, 2018, Infrastructure Strategy Scoping Report for DFID Somalia

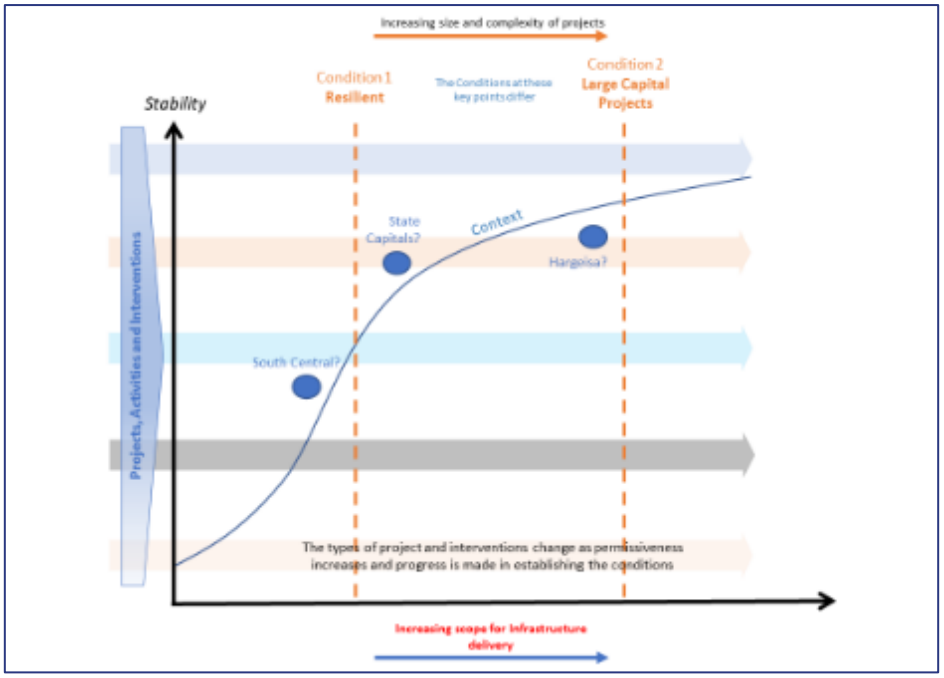


Figure 9: Conceptual Framework - Levels of ambition in relation to stability of the operating environment

5.1 *Understanding the context*

To what extent has the context, and adapting to contextual changes, been central to infrastructure development in Somalia?

The level of caution to engage with and support infrastructure in Somalia is a significant indicator of the challenges of the operating environment, related in particular to security and the broader political, social and cultural context. There is evidence from the research that many agencies and project developers are recognising the importance of a thorough contextual understanding, prior to making decisions to fund and implement infrastructure development. SSF's approach to understanding the context and responding to the demands of political players and communities is worthy of wider consideration and application. It adopts the 'Thinking and Working Politically' (TWP) approach from initial inception of any project through to the delivery of services to beneficiaries of the completed infrastructure.[127] A team of Somali nationals, supported by international experts on the region, undertake the local engagement and analysis.[128] This aims to enable informed decisions on infrastructure investments that are appropriate to the context – or advice that this is not possible. There are a number of related findings and recommendations from this case study research:

- Use contextual analysis to be clear on the security risks as a basis for deciding whether these are manageable and proportionate to the project objectives. If additional security protection will be needed during construction, what are the implications post construction? Baraawe airport provides an example of an infrastructure investment that has been a target during construction and is likely to be a target once operational.[129]
- Find ways to engage with local communities during planning phases – directly or indirectly. This needs to include all those affected by the project, not just the intended beneficiaries. This is echoed by the SDF 1 end of project review, which recommended: **'Allow sufficient time for participatory planning'.** Despite the undertaking of fragility, conflict and social impact

[127] Laws, E. op cit.
[128] Sahan Research, one of the partners in the implementing consortium.
[129] See box on page 53.

analyses and contracting community-based NGOs, unforeseen issues with the recipient community have led to misunderstandings and in some cases the cancellation of projects.

- The acceptance of inaccessibility and the need for remote working has become the norm for projects and programmes in much of Somalia, which poses a challenge because of the distance between the local population and development/humanitarian actors.[130] Third parties provide a partial solution, but this does not address the fundamental issue of separation of development actors from the field. Reinforcing this point, a recent DFID commissioned report on remote management in Kenya and Somalia found that *'remote management can lead to a disconnect between programmes and their context. Analysis of the information suggests that remote project management may inadvertently contribute to a lack of understanding of the broader operating environment …. and highlights the need to strengthen community involvement.'*[131]
- In some circumstances, an adequate level of security has been achieved primarily by engaging and working with the local community, where they see direct benefits. This reinforces the importance of seeking to develop social capital with affected and beneficiary communities as an effective means of mitigating and in some cases overcoming security and other risks from project spoilers – even in highly insecure environments (DAI and IFAD Shabelle irrigation).
- Sectoral observations on context:
    - There are dangers inherent with any project in the sectors considered in this case study. However, because of the heightened levels of exposure any roads projects in areas of militia activity are likely to be most vulnerable for the safety of those working on the project.
    - There are also extreme sensitivities, and potential for local conflict in relation to water particularly in agro-pastoral arid/desert areas. Support of some water projects – particularly in the disputed Sool and Sanaag area in the Somaliland/Puntland borderlands have resulted in conflict and dispute and projects being abandoned. External involvement in such fragile environments can risk not sufficiently understanding these local water management traditions, including sharing of water and community power dynamics.
- In an FCAS context with a trend of reducing security risks, associated social and governance issues and complexities will not diminish as quickly. For example, while Somaliland is more permissive and has seen a higher number of infrastructure projects planned and successfully implemented, there are still examples of problems arising because of insufficient contextual analysis of community engagement.
- Draw on and disseminate research that will be useful to inform contextual understanding of current and upcoming programmes. The research team found a number of research and information documents, mainly donor-funded, which were not known within funding agencies' programmes. Some important available knowledge is not being sufficiently widely disseminated or used.
- Consider the interests of insurgents and militia groups when planning infrastructure – both during construction and post construction – and in particular the points of vulnerability if any to capture/attack.
- Evidence suggests that the 'ink spot approach' seeking to develop and link pockets of stability under government control, as adopted initially by SSF, has not proved a successful strategy in Somalia.[132]
- There is very little evidence of sabotage of infrastructure investments by Al Shabaab. This has been mainly limited to attacks on government buildings, perceived by insurgents as directly supporting the legitimacy of the state or federal government. One well informed Somali interlocuter suggested that Al Shabaab sees local urban and rural communities as their local support base. For this reason, where projects have a clear community benefit, and do not

[130] Majid, N et al, 2016, Narratives of Famine – Somalia 2011, Feinstein Institute
[131] Integrity, Axiom, 2015, Cross Cutting Assessment of Remote Management in Somalia and North-East Kenya, for DFID.
[132] See Page 7 of Laws, E., Thinking and working politically in Somalia: A case study on the Somalia Stability Fund.

threaten their interests (particularly if they can levy revenues), they are unlikely to sabotage the infrastructure.

- Ensure strong conflict analysis that is continuously updated. This reflects experience from a number of projects referenced in this case study. For example, the SDF End of Project Review for SDF 1 recommended that SDF 2 improve its local conflict analysis before starting further implementation in project formulation (also see below the box on SSF's implementation of Baraawe airstrip).

Learning from SSF Funding of Baraawe Airstrip (DFID, 2018, SSF II Annual Review)

Approved in 2014, the Baarawe airstrip project, which will be 1.4 km when completed is a high-risk project. At the time the President of South West State (SWS) requested the airport in order to move the government administrative headquarters from Baidoa. The move from Baidoa was critical to state-building and stabilisation in the region. In its assessment, SSF considered the airstrip to be of high importance for stabilisation, as well as for economic growth and basic service provision.

Significant risks have materialised, causing significant delays as a result of a number of incidents including disputes; mission creep as a result of the security of the project (and a shift away from the original rationale for funding); significant security incidents involving IED explosions close to the site and a deteriorating security situation around the airstrip which required a stop work order. There was also a lack of clarity on the financial liability for suspension of works, which DFID is investigating.

The Baraawe airstrip remains one of the highest risk, highest value and most complex investments under the Somali Stability Fund. The SSF team has continued to progress this project under very difficult circumstances. Baraawe has provided an important example of working in difficult to reach areas, mobilise partners to work in these environments, jointly manage the risks, and lobby large security actors around common goals to meet Somalia's development objectives. The context in SWS remains extremely fragile. The security, reputational and fiduciary risks remain high, however robust mitigation measures will continue to be deployed to manage this effectively.

Key learning includes the need to:

- continually review investments in the context of the original funding rationale. Any shifts to the political and security context should inform programming in real time and the full set of risks should be clearly communicated and escalated through the established governance mechanisms;
- flag details on financial liability relating to high risk investments as soon as project implementers are aware; and,
- assumptions (including reliance on security actors), rationale and contracts for all high-risk investments should be reviewed periodically to test for mission creep.

The review also found that at a broader level:

- The wider risks were not sufficiently well understood nor mitigated.
- Wider political, stability and reputational risks to the fund and DFID in particular were not given sufficient attention
- The risk of technical infrastructure projects should be measured and mitigated from inception through to hand over of the completed infrastructure. There should also be a recognition that the legacy of any infrastructure investment will remain with DFID long after the end of the programme – and should be reflected in the risk register.
- Mitigation could include dedicated staff resource to oversee the successful completion, handover and exit from this investment.

5.2 *Delivery of infrastructure*

Have infrastructure projects been successfully completed?

Although a very thorough understanding of the context and community engagement are essential to successful infrastructure development, proper planning, design, construction and subsequent operations and maintenance of the infrastructure are also fundamental,[133] **irrespective of the size and scale. Even seemingly basic infrastructure investments (e.g. Irish bridges and buildings) require careful design. Failures are costly, both in terms of finance and reputation. The relative costs of ensuring fitness for purpose of any infrastructure development is relatively small.**

- Ensure enough time for the design process. This is reinforced by a recommendation from the SDF End of Project Report 'Instil a clear understanding across the SDF teams about the time it takes to design appropriate programmes in Somaliland. Approaches in project design should recognise complexity of project delivery across Somaliland and allow adequate time for planning and addressing challenges'.
- When making decisions on programmes that includes infrastructure components ensure that a competent technical expert (or team depending on scale/complexity), with awareness of the context, is involved to provide advice on the technical complexities to the funding agency. The ability for funders to play an 'intelligent client' role at inception, independent of advice from contractors, is important to avoid inappropriate or suboptimal projects being approved. This includes the use of cost benefit/least cost analysis to assess options. Interviews suggested that the level of technical capacity can often be quite limited within implementing agencies, even those with significant infrastructure portfolios.
- As part of the risk analysis, give particular attention to the possibility of stranded assets. There are a few examples of stranded assets, where infrastructure, whether fully or partially completed, is not delivering any outputs. Examples such as a partially completed bridge, an incomplete section of road or a non-functioning power station (such as the wind turbines in Somaliland described in section 4.1.4) become relics and symbols of failure. There is potentially a long-term reputational risk for the funding agency. This reinforces the importance of extensive risk analysis of the context, and good quality design and construction.
- Hire good quality technical expertise to develop infrastructure investments. There is also evidence of implementing agencies using technical expertise and advice of apparently poor quality (Puntland road rehabilitation – cost estimates).[134] Since the major cost is in the construction, it is a false economy not to engage good quality technical inputs for the feasibility, design, procurement, supervision and handover stages of any project.
- Resist pressures for early spend and having 'boots on the ground' too quickly (SDF 1). Interlocuters indicated that donors often want things to happen more quickly than is realistic, and risk insufficient attention for example to Gender Equality and Social Inclusion (GESI) and a conflict/context analysis. Although there is some legitimacy to learning by doing, and creating some momentum to infrastructure development, this should neither be fully ad hoc nor rushed without proper planning, preparation and consultation.
- Do not proceed with any infrastructure investment without a clear plan for operations and maintenance of the planned asset. Operations and maintenance of completed infrastructure is frequently overlooked or considered to be of secondary importance, to be addressed once the infrastructure has been completed. However, it is an essential pre-requisite to address this (roles and responsibilities, costs and budgeting), prior to proceeding with the project. As with the roads unit in Somaliland, this may include/require a significant technical assistance/capacity building component to the project. It may also require policy engagement with government to encourage structural/institutional change in relation to operation and maintenance of assets.

[133] ICED, 2018, Infrastructure Handbook, DFID

[134] Private communication from a donor technical expert: 'Someone who does not know Somalia or roads did the calculation'.

- Recognise that corruption is pervasive and institutionalised (both in Somalia and generally speaking in most other FCAS contexts).[135] Somalia has been at the foot of Transparency International's Corruption Perceptions Index every year since 2016. All projects will have to deal with corruption. Some interlocuters consider it to be manageable, while others believe that the issue is not given enough prominence or consideration early in the planning process.[136] If there has been clear collusion with a bid process, beware of proceeding to award of contract (as demonstrated in the Puntland roads rehabilitation project described in section 4.2.2).

5.3 *Impact of Infrastructure*

Have completed projects achieved the planned outcomes?

There is reasonable data on whether infrastructure outputs have been achieved (construction completed and the asset handed over to the client/owner). However, given the remote implementation of most projects, the monitoring environment in Somalia is such that data on *outcomes* is sparse. There are, however, some notable examples including: the renovation on the Berbera corridor reducing travel times and wear and tear on vehicles with a resultant drop in bus fares; rehabilitation of irrigation canals on the Shabelle River (IFAD and DAI) resulting in increased sesame production; and the catalytic impact of the Hobyo airstrip on local livelihoods in particular for high value fish sales to Mogadishu.

- Given the limited outcome data, there is a case for taking a long-term view with monitoring completed infrastructure projects to better understand sustainability, and extent to which benefits are share post completion of construction.
- There is a case to strengthen the scrutiny of humanitarian actors responsible for significant investment of infrastructure through their programmes. Although there are examples of good practice, the research team heard a recurrent theme of short-term, unsustainable and in some cases damaging humanitarian interventions, although we were unable to report on many examples as solid evidence is rarely collected and is usually disputed when it is.
- The large number of discrete and often relatively small and unconnected infrastructure projects implies the need for dedicated capacity to develop a **systems approach** to provide a clearer overview of the totality of infrastructure investments (across humanitarian, stabilisation and development programming) and support greater connectedness and more integrated planning in Somalia.
- Sufficient attention should be given to the potential outcomes from the infrastructure investment, even where it is used primarily as a 'political tool'. This is an important issue across different programmes and agencies, where there is a mix of humanitarian, stabilisation and development objectives. While the SSF approach arguably provides an example of good practice for infrastructure development in terms of the contextual understanding, there is a risk in relation to its use of infrastructure as a tactical instrument, which extends to other stabilisation programming in Somalia and elsewhere. Infrastructure provides a legacy that should, if properly built and maintained, last for decades. For example, further early thought should be given to the economic or basic services benefits of an infrastructure investment to understand how the benefits will be realised – and consideration given to what additional investment or support may be needed to achieve these.
- Recognise the challenges of monitoring, where access is not possible for reasons of security. Third party and other forms of under-cover monitoring provide important, albeit often limited information – particularly with regard to outcomes. Remote satellite monitoring is clearly useful for some larger road and irrigation projects. However, the use of drones for military purposes (US in particular) means that their use for monitoring of infrastructure projects could lead to insurgents being informed of their use, which is likely to risk an armed intervention.[137]

[135] Alex de Waal, 2015, The Real Politics of the Horn of Africa: Money, War and the Business of Power, Polity Press.
[136] Meeting with EU June 2018
[137] Private communication, GIZ

5.4 *Donor modalities, instruments and approaches*

What were the lessons from the funding instruments and delivery modalities?

The research team found that although there are few major high-profile infrastructure investments in Somalia, there are substantial levels of infrastructure investment as components of larger multi-donor funding mechanisms/instruments. The base (i.e. Nairobi) for most development professionals working on Somalia also raises some important points for comparative learning with other FCAS contexts.

- Multi-donor funds with external (non-IFI) managers are important instruments for programme implementation in FCAS. They have many benefits including the ability to pool larger levels of funds than would be possible bilaterally, the spread of risk between agencies, and to be less encumbered by bureaucratic process and therefore able to respond more quickly to a changing context and new opportunities. There are also risks if these are not sufficiently closely monitored and supported by donors.
- Such flexible funds have evolved over time to focus on ownership rather than solely project delivery, and must expend a lot of effort to work with very fragile systems to deliver visible projects.
- There is a need for greater transparency on infrastructure development within humanitarian programmes. Based on the observations of the research team, the details of infrastructure development within humanitarian programmes are obscure and not easy to obtain. This makes it difficult to make an overall assessment of delivery or impact.
- Recognise that dedicated infrastructure funds (such as the AfDB's SIF) through multilateral agencies are likely to be slow to become operational and as a result slow to disburse. It is not clear that this is attributable to poor management (whether in the case of the SIF or more broadly), and there are inherent challenges in FCAS which make such delays difficult to avoid. Part of this relates to the ('catch 22') perversities of investor confidence – where bilateral donors hold back on funding until they see some success, which inevitably leads to under-capitalisation and therefore the inability to develop projects to demonstrate a track record. Funds with a mixed portfolio (such as the World Bank's Multi Partner Fund or the SSF) that include some small and medium scale infrastructure projects, within a mixed portfolio, are likely to have faster early disbursements and a smoother spend profile.
- Be willing to consider locally appropriate forms of procurement. For example, breaking down packages of work into smaller components to enable more involvement of local contractors (IFAD funding on Lower Shabelle). AfDB's proposed road rehabilitation projects may require a similar approach, as they will pass through areas with different clan loyalties and Al Shabaab presence.
- As far as reasonably possible, hire local contractors with prior association, capacity and capability and a track record of operating in the area. There are important lessons in the Somali context regarding the selection of contractors for construction of infrastructure – particularly given the complexities of clan dynamics as well as considerations of fiduciary risk. Foreign contractors also raise security risks and accompanying costs.
- The location of staff of funding/development agencies, research organisations and consultants working on FCAS programmes affects length of contracts and therefore institutional memory. In the case of Somalia, the ability of development actors to operate from Nairobi presents a dilemma. On the one hand, increased length of postings has resulted in a great deal more expertise being developed and retained within Somalia development teams, which manifests in more politically aware programming and more realism and long-term thinking (ultimately reducing effort wasted on programmes and planning that were unrealistic from the start), compared to other contexts where such a setup is not possible. On the other hand, the creation of what has been called a 'Nairobi mafia' has served to alienate ordinary Somalis from the political and development process and has led to some examples of internal stratification within institutions and companies, where in-country teams and out-of-country teams do not see eye

to eye and decisions are made without a full understanding of programmatic context.[138] The gradual pressure on development actors to move decision-makers into roles that spend a significant amount of time in Somalia itself has been a positive development, but this needs to be balanced with the imperative of retaining longer-duration postings.

5.5 *The role of other actors*

How has the presence and role of other actors affected the geopolitical context and infrastructure investments?

The most significant non-traditional donors engaged in Somalia are the UAE, Turkey and Qatar – with Kenya and Ethiopia having significant interests because of shared borders and the presence of many ethnic Somalis in their countries. Qatar and Turkey[139] support the Mogadishu Government, whereas UAE supports the Somaliland Government. This significantly raises the internal geopolitical stakes and came to a head in 2018 with the lease deal that the Government of Somaliland signed with Dubai Ports World for Berbera Port. There are a number of lessons for donors like DFID, some of which apply to all FCAS and others to a smaller set:

- It is important to understand the roles and motivations of different external actors (traditional and non-traditional donors) in developing Somalia's infrastructure.
- Recognise that the non-traditional donors have particular influence – both in terms of the scale of funds available and in particular the political and religious alliances and allegiances. Some of these external players are playing out deep seated disputes between themselves (e.g. Qatar, Turkey and UAE) that are likely to distort funding decisions.
- Be aware that the power of some of these other actors may result in governments reneging on earlier deals in the interests of these deeper political alliances (e.g. an FGS agreement with AfDB to finance two highways out of Mogadishu was replaced by substantial Qatari funding for these roads).
- Take account of the significance of borderlands issues with regards political dynamics and security. In the case of Somalia this applies mainly to Ethiopia and Kenya. This raises significant questions regarding infrastructure development in relation to the border areas (in particular their isolation or inclusion), as well as the health of national political relations. It is a particularly sensitive issue for the Somalia/Kenya borderlands area which has strong Al Shabaab presence and provides an access route to Kismayo port which is a principal arrival port for illegal goods (e.g. sugar) smuggled across the border for sale in Kenya.
- Seek to understand China's interests and engagement in the infrastructure sector, particularly in view of Somalia's strategic importance and China's past track record of infrastructure delivery post-independence. Despite its earlier substantial involvement, China appears to be holding back from delivering major infrastructure programmes in Somalia, and is likely to be waiting to see how the context evolves prior to further commitment.[140]
- Understand the role of the local private sector in infrastructure/basic services delivery. The Somali private sector has played a remarkable role in supplying mobile/internet services, water supply and electricity services to Somali citizens. They have done this using private resources, from a situation of almost total destruction of the infrastructure – particularly in the case of

[138] This was reported by several interviewees and aligns with observations in other highly fragile contexts.

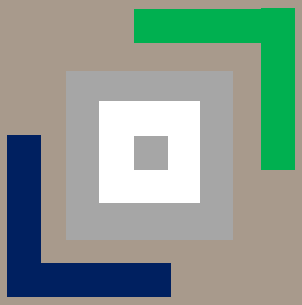
[139] Turkey's support to Somalia follows a remarkable visit to Mogadishu by President Erdogan together with his family in August 2011, with a commitment to provide significant financial and political support. This was the first visit by a non-African Head of State to Mogadishu in over 20 years. Turkish airlines started flying into Mogadishu the following year and substantial investments have followed – particularly in Mogadishu Port.

[140] Dahir, M. 2017, Infrastructure and Resources: China in Somalia

electricity. There is still more learning needed about the rules of the (unregulated) game[141] for the Somali private sector, and how donor agencies can improve the enabling environment and provide investment without distorting the model/market. The strength and structure of the local private sector has meant that funding agencies have had to understand the existing structures, engage in dialogue, and consider ways of engagement that do not undermine or distort current arrangements.

- The strength of the Somali diaspora network and the levels of fund flows into Somalia is highly significant. The private utilities are able to crowd source equity from Somali investors. Funds are readily available and Dahabshil Bank, amongst others, provides the vehicle to facilitate transfers. Some donors have offered loans to the private utilities but these have been declined on the basis that loans are not in accordance with Sharia, or Islamic law. In such situations, it is important to have a detailed understanding of Islamic finance, and its local interpretation.
- The Somali diaspora has also demonstrated its willingness to provide funds (as donations) for other infrastructure facilities – notably a section of road between Hobyo and Galkayo. The role of diaspora funding of infrastructure is another area for potential research. AfDB's plans to complete the rehabilitation is significant – as is their recognition normal AfDB procedures should be waived to allow the original local contractor to complete the work.[142] This provides a useful lesson in looking at ways to benefit from the momentum created by diaspora funding, in a way that is sensitive to local complexities.

[141] Including the issue of clan dynamics in business and payment of revenues to Al Shabaab and possibly other militia groups, to maintain a 'license' to continue operating without hindrance.
[142] Meeting with AfDB March 2019



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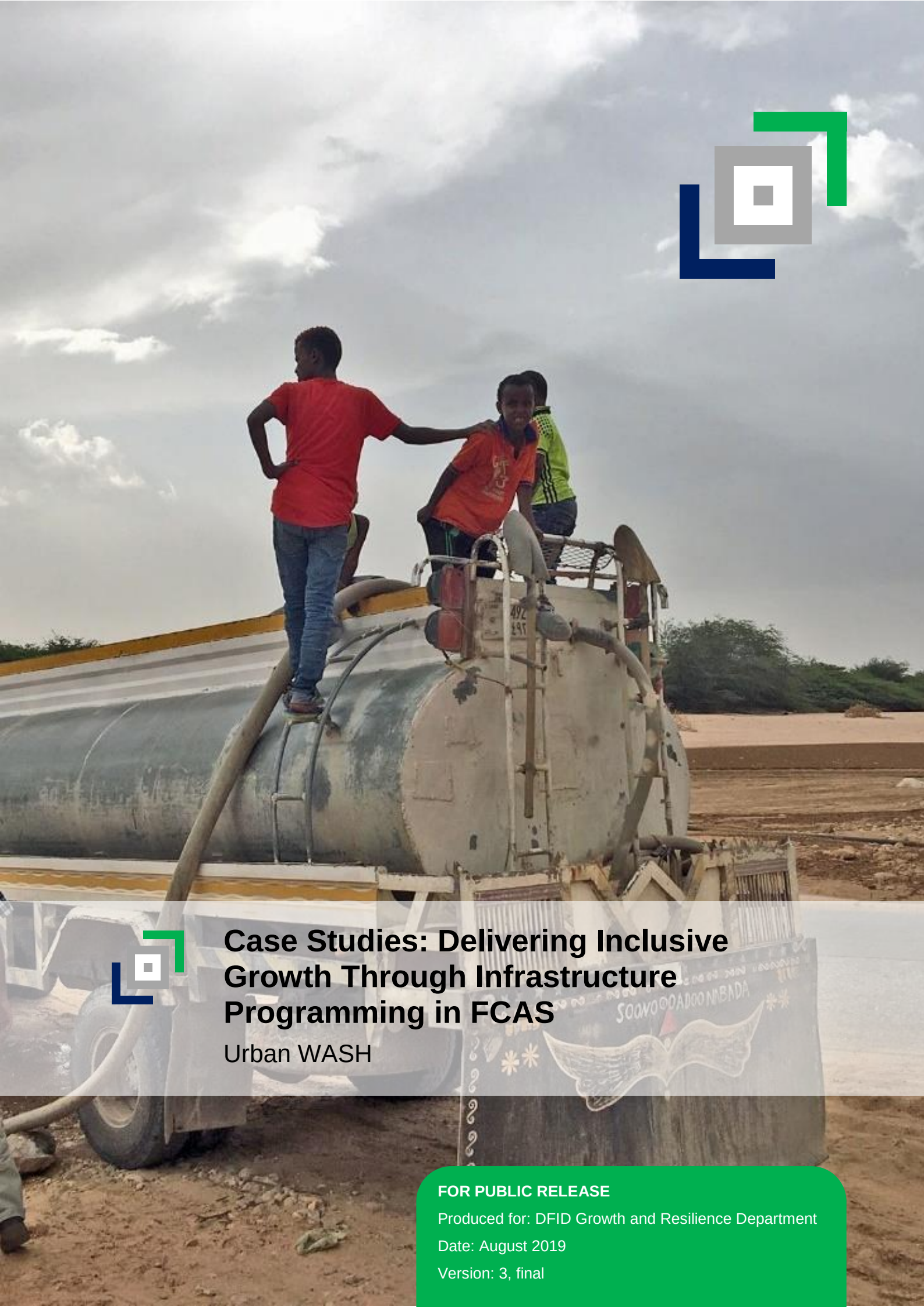

Case Studies: Delivering Inclusive Growth Through Infrastructure Programming in FCAS

Urban WASH

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Contents

Acronyms

Acronym	Definition
AfDB	African Development Bank
BTS	Bulk transfer system
CAPEX	Capital expenditure
CEO	Chief Executive Officer
DANIDA	Danish International Development Agency
DFID	UK Department for International Development
DMA	District Metering Area
DRC	Democratic Republic of Congo
E4i	Enterprise for Impact
EC	European Commission
EU	European Union
EWRC	Sierra Leone Electricity and Water Regulatory Commission
FAO	UN Food and Agriculture Organization
FCAS	Fragile and Conflict Affected States
FCC	Freetown City Council
FFP	USAID Food for Peace Program
FIDIC	International Federation of Consulting Engineers
FSA	Free Syrian Army
FSWMC	Freetown Solid Waste Management Company
FWMC	Freetown Waste Management Company
GBP	Pounds Sterling
GESI	Gender and Social Inclusion
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Development)
GSI	Gender Status Index
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
GVWC	Guma Valley Water Company
HH	Household
HQ	Headquarters
HTS	Hayat Tahrir al-Sham
HUWSUP	Hargeisa Urban Water Supply Upgrade Project
HWA	Hargeisa Water Agency
ICAI	UK Independent Commission on Aid Impact
ICED	Infrastructure and Cities for Economic Development (Facility)
ICRC	International Committee of the Red Cross
IDC	International Development Committee (UK parliamentary committee)

Acronym	Definition
IDP	Internally Displaced Person
IGC	International Growth Centre
INGO	International Non Governmental Organisation
IT	Information Technology
IUWM	Integrated Urban Water Management
IWSLC	Ibb Water Supply and Sanitation Local Company
JICA	Japanese International Cooperation Agency
JSC	Joint steering committee
KFW	Kreditanstalt für Wiederaufbau
LC	Local Council
LSE	London School of Economics
MC	Mercy Corps
MCC	Millennium Challenge Corporation
MIS	Management Information System
MoFED	Sierra Leone Ministry of Finance and Economic Development
MoHS	Sierra Leone Ministry of Health and Sanitation
MoWR	Somaliland Ministry of Water Resources
MW	Megawatt
MWSSRP	Monrovia Water Supply and Sanitation Rehabilitation Project
NCP	Sierra Leone National Commission on Privatisation
NEC	New Engineering Contract
NGDPS	New Geed Deeble Pumping Station
NGO	Non Governmental Organisation
NRW	Non revenue water
ODI	Overseas Development Institute
OPEX	Operational expenditure
PBR	Payment by results
PCR	Project completion review
PIP	Performance Improvement Plan
PPP	Public private partnership
PV	Photovoltaic
REGIDESO	Régie de Distribution d'Eau
SARL	Limited Company
SDC	Swiss Development Cooperation
SDF	Somaliland Development Fund
SDM	Somali Democratic Movement
SDP	Somaliland Development Plan
SGP	Système de Gestion Pilote

Acronym	Definition
SL	Somaliland
SLL	Sierra Leone Leones
SLRA	Sierra Leone Roads Agency
SOPs	Standard operating plans
SWALIM	Somalia Water and Land Information Management
SYP	Syrian Pounds
TA	Technical Assistance
ToR	Terms of Reference
UN	United Nations
UNICEF	UN Children's Fund
USAID	US Agency for International Development
USD	United States Dollars
VfM	Value for Money
WASH	Water, sanitation and hygiene
WASHAERP	WASH and Aquatic Environment Revamping Project
WB	World Bank
WEDC	Water Engineering and Development Centre
WESH	Water, Environmental Sanitation and Hygiene project
WHO	World Health Organization
WSP	World Bank Water and Sanitation Program
WSUP	Water & Sanitation for the Urban Poor
WU	Water Unit
YER	Yemeni Rial

1 Introduction

This case study forms part of an ICED research project for DFID's Growth and Resilience Department to investigate infrastructure programming in Fragile and Conflict Affected States (FCAS), comprising case studies examining lessons learned from donor experiences in these contexts. This addresses a recommendation from the 2015 ICAI report 'Assessing Impact of the Scale-up of DFID's support to Fragile States', to provide guidance on targeted infrastructure components to ensure sustainable impacts in fragile states programming.

The research team carried out a literature review of mainly recent research (post 2011), prior to beginning the case studies, leading to an annotated bibliography which collates some early findings and identifies knowledge gaps to address in the case study phase of work. Two case studies will focus on country assessments – Somalia and Afghanistan. **This third, sectoral study will look for lessons from urban water supply and sanitation (WASH) programmes in FCAS.**

The objective of the overall assignment is to make practical recommendations on approaches to infrastructure development in FCAS. The primary audience is DFID advisers and programme managers; however, the findings are also expected to be of interest to other donors and sector stakeholders.

Specific issues derived from the broader literature review which were considered as part of this case study:

1. **Understanding the context** – to what extent has this been adequately considered in the planning and design of donor programmes, and was the changing nature of the context recognised and monitored in order to adapt/modify approaches to a changing context?
2. **Delivery of infrastructure** – were basic good practice and principles applied throughout the project cycle – or were these overridden by other political imperatives or for other reasons? Is the infrastructure that was built sustainable? Are viable arrangements in place for operations and maintenance? How will costs be covered?
3. **Impact of infrastructure** – were the services delivered and outcomes from the completed infrastructure consistent with the theory of change/intervention logic; and were there unexpected positive and negative consequences?
4. **Donor modalities, instruments and approaches** – how did these influence the success or failure of the infrastructure project?
5. **What was the role of other actors** – private sector, non-traditional donors - how was this affected by/did this impact on the operating environment?

Approach

The research approach was qualitative, involving limited desk review of academic and grey literature and project reports and interviews with key staff, implementing agencies and others with knowledge and understanding of the issues. The research team also drew from previous reports and research by the ICED facility where available (Somalia, Sierra Leone, Yemen). The research team made trips to two of the three main focus cities, with DRC being excluded due to complexities with visa and security arrangements.

Focus of Study

The sectoral focus is on urban WASH programming, looking particularly at *infrastructure* and related services. Three primary locations were selected for case studies on the basis of DFID's engagement with urban WASH: Freetown in Sierra Leone, Hargeisa in Somalia[1] and Goma and Bukavu in DRC. Each case study prioritises learning from DFID's experiences, but also describes the broader programming context.

Three further small case studies were drafted on the basis of opportunity as further information came to light from desk research and other ICED activities. These draw more heavily from referenced prior reports, and are included as additional evidence supporting the research findings. They cover Ibb in Yemen, Idlib in Syria and Liberia's broader urban context (applies also to Monrovia, the capital).

[1] Hargeisa is the capital of Somaliland, which although self-declared as an independent country is viewed by most UN members as a federal state of Somalia.

2 Consolidated findings

The case studies summarised in section 3 below have shed light on a variety of different programming types and contextual variations of conflict and fragility. There are some obvious common themes running through the case studies relating to the direct effects of conflict, the challenges of building sustainable institutions in fragile contexts and the crucial role of well governed legal and regulatory frameworks in longer term resilience of urban water institutions. There are also specific observations that were present either in only a few of the cities studied or which are demonstrated positively in one context and negatively in another (for example the often corrosive effect of short term humanitarian interventions is demonstrated in several cities but the converse – avoidance of this problem – is documented in the Yemen case study).[2]

This section outlines a sample of the commonly occurring themes, with brief references to the case studies in the remainder of the report. The reader is invited to read the lessons section of each case study for full observations on what can be learned from each, as the material presented here is not a comprehensive summary.

2.1 *Understanding the context*

There are some broadly predictable effects of conflict which are familiar from all post-war urban situations, and their effects on urban WASH performance are also predictable:

Population growth and unplanned urbanisation. In all cases, urban areas have seen major population growth, either beginning during the conflict as IDPs are displaced from the countryside and other parts of the country, or during the immediate post war period. This population explosion lasts for many years following conflict, with annual growth rates of 6% not unusual. In all post-war contexts we studied there have been issues with accurately measuring this population due to the unplanned nature of the accompanying urban development and the formation of informal communities. The knock-on effects are severe and can tip utilities into vicious circles of decline which it is difficult to lift them out of. They include the rapid development of other sources of water to meet the demand, which will usually include groundwater sources that are under increasing risk of contamination from surge in informal communities without adequate waste disposal systems.

Damage to infrastructure. This is occasionally (as in Yemen, Hargeisa and in parts of Syria not studied in this report) the direct result of war damage to water and wastewater facilities, but more often it is the incremental damage accumulated due to lack of maintenance or enforcement of regulations during and in the immediate aftermath of conflict. An increase in illegal connections, damage to water meters, damage to exposed pipes (particularly in Freetown), theft of fuel and equipment and the effects of delayed maintenance: these are typical problems inherited by post-conflict urban water projects. Emergency donor rehabilitation projects can help to repair the damage, but only in the presence of appropriate management capacity in water utilities and governance structures.

Falling revenues, higher costs. War increases levels of poverty and humanitarian interventions responding to need will often provide free water for extended periods of time, reducing both the ability and willingness of customers to pay for water in post-war cities. The accompanying deterioration of piped water services is often an exacerbating factor, as water not supplied cannot be billed and unhappy customers are less willing to pay. Costs and spare part shortages will tend to increase during conflict.

Interruption of electricity supply. Energy for pumping is an essential component of many urban water systems. Electricity is often the first major component of the system to cease operating in a conflict. In chronically fragile contexts, a resilient source of energy (diesel generators or solar energy) is a necessity to avoid the financial collapse of water utilities during emerging conflict, though humanitarian assistance will usually be needed to supply fuel or to absorb the fluctuations in price associated with wartime shortages. Water supplies in Idlib continued to operate during the conflict only until the province fell to

[2] Emergency interventions that replace capacity previously provided by utilities can have a harmful effect on longer term sustainability of water supply. The case study of Ibb city in Yemen provides one example of a situation where this has been avoided.

rebel forces, at which point the grid connection was severed and donors had to step in to install generators and supply fuel. In Ibb in Yemen, the utility had prepared for the conflict since the political crisis in 2011 (which then led to war in 2014), installing generators and stockpiling fuel. With adjustments to tariffs and donor support to offset price fluctuations for fuel, it was able to continue operating effectively and sustain revenues during the conflict. Electricity supplies are not reliable in many other FCAS contexts, including in DRC, where water in Goma can only be affordably pumped at night during the low tariff period, with major implications for the design of the system.

Skilled staff shortages. Institutional knowledge in poorly managed institutions is frequently lost with the loss of experienced staff. The staff who remain during conflict are also frequently lower skilled as they are less able to depend upon finding job opportunities as a refugee or IDP.

The specific context of conflict or fragility has a substantial effect on the likely problems and solutions donors will encounter. For example, in Yemen a longstanding process of decentralisation to local parastatal water utilities enabled the best of the urban utilities to achieve a level of resilience prior to the outbreak of war that has in some cases excelled in weathering the conflict, in spite of the typical effects of war – particularly the influx of IDPs. In Freetown and Monrovia, by contrast, there was a very low level of institutional fitness for purpose in the water sectors going into their (linked) civil wars and in the aftermath the institutions were unable to cope with the demanding situation, necessitating repeated short-term emergency interventions while donors delayed committing to sufficiently serious long-term projects to tackle institutional shortcomings. In DRC the context is different again, with the primary challenge being to navigate a forest of political vested interests and influence to achieve a legal and political arrangement that will allow a water utility to thrive. All of these are fragile contexts but have very different implications for programming.

Political economy challenges are more severe obstacles in fragile states, requiring a deep understanding of the context both within donor teams and implementers. Examples of this include the DFID-supported IMAGINE programme in DRC, for which political economy has been a significant challenge and the cause of delays and redesigns. The present project design has tackled most of these issues. Political economy challenges are also frequently felt in the imposition of unsustainably low tariffs on public utilities, driven by political weakness in authoritarian or newly democratic governments (Sierra Leone, Syria).

The careful selection of implementers can help to ensure successful politically aware programming. In DRC, DFID's grantee/implementer Mercy Corps put in place expatriate personnel who were likely to commit to the full length of the 5-6 year project and made provision for families, ensuring continuity of institutional knowledge. They have recognised the need for and therefore incorporated strong community engagement and communication elements for the success of the project. This contrasts with water supply infrastructure works in Hargeisa, which have focused only on improving the bulk supply to the city and will have little immediate impact on local communities. Lack of community support has been a hurdle to the water agency, for example in trying to regulate the water tanker industry. In Syria, GOAL has been able to operate in a highly insecure environment, understanding and navigating the relationships between rebel local governance groups and the technical remnants of the former central government water authorities. It has also been able to advise DFID on how the programme should deal with the interference of violent jihadi groups, resulting in a locally led solution that successfully disengaged this interference.

It is essential for sustainable programming that the mandated local and national authorities are involved in decision-making. In Hargeisa, utility staff were reportedly excluded from some decisions on funding and choice of technology within current programmes. Similar observations have been made about past programming in Freetown. In DRC, by contrast, DFID DRC did not submit to pressure for quick results prior to achieving an agreement on tripartite governance of the programme, which required local and national authorities to agree on plans and made future problems less likely.[3]

2.2 *Delivery of infrastructure*

The recurrent and serious challenge present to a large extent in all of the cities studied is the long-term difficulties donors have in building sustainable, properly functioning water utilities in fragile states. In

[3] It is significant that although authorities were consulted during international procurement processes, they were not given a controlling vote in the final bid selection.

Freetown, Liberia, DRC and Hargeisa, the common theme from sector observers has been that **capacity building was not attempted early enough**.

In Hargeisa, the vacuum in water management provided space for the private sector to pick up the majority of water supply responsibilities, with major effects on the cost and equity of supply. By the time there was a policy framework in place and donor support had begun working with the Hargeisa Water Agency, the agency was so dysfunctional that donors preferred to tackle supply issues through other means including NGOs – referred to by the World Bank as the 'capacity conundrum'.[4] **The same situation – an immediate focus by donors on emergency solutions with no long-term sustainability, undermining the public utilities and leading to a donor reluctance to subsequently engage – has been observed in Sierra Leone, Liberia and DRC and appears to be common across FCAS contexts.**

From the above, it would appear to be advisable to begin working on sector governance and capacity building immediately upon encountering water supply problems in any FCAS context. However, this is not always realistic. It is clearly extremely difficult to start capacity building of institutions very early in post-conflict scenarios, before a political solution has been settled upon and water and wastewater policy frameworks have been decided. **In Syria**, GOAL's work on introducing cost recovery to urban supplies in Idlib province during the conflict has so far failed to gain traction because of unanswerable questions about the authority of the local institutions to demand and enforce tariffs and longer-term uncertainty about how water will be managed when the war ends. The Ibb case study **in Yemen** shows that it *is* possible to support good urban WASH management during a conflict with emergency donor programming, but Ibb has an unusually resilient utility and the task will be harder across the rest of the country.[5]

Box 1: WSP framework for emergency to development transition in urban water supply[6]

The World Bank's Water and Sanitation Program (WSP) published in 2017 an assessment of progress on improving urban water supply systems in post-emergency contexts in Africa which includes learning from work in most of the cities examined as part of this report (Monrovia, Freetown, Hargeisa and cities in DRC). Below is a framework describing the outcomes from key action areas in a post-emergency situation, along with progress assessed by the World Bank in 2017. The same table with descriptions in place of scores (0-4 for level of progress made) is annexed to this report.

Intermediate Outcomes	1. Reestablish country leadership in sector coordination and policy development	2. Institutionalize rigorous sector monitoring and joint sector review processes	3. Restore cost recovery in urban utilities, small-towns, and large rural piped water schemes	4. Establish an inclusive sector investment plan (SIP) and process that mobilizes infrastructure investment	5. Increase domestic investment in the sector	6. Increase use of country systems by development partners	Cumulative 'transition progress' across IOs by country
DRC	2	1	1	1			5
Liberia	2	3	2	3	1	1	12
Nigeria		1	1				2
ROC	2	1	0				3
Sierra Leone		1	3				4
Somalia		2	3	1	2	2	10
South Sudan							0
Zimbabwe	3	3	2	3	1	2	14

Legend:	No WSP intervention	No progress	Slight progress	Moderate progress	Good progress	Substantial progress

[4] WB WSP, 2014, Delivering Water, Sanitation and Hygiene in FCAS: Learning Review.
[5] Significantly, GIZ has recently carried out a thorough analysis of urban water utilities in Yemen and designed a project combining infrastructure rehabilitation with capacity building. The intention appears to be to implement this as soon as funding has been secured, *before* the end of the conflict.
[6] de Waal et al / WB WSP, 2017, Water Supply: the transition from emergency to Development Support Evidence from Country Case Studies in Africa.

Our recommendation is to look at the earliest opportunity the operating environment allows, to transition from short-term emergency/humanitarian responses to longer term responses to address urban water issues. Support capacity building/institutional strengthening ideally prior to, and in parallel with, capital investments. See Box 1 and annexes for references to an approach to this developed and championed by the World Bank.

Where the water or sanitation infrastructure is not known in detail in advance, flexibility in contracting procedures is essential to achieve VfM. The current DFID rehabilitation programme in Freetown has been designed using a form of contract that is flexible at various stages while retaining appropriate incentives to keep costs down. A notable success of this approach was in significant cost savings achieved through rehabilitation of the vital scour valve at the city's main reservoir, which was significantly cheaper than the original plan of replacing it, which would have required major engineering works.

Use of appropriately simple systems and components for the context is essential for sustainability of impact. Most of the case studies showed positive examples of this, in particular the procurement of equipment and materials locally wherever possible (for example in Syria). In Bukavu, the water treatment plant provides basic but adequate treatment, and Mercy Corps decided to simplify the existing treatment process further rather than upgrade to a more complex system. However, there have been some clear examples of mistakes, such as the installation of a bulk transfer high pressure system in Freetown by the World Bank around the end of the civil war in 2003. This was never fully commissioned after installation and has since degraded and requires rehabilitation to fulfil its original purpose. Inappropriate use also appears to be causing pressure problems in other parts of the system. **Systems that are <u>too</u> simple may also not be fit for purpose, however.**

Water infrastructure works in FCAS appear to be characterised by long delays before improvements are evident. In Hargeisa, six years after the start of work to improve bulk supply to the city, there is still no increase in the bulk supply level. This appears to be attributable to rules that the implementing agency must follow which are not suitable for the context, referring all procurement decisions to its regional headquarters in Nairobi and from there to HQ in New York, resulting in delays. However, this is only one of a great number of possible hurdles that delay projects in FCAS contexts. There have been years of delays in DRC due in part to changes in the political context, delays in Idlib due to conflict factors and corruption in logistics systems and long delays in Freetown (a water supply masterplan completed with DFID funding in 2008 has yet to have any significant elements implemented). Donor strategies should be designed in the knowledge that seeking fast results will likely be to the detriment of sustainability and that delays should be expected, with the accompanying continued reliance of infrastructure on recurrent donor capital funding.

In situations where corruption is endemic, cash management systems can be an obstacle to progress. Mobile payment systems are not available in Syria and the inability of water utilities there to manage cash payments safely and without leakage in an unpoliced environment are holding back cost recovery efforts.

The employment of local labour in construction projects is a desirable design feature, in particular in the immediate aftermath of a conflict when employment opportunities have not yet recovered. This has been observed by the DFID programme in DRC: direct benefits from salaries, further engagement of the community and development of skills for future maintenance of local elements of the system. **However, there are pitfalls associated with work creation programmes in water provision in urban environments**. In Sierra Leone, the rapid expansion of water points in low lying areas of Freetown after the war was actively supported by government funding for employment creation purposes. It appears that the programme was primarily about work creation and was not designed with long-term plans in mind, because a lack of safe sanitation facilities or disposal routes in these areas led to an escalating health risk. This culminated in a cholera epidemic in 2012 directly linked to this post-war groundwater infrastructure and subsequent unplanned development and unmanaged faecal waste.

Currency fluctuation and particularly depreciation is both a more likely and higher impact risk to programming and to water utilities in FCAS environments. The impact is particularly acute locally when there is a heavy reliance on imported energy sources. This is documented in several of the case studies in this report. In Syria, the depreciation of the local currency has led both to a reliance on donor support for obtaining imported fuel for water pumps and to a perverse situation whereby donor-supported salaries (paid in USD) at water utilities have ballooned to four times their original value in local currency, causing resentment in communities and sustainability issues (these salaries keeping

skilled staff in post cannot be maintained if donor funding ends). In Somaliland, a reliance on imported fuel and the steady depreciation of the local currency has damaged the financial viability of the Hargeisa Water Agency. Currency fluctuations also cause practical issues with donor project management. The World Bank in Sierra Leone reported that the devaluation of GBP against USD during the 2008 financial crisis resulted in an effective 24% cut in the value of a crucial DFID funded programme component that was supposed to tackle emergency repairs and TA to the Freetown water utility. Increasing value of project currency vs local currency also tends to increase pressure to spend, which can result in poor VfM decisions.

2.3 *Impact of infrastructure*

Distributional benefits of WASH interventions in fragile urban environments need to be approached pragmatically. While community sanitation programmes can be targeted at the poorest communities provided there is sufficient public infrastructure to handle disposal pathways[7] and well-designed individual water points that rely on protected local resources can similarly be targeted, major water and waste infrastructure tends to have a much broader impact. This can be necessary to tackle political economy challenges, as in Goma, where Mercy Corps agreed a capacity and financial model such that the majority of demographic groups in Goma are likely to benefit from their programme's increased water supply. This was considered important, given the complex operating environment, to avoid problems by including powerful players who could act as spoilers to the programme.

Particularly when donor support is on an emergency basis, it is important to consider the impact of newly installed infrastructure on operations and maintenance requirements and consequential impact on tariffs. This appears to be an obvious point, but there is substantial evidence that it is not always adhered to in FCAS environments. This should have been fundamental to consideration of options for the upgrading of the bulk water supply system to Hargeisa, but interviewees suggested that a full analysis was not done, perhaps due to an inability to address longstanding capacity problems at the HWA.[8] The World Bank noted this was a serious problem in the donor response in Liberia from 2003-2007, leaving a wide array of emergency infrastructure which post-war water institutions were unable to effectively manage.

Broken promises – whether related to programmes that are delayed by many years, suffer cuts due to operational setbacks or which install unsustainable infrastructure which subsequently degrades – can erode public goodwill and lead to an uphill struggle for public utilities to regain the trust of their customers. In Goma and Bukavu, a repeated cycle of short term projects implemented by NGOs which lead to failed infrastructure (either technical failure or poorly planned ownership handovers to communities which are left with unfeasible maintenance requirements) has created a level of scepticism of donor projects such that the Mercy Corps team were often told that the communities did not expect the water to flow from the tap stand for more than a few weeks when the first phase of the IMAGINE project came into operation. Similar fatigue can be observed in communities across the other studied cities.

2.4 *Donor modalities, instruments and approaches*

Adaptability can be the key to success in FCAS contexts, but caution is required with complex construction projects. In DRC, DFID structured the IMAGINE programme to enable a flexible approach that would enable adaptation to a changing context. This proved to be important when a new Water Law was passed in the second year of the programme that fundamentally changed the institutional arrangements, and when the project had to terminate an agreement with the local NGO responsible for operational management. Although flexibility can result in delays, inflexible donor funding structures also cause delays – as they have in Hargeisa – and other implementation issues. In Freetown, the current DFID water network rehabilitation programme is being implemented under an NEC contract. While this is an appropriate form of contract when specifications are expected to change during the project as more detail on the works becomes available, it is still expensive to make changes

[7] Not the case, for example in Freetown, where there are many donor funded upgraded latrines but as yet no disposal route that avoids waste being simply dumped in the environment.
[8] These problems are outlined in section 4.5.3.

when design work has already been carried out and therefore needs to be redone following a change in context.

There is some capacity within the NGO sector for complex, politically aware non-emergency development programming in the water and sanitation infrastructure space. Expertise from NGOs' longer-term engagement in sectors throughout emergencies and into development stages is a potential asset to donors when compared with implementers that have more advanced sector experience but little understanding of the local context. The arrangement in DRC with DFID agreeing to a proposal put together by an INGO with strong contextual understanding, while contracting expert engineering and utility management advice from Mott MacDonald (an international engineering consultancy) is one way of marrying together both skillsets. It has been suggested that in Yemen one of the strengths arising from the conflict for future development prospects is that it has significantly expanded the capabilities and contextual understanding of humanitarian actors compared to the situation prior to the war. This is an asset that – properly exploited – could improve the contextual performance of development programming in post-war Yemen.

However, in fragile states there can be little depth in the market for implementing organisations with the necessary expertise and will to engage. A GOAL programme building sustainability into water supply institutions in Idlib was suspended for a year and a half due to procurement irregularities discovered by USAID on a separate GOAL Syria project and there was no suitable alternative implementer to transfer the project tasks to. Other examples exist in other FCAS circumstances outside active conflicts, such as the experience of DFID in Sudan,[9] in which the designer and only credible bidder for an urban water supply project pulled out of contract negotiations very late into procurement due to concerns about the ongoing after-effects of repealed US financial sanctions against Sudan. This set back the project by nearly a year while alternative implementers were sought.

2.5 *The role of other actors*

Private sector provision of water and sanitation services is a reliably enduring feature of fragile states, but private provision without strong public regulation and infrastructure is expensive, inequitable and risky. Private providers will emerge to fill the market gap left by a lack of public provision. While some service is invariably better than no service, in many cases private services unsupported by public infrastructure are of substantially higher cost and can leave the poorest and most vulnerable communities at much greater risk of harm. There is a risk that donor interventions focusing on improving the volumes of water supplied by piped water systems have limited positive effect on poor communities which may remain unconnected to water supply and reliant on trucked water or long walks to public standpipes.

The high price of private water supply can also drive augmentation of a meagre supply with unsafe sources and also to poor sanitation practices. In Idlib, poor households served by water trucks alone spend over 30% of their income on water. In the poorest parts of Freetown, lack of access to sanitation facilities for many has driven an increase in open defecation. For households emptying pit latrines, inexpensive private providers will bury the waste on-site, or dispose of it in a watercourse nearby. These disposal routes contaminate groundwater used by many for domestic supply.[10]

Private investment prospects are not strong in water utilities we have observed in fragile states. Most utilities struggle to meet financial obligations from customer collections and are not close to meeting normal performance targets for water supply management. Chronic underinvestment in infrastructure from insufficient revenues necessitates repeated cycles of donor support. The only PPP arrangement in the cities reviewed has been in DRC, and this is supported by a donor programme and owned by a charitable vehicle. Nevertheless, it could be used as a model for future private participation, when donor or public funds are available to offset capital investment costs.

[9] Information from previous ICED work; this programme is not further referenced in this report.
[10] Burial on-site can be an effective solution if handled appropriately with properly lined pits, however surveys suggest that this accounts for only a minority of disposal by burial in Freetown.

3 Case study summaries

Hargeisa (Somalia)

The Hargeisa case study looks at water services in a post-conflict city that relies on strong private sector involvement in provision. This has resulted from a vacuum in public provision and failure to maintain and expand supply to meet the needs of a growing population. Twenty-five years after the end of the last conflict, the water supply situation in the city remains dire, in part due to a population that has grown at an average of 6% annually since 2005. Water provision is largely by private tankering services to 70% of the city's population, creating an excessive cost burden that falls most heavily on the poorest. DFID and other actors have lined up major investments to increase the supply of bulk water to the city, but these have been severely delayed due to procedural hold-ups and are only proceeding now, six years after the funds were originally committed. There remain questions about the further development of supply systems after more bulk water becomes available from the city's distant sources.

Lessons drawn from this case study are around the 'capacity conundrum' which has historically prevented serious donor engagement with the Hargeisa Water Agency and the substitution of capacity by other means. This became an obstacle to creating a viable public water supply that will lower prices and improve quality and resource management for all.

Goma and Bukavu (DRC)

This case study focuses principally on a 2013-2020 £38m DFID programme to fund an expansion of water supply service in Goma and Bukavu. Both these towns are located close to the border with Rwanda in eastern DRC, which is a conflict-affected area currently in the grip of an Ebola outbreak which began in 2018. The programme is one component of a £164m WASH programme which represents one of DFID's largest single country WASH interventions. The Goma and Bukavu programme has a unique structure designed specifically for the DRC context, in which authority is highly centralised in large state institutions and privatisation of service delivery has been challenging. The relatively recent (2016) passage of a Water Law[11] theoretically decentralising water services and enabling locally-led service delivery and cost recovery has yet to be translated into practical effects on the ground, and the DFID programme is in the vanguard. The programme has set up a structure similar to a user-pay PPP, involving a new DRC-registered water operator company owned by a UK-registered charitable entity, which has a contract to deliver services on behalf of the national water utility REGIDESO. This replaced an earlier model involving a local NGO, which proved to have limited capacity to deliver services.

Lessons from this are around the adaptability and patience that are necessary to pursue urban utility interventions in a highly politicised and fragile context, including the careful navigation of the political economy and the willingness to stop, start and change approaches as necessary. Strong donor leadership based on an understanding of the political economy (as demonstrated by DFID DRC) is necessary to protect projects and implementers against insurmountable political hurdles. Additionally, it was observed that frequent over-promising related to short-term donor projects in water and roads had damaged community trust and engagement, which had to be painstakingly rebuilt in order for the project to be resilient at the ground level (against neglect and vandalism of infrastructure).

Freetown (Sierra Leone)

This case study charts the course of water infrastructure development over the past 16 years since the end of the civil war, focusing on the repeated short-term donor interventions to rehabilitate piped networks, the unregulated development of groundwater sources and the possible causes of the difficulties donors have had in building up the capacity of local institutions. It also briefly covers the dire sanitation situation in the city – a largely unmanaged sector with waste dumped informally and liquid waste polluting groundwater and waterways throughout the city. DFID is the leading donor in the WASH sector in Sierra Leone and has been engaged there since the immediate aftermath of the civil war in 2003.

Lessons drawn from this study are primarily concerned with the effects of lasting post-conflict fragility on urban development and the knock-on effects on water and sanitation. Dynamics examined include

[11] Loi n° 15/026 du 31 décembre 2015 relative à l'eau. Journal Officiel de la République Démocratique du Congo, 13 janvier 2016. http://leganet.cd/Legislation/JO/2016/JOS.13.01.2016.pdf

the ongoing instability of political economy in young post-war democracies, the attritive effect of the unwillingness of authorities to enforce rules, the in-built vulnerability of self-funded water utilities in this kind of environment and the ever-present post-war dynamics such as massive population growth.

Ibb (Yemen) – short case study

The Ibb study – based on existing analysis for the World Bank – explores a successful urban water and wastewater utility which has so far not only weathered a protracted conflict – experiencing all of the typical effects of conflict outlined elsewhere in this report – but has actually *expanded* its water services during this period. This with a minimum of stabilisation support from donor programmes. The overall lessons from Ibb are around the need for humanitarian organisations and donors to properly assess the problems and existing solutions prior to providing short term substitutes for water supply that could undermine longer term sustainability. Notably, in Ibb a decentralisation policy framework predating the conflict by two decades has been an essential precursor to a resilient utility that can handle conflict.

Liberia – short case study

This case study – drawn from a World Bank report and briefly covering urban contexts across the country – demonstrates the effects of failing to prioritise better management of WASH services in the early post-conflict period: when humanitarian aid wound down, there was essentially no national capability to take on the WASH services that humanitarian programmes had provided. A short-termist donor response undermined the longer-term sustainability of water institutions. The World Bank holds this up as another example of the 'capacity conundrum' experienced in Hargeisa.

Idlib (Syria) – short case study

This case study explores a quite unusual conflict context, in which donors are supporting only semi-functional rebel governance bodies which lack the depth and mandate to support sustainable water services utilities. It illustrates some of the common problems that programmes face in an active conflict scenario and the uphill struggle that can result from trying to build water services in a void without some of the key functions provided by a centralised policy framework.

4 Somalia case study - Hargeisa

4.1 *Introduction*

Hargeisa provides an important case study of a post-conflict city, that has enjoyed relative stability for the last 25 years or so. The water supply situation in the city is dire, due to a number of factors:

- major water resource challenges in a semi-arid area with around 300mm of annual rainfall;
- the distance of the water source from the city (25km) and its elevation 260 m. below the main city reservoir – which results in very high pumping costs;
- a population more than 5 times the size of that for which the system was designed;
- poor quality of existing infrastructure;
- limited distribution coverage within the city, meaning that the majority depend on very expensive water supplied by tanker and donkey cart.

Funding agencies responded with a combination of investment and capacity building support around 2012. However, despite the publicity around the initiatives and resultant expectations of water flowing from taps – the tangible improvements to date are very limited. This should change in the next year, as the new bulk water pumping main comes on line to more than double available supply to the city. However, the challenge will then be to distribute the increased supply to those who are most in need.

The obvious need for increased water supply and distribution across the city, and relative stability of Hargeisa, raises an important question on the readiness of funding agencies to commit funding in a post war situation. A joint HWA/WSP[12] report traces this lack of investment in service through state agencies in post war situations to what it terms a *post-war "capacity-conundrum"*.[13] This refers to donors and finance ministries avoiding investment in run-down state institutions. They suggest that this further denudes the capacity of these institutions – and reinforces a vicious circle of decline. The vacuum caused by a lack of effective governance results in non-state actors (UN agencies and NGOs) implementing projects and programmes (with funding from other agencies) and in some cases taking over the role of government agencies.

Somaliland and Hargeisa provide an important example of a transition from short term humanitarian funding to a longer-term development approach. There are opportunities in such situations to demonstrate a peace dividend. However, the challenge is to deliver on the high-profile announcements in order that the residents, and particularly those currently unserved, see water flowing to new distribution points.

> Sustainability of urban water supply systems goes well beyond physical engineering and managing water flows.
>
> *Farah, K. et al, WEDC Paper, op cit*

As part of their preliminary assessment, funding agencies identified the lack of sufficient bulk flow from the water source to the city of Hargeisa as a critical bottleneck to increasing supply. However, it is clear from the research that there are multiple interconnected constraints to improving urban water supply in Hargeisa, as in any post conflict situation. These cover a range of technical, institutional, political, social and environmental issues. This case study provides some lessons on the importance of taking an integrated approach to addressing the challenges.

The case study team also planned to research the effectiveness of support to basic sanitation in the city. However, the overwhelming focus of international agencies has been on water supply, with very limited consideration of sanitation. This is therefore reflected in the balance of coverage in this report.

[12] HWA/WSP, 2017, Attracting Investment and Delivering Services in Fragile States: The Story of Hargeisa Water Agency. Draft pre-publishing report provided to ICED team by HWA.
[13] See also Section 7.2 below, summarising another WSP report which dealt with same concept.

4.2 *Context*

Following independence in 1960 there were significant tensions in Somaliland. The roots of this were in part a result of the inequalities from the union of two former colonies – British Somaliland and Italian Somalia.

Power was principally with Mogadishu, leading to clans in Somaliland being marginalized. The dominant Isaaq Clan, in Somaliland, felt excluded from the political process – and under threat from Siad Barre's military regime. The Somali National Movement – one of many clan-based political and military groups formed during this era – was started in 1982, made up mainly of the Isaaq diaspora and opposed to the Barre regime. An insurgency by the group escalated into civil war by 1988, drawing in Hargeisa.

Heavy bombing and shelling of Hargeisa in 1988, resulted in many civilian casualties. More than half a million people, many from the Isaaq clan fled to Ethiopia and around half and million became internally displaced. However, there was strong resistance, and by the end of 1990 the government controlled a relatively small area (10-15%) of Somaliland. The rest was controlled by various clan-based political movements. This, and an intense drought and subsequent famine, led to Barre's forces retreating to Mogadishu. Somaliland unilaterally declared independence in 1991, following the overthrow of the Barre regime in 1991. Its status as an independent country has not been recognised by the international community. This continues to be a source ongoing tension between the governments in Hargeisa and Mogadishu. However, unlike the south of Somalia, and with the exception of the disputed border with Puntland in the East, Somaliland has enjoyed relative levels of peace and security over the last quarter century.

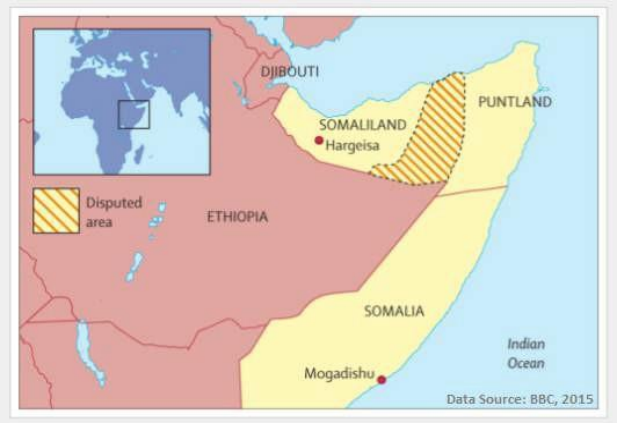

Figure 1: Map of Somalia (BBC)

Reflecting this, a joint UN/WB report[14] summarised the situation improvements in 2007:

'Since the beginning of the 1990s, Somaliland has seen remarkable progress on many fronts, not least in a unique reconciliation process, the creation and implementation of functioning governance and judiciary systems, and a democratization process that has led to free and fair elections and a multiparty legislative system. This has been made possible primarily through the active involvement of a vibrant private sector, non-governmental organizations (NGOs), civil society, the participation of traditional leaders, and large inflows of remittances'

The physical destruction of Hargeisa during the war was near total. A process of reconciliation between different groups in Somaliland, through a clan led process, resulted in the establishment of a relatively stable security regime, with local and national institutions of government. Somaliland's reconciliation model is unique in international experience of peace building and local reconciliation, and has benefited from a remarkable understanding and incorporation of key cultural and societal features.[15]

Since 1994 there has been significant positive progress. The relative peace and security in Hargeisa, as well as rural hardships as a result of recent droughts, have resulted in a rapid increase in the population. There are no official figures based on reliable data. However, estimates suggest that in 2005 Hargeisa had

> "There was no electricity or running water after the conflict. We used oil lamps, but within a year everything had changed – we got water and electricity. It was all the private sector. The transformation has been the result of the business community, it was all local initiative.
>
> Before the conflict I was a truck driver and I was travelling to Djibouti bringing home goods. During the conflict, I couldn't do this and I became a warrior against the Somali government. Immediately after [the] war I became a truck driver which delivered water to Hargeisa."
>
> *Brown, A. op. cit.*

[14] UN/WB, 2007, Somaliland Joint Needs Assessment
[15] Brown, A. 2017 The Informal Economy in Civil War: Hargeisa – Somaliland, DFID - ESRC

a population of 300,000 inhabitants. This has risen steadily to what is widely considered to be a current population of around 1 million, including IDPs, refugees and returnees to the country.

Not surprisingly, given its history, the provision of basic services including water in particular remains a major challenge. As with other cities in Somalia, the destruction of basic services led to small enterprises starting up to fill the gap. Many families in Hargeisa rely on the informal economy – and private water providers are one part of this. Estimates suggest that they provide around 65% of the city's water requirements – through tankered supplies, donkey and hand carts.

4.3 *Hargeisa Water Supply – Current Situation*

The Chinese Government renovated and expanded the current Hargeisa Water Supply system in the early 1970s. The source of the city supply is a large underground aquifer (Geed Deeble) 20 km from the city. From here the water is pumped to the 'Chinese Reservoir' from where water is distributed into the water supply system. The Chinese also installed pumps and extended the distribution system to new settlements. The system at the time was designed for 180,000 people. With a capacity of around 10,000 m^3 this is equivalent to 55 litres/p/day[16] - far higher than the current per capita capacity today.

To the extent that it was able, Hargeisa Water Agency managed and operated the existing system, despite the damage caused over the intervening years. This was supplemented by short-term emergency funding support for the Hargeisa system. With continuing relative stability in Somaliland, international agencies started to take a longer-term view of support, and funded a number of technical and institutional assessments.

The existing system provides water to 21,000 household connections, 400 water kiosks, and 3 water tanker standpipes - currently serving an estimated 30 - 35% of the city's population. The bulk of the supply is provided to the northern half of the city with households in the south depending on alternative sources of water, delivered by tankers and donkey carts at far greater cost than the piped water. There continues to be a political dimension to access. Some communities known to have supported Siad Barre 30 years ago remain marginalised.[17]

4.3.1 Hargeisa Water Agency (HWA)

Established in 1974, Hargeisa Water Agency (HWA) is a state-owned water supply utility with a board of directors, that is mandated with the management of the assets and supply of water for the city of Hargeisa. It enjoys fiscal and administrative autonomy, and currently has a permanent staff of 329 – whose salaries are fully covered by HWA.[18] The President of Somaliland appointed Mohamed Ali Darod as the CEO, in 2016, and he remains in the position.

4.3.2 Institutional Arrangements

In spite of the many challenges Somaliland embarked on a reform process in the WASH Sector over 15 years ago.[19] This includes the approval and implementation of a National Water Policy, a Strategy and the National Water Act.

The Cabinet passed the National Water Policy in 2004. This sets out the objectives, general principles and guidelines to be followed by the MoWR in developing the water sector. It also approved the Water Strategy in the same year. The Water Act establishing the legal framework to support the National Water Strategy, defining organizations, mandates, responsibilities and procedures was approved by parliament and the President in 2011.

However, further efforts are required to complete this reform. Policy and regulation functions are not yet clearly defined in the sector, and the MoWR still retains a considerable and very wide-ranging responsibility. Combined with capacity limitations, this results in insufficient and inadequate implementation of policy and service delivery standards.

The sector has formalised a process of quarterly co-ordination meetings, chaired by the MoWR, with four sub-groups addressing more detailed issues:

[16] UHL, 2012, Geophysical Survey of Hargeisa Well Field
[17] Interview with donor representative, July 2019
[18] Somaliland Ministry of Water http://somalilandministryofwater.org/
[19] SDPII, 2017–21

- Water supply sub-group chaired by the Ministry of Water Resources
- Hygiene and sanitation sub-group chaired by the Ministry of Health
- School water and sanitation sub-group chaired by the Ministry of Education
- WASH emergency sub-group chaired by NERAD and CARE International

The First Somaliland Development Plan (SDP) 2013 -18, emphasised to importance of water as part of the country's growth and development. Its aspirational vision was to build a nation which is water secure, where every citizen has access to clean affordable water throughout the year. It also emphasised the importance of advanced sanitation and waste disposal systems that is sustainable and environmentally friendly.

More recently the Second Somaliland Development Plan II (2018–22) highlighted the following objectives for the Water sector:

- Increasing the availability of water by developing the surface and ground water resources
- Coordinating water infrastructure initiatives to optimize access
- Setting standard management practices of water for improving gender equity, community mobilization, and private sector participation
- Setting priorities of use and rules for sharing resource
- Developing integrated water resource management systems

The Somaliland Government used the First SDP as a basis to approach agencies to provide funding support to address priorities.

4.3.3 Financial viability

The energy needed to pump water from the well-fields to Hargeisa is substantial - almost 1 MW for 23 hours a day using 7,000 litres of diesel. The daily cost to HWA is around US$4,400 a day, or over 55% of its revenue. All fuel is imported through Berbera port, leaving HWA vulnerable to currency devaluation and global diesel price shocks. This has had a major impact on HWA's finances, which struggles to achieve a surplus on basic operating costs (it has a debt of $750,000 in 2017), because revenue is collected in Somaliland Shillings, which has seen significant depreciation in recent years.[20]

Despite the challenges, the World Bank's technical assistance team consider that HWA's operations are relatively efficient with steady revenues of $200 - 300,000 each month since 2014. This represents 90% of billings, indicating that HWA has a strong commercial side to its operations. Theoretically the tariff increases depending household/commercial users' levels of usage. However, they generally charge a flat rate as a result of the non-functioning meters. The cost of water is 14,500 Sl.Sh (approx. $1.4/m^3) for households, and 13,500 Sl.Sh at kiosks. High use commercial users pay double this amount.

Water Production 280,000 m^3/month

Monthly billing $292,000

Revenue collection $280,000

Population served 350,000

Non-revenue water 20%

2015 HWA data

This issue of improving financial viability is critical to the sustainable operation of the system – particularly once the new transmission main has been commissioned and is operational. The World Bank Technical Assistance Team has recommended some priority actions to improve financial sustainability:

1. A tariff structure review with associated asset management plan
2. Reducing non-revenue water – both through physical losses (leakage) and non-payment of bills
3. Optimising pumping arrangements (with possible inclusion of some solar pumping capacity) – given the high costs in relation to revenues.

4.4 *WASH in Somaliland*

4.4.1 Water Resource Availability

With a semi-arid climate and an average rainfall of about 300mm, water is a scarce resource in Somaliland. There are no lakes or permanent rivers, and rainfall is limited to two brief seasons.

[20] Depreciation 2015-2017 was from 7,500 to 10,500 SLSH against the USD, equivalent to 30%.

Underground water is the main source of supply particularly in urban areas. The pressures on this scarce resource are mounting due to increasing population and urbanization.

Given the scarcity of surface water, Hargeisa is fortunate to have good quality aquifers at Geed Deeble in western Somaliland towards the border with Ethiopia. A British Geological Survey assessment,[21] drawing in particular on an FAO/SWALIM study[22] gives a depth of aquifer of over 150 m although this varies across the aquifer – with boreholes in the range of 10 m and 50 m deep. These boreholes generally have good yields ranging from 12 to 20 l/s, with drawdowns typically less than 20 m. The water quality is also good. However, despite the size and potential yield from Geed Deeble, and other aquifers, hydro-geologists have concerns about their sustainability given likely future demands. In view of this FAO/SWALIM have installed borehole logging equipment to monitor drawdown.

Water from the boreholes is pumped to a reservoir at the Geed Deeble Pumping Station and on to Hargeisa's main reservoir – via a booster station at Byo-Khadir. The borehole pumps are operated for 23 hours each day and extract an average of 50m^3 of water per hour from each borehole. Total water production is not currently metered but is estimated to be 13,500m^3/day.

Local farmers use some of the water abstracted from the boreholes to irrigate nearby fields. The volumes provided were previously not monitored. However, with World Bank support HWA has financed the installation of meters to improve how they measure water production and distribution. This will provide important information on the relative volumes pumped into supply and used for irrigation. This will enable a clearer assessment of the value of the water provided for irrigation, and the options for more closely managing this. Although, given that this is an historic arrangement, with (presumably) local farmers who will consider this to be their resource, it will be difficult to make any changes that in any way appear detrimental to their livelihoods and habitual rights over the water.

There is no monitoring of the volume of water distributed by tankers in Hargeisa. However, based on just 15 litres/person/day for the 650,000 people who are currently not served from the main system this implies that tankers and others sourcing water close to Hargeisa, draw around 10,000 m3/day – the equivalent of the volume currently pumped from Geed Deeble – with a value equivalent to around $50,000. There is no overall assessment of sources of supply. However, given the water scarcity in areas surrounding Hargeisa it is likely that other communities' livelihoods and well-being are affected.

A firm of Danish Consultants (NIRAS) African Water Facility through the African Development Bank has been undertaking a comprehensive assessment of surface and groundwater resources across Somaliland. Their findings[23] are that, contrary to some perceptions, there are potentially high yielding aquifers in south-west Somaliland and also along the coast. However, the hydro-geology is far more complex in the east of Somaliland both in terms of availability of groundwater and also quality.

Although Somaliland has no perennial rivers, NIRAS have identified a number of dam sites that provide potential for water storage – including some possible multipurpose schemes for hydropower, irrigation and water supply. However, these 'mega dams' as they are being termed in Somaliland come with high estimated costs up to $100 – 200 m. However, levels of evaporation > 2000 mm/year, imply substantial losses from open storage reservoirs. The time horizon for development is also seen in terms of decades. For this reason, groundwater will be the main, and probably only, source of Hargeisa's water for the foreseeable future.

4.4.2 Current WASH Situation in Hargeisa for those Unserved by Piped Supplies

With a rapidly increasing population (now estimated at over 1 million), and an existing water supply system designed for 180,000 people, lack of access to basic water supply has and continues to be a major challenge for the city of Hargeisa. A World Bank poverty report[24] suggests the focus of government and donors has been on peace building processes, with limited attention to the delivery of basic services and significant disparities in access to basic services between poor and non-poor households. There were some small-scale interventions prior to 2012 to rehabilitate parts of the Hargeisa water infrastructure. However, overall the city's water system remained dilapidated and

[21] Africa Groundwater Atlas: Hydrogeology of Somalia. http://earthwise.bgs.ac.uk/index.php/Hydrogeology_of_Somalia

[22] SWALIM, 2012, Hydro-geological survey and assessment of selected areas in Somaliland and Puntland, FAO

[23] Author interview, June 2018.

[24] World Bank, Poverty Global Practice (January 2015): SOMALILAND: Poverty Profile and Overview of Living Conditions

critically close to failure. Around 65% of the estimated one million population remain dependent on unsafe trucked water delivered by private water tankers and other forms of informal provision,[25] which is estimated to be 5 times more expensive than water provided by the HWA. Private water suppliers collect surface water from poorly maintained and marginal sources, including from shallow wells in seasonal river beads from neighbouring areas in the East and West of Hargeisa.[26]

The high level of reliance for water supply on the private sector, means that most poor people are at the margins of supply with regard to quality and quality. It is also apparent that the poor pay the highest prices for water from vendors. HWA/WSP recognise[27] that there are 'significant disparities in access to basic services between poor and non-poor households.'

For example, water kiosks that are intended to provide water to poorer unserved communities are located in areas that already have access to piped water.

4.4.3 Basic Water Requirements for the City of Hargeisa

The World Health Organization (WHO) indicates a survival limit of 15 litres/person/day, in desert environments. However, WHO has set 20 litres/day as the absolute minimum to maintain health and hygiene. Expectations for urban supply are significantly higher. For example, Nairobi is designed for around 120 litres/capita into supply.

The current transmission pipeline was built under a project financed by China in the 1970's and consists of two parallel 300mm pipes that supply up to 9,000m^3 of water to the Chinese Reservoir a day. HWA states that it provides water to 300,000 people. This implies an average of 30 litres/person/day without any losses in the system. Based on assumed minimum of 30% physical losses this reduces to close to the WHO absolute minimum of 20 litres/capita/day.

The proposed supply volume, following upgrading of the system, pumped from the well fields is 20,000 m^3/day. Assuming the same assumed level of physical losses, this would provide sufficient water for approximately 700,000 people at 20 litres/person/day.

As set out in the next section, even though the donor support for the Hargeisa water upgrades is one of the largest infrastructure investments in Somaliland at about USD 50 million, more investments will be needed in the future to meet absolute minimum needs for the people of Hargeisa.

4.5 *International Agencies Active in WASH in Somaliland*

Recognising the dire situation with water supply for the City of Hargeisa, and implications for future growth and stability, international agencies have responded with a number of significant projects to support HWA. The main agencies providing support to WASH activities are the European Union, and the UK, Denmark, Norway and the Netherlands through the Somaliland Development Fund (SDF). The German Government through KfW/GTZ are also providing support. Coca Cola Foundation is also funding a project.

The World Bank through its Water and Sanitation Programme (WSP), has supported a capacity building and institutional reform programme within Hargeisa Water Agency. Although the formal support has now concluded they continue to provide advice and support to HWA on an as needed basis.

The main component of the donor funding, in terms of cost, is the ongoing Hargeisa Urban Water Supply Upgrade Project (HUWSUP). The infrastructure works involve rehabilitating the wellfield collector network, building a new Geed Deeble Pumping Station (NGDPS), and increasing water production by rehabilitating existing boreholes and drilling new boreholes in Geed Deeble, Las Dur, and Hora Haadley. These interventions will increase HWA's water supply by 50% to an estimated 15,000m^3 a day. The HUWSUP project was initially meant to be commissioned in April 2018 but has had significant construction delays and is currently scheduled to become operational towards the end of 2019.

[25] K. Farah and Ibrahim Yonis (2015). Water, Sanitation and Hygiene Services Beyond 2015: Improving Access and Sustainability. Challenges of Sustaining Urban Water Supply for Rapidly Growing Post war City: Case Study of Hargeisa City. Proceedings of 38th WEDC International Conference, Loughborough University, UK, 2015. p2.
[26] Farah & Yonis, 2015, op cit.
[27] Hargeisa Water Agency/WSP, 2017, Op. cit.

The current plans involve decommissioning the existing pipeline once the HUWSUP project is complete. The research team understand that this decision has been questioned on the grounds of risk. Dependency on the single new 600mm pipeline leaves Hargeisa vulnerable to a problem with this trunk main should there be a major failure, or the need to take it out of service for maintenance. Retention of the existing 300 mm pipes would improve resilience of the system, and potentially provide additional supply options.

Given the dependence on underground aquifers for supply to the city, the earlier work of the FAO's SWALIM provided some basic hydro-geological data. This is now reinforced by an integrated water resources study, covering Somaliland, which was funded by the African Water Facility through the African Development Bank.

The table below provides a summary of the main investment projects in support of HWA since 2013. As a result of the combined funding support, Hargeisa Water Agency is currently implementing one of the largest infrastructure projects in Somaliland.

Project	Location	Funders	Implementers	Status
Construction of well-field collection lot 1 10 km pipe line, including feeders from Borehole to Geed-Deeble New Pump Station.	Hargeisa - Geed-Deeble	SDF (DFID led)	HWA	Ongoing, 10% completed
Construction of Transmission mains from Chinese reservoir to four satellite reservoirs. Four Satellite reservoirs and Water Supply Distribution network, Water Kiosks. Liquid Waste Treatment Facility. Public Sanitation Facilities like toilets and septic tanks at selected public institutions in town.	Hargeisa	KFW	HWA	Contractor Mobilization
Hargeisa Water Supply extension Construction of 3 reservoirs with a 250 m^3 capacity and 10 m^3 elevated tank. 62 km distribution main lines.	Hargeisa	Coca-Cola African Foundation	HWA	Ongoing, 60% Completed
Hargeisa Urban Water Supply Upgrading Project Construction of New Geed-Deeble Pump Station. 23 Km transmission main from Geed-Deeble to Hargeisa.	Hargeisa-Geed-Deeble	EU, SDF (DFID led)	Un-Habitat	Ongoing 90% Completed. Electrometrical equipment and installation remains to be completed.

Table 1: List of Projects provided by HWA

The EU announced in 2011 that it would invest $21.3 million in the Hargeisa Urban Water Supply Upgrading Project (HUWSUP). The primary objective of HUWSUP was to increase the daily supply of water to Hargeisa from 9 to 20 million litres. This would increase the quantity of water abstracted from the Geed Deeble wellfield, with a combination of rehabilitation of existing and drilling new boreholes, a new pumping station and laying a larger capacity pipeline to the city.

A significant design aspect of the project is that the 'Chinese Reservoirs' are 260m higher than the wellfields. This in addition to the head loss over the length of the transmission mains requires large pumps, with high operating costs.

The first phase of the Somaliland Development Fund (SDF)[28] began providing support to the HWA in 2013. It also focused, initially, on the drilling of new boreholes to complement the EU investment, in

[28] The SDF is a joint fund established by DFID and Danida in 2012 with further funding subsequently provided by Norway and the Netherlands. DFID contributed about 60% of initial funding and has initially committed 100% of the funding of the recently started second phase of the fund. See further description of management arrangements below.

order to increase the supply of bulk water to Hargeisa. The SDF project was to replace 8 km of pipework at Ged Deeble, and establish the new Hora Haadley well field to further boost capacity.

However, when the construction of the HUWSUP component for the new pipeline was well underway developers realised that there was a missing link to the system: the well field collector and linking main to the pipeline. This was a fundamental oversight, and implies a problem with planning or coordination. Fortunately, SDF was able to redirect funds originally planned to support the extension of the distribution pipelines within the city. As a result, the joint donor-government Steering Committee (JSC) decided to change the investment focus on replacement of the pipeline to Hargeisa and limit SDF support to designing, but not implementing the extension of Hargeisa's water distribution system.[29]

SDF1 – Support to HUWSUP – Key Findings Project Completion Report (PCR)[30]

The SDF activities with the Hargeisa Water Agency (HWA) changed significantly during implementation. The original plans were to increase the output from the wellfields and extend the in-city water distribution system. However, as design started on the city distribution system the expected funding for financing for a new water pipeline from the new boreholes failed to materialise. The SDF Joint Steering Committee responded by shifting the focus on the SDF work to replace the main water pipeline into Hargeisa and only design (not implement) the extension of the in-city water system which was passed on to KfW to deliver. HWA responded positively to this flexible response from SDF. The End of Project Review reports that work on the wellfield collector is underway and when completed an additional 3,411 m^3/day will become available for around one third of the population of Hargeisa (300,000 people).[31]

The cost of water remains high at $6-7 per cubic meter for areas that are not receiving publicly provided water from the HWA that depend on tankers, donkey carts and other informal providers. Once the additional water from the boreholes is pumped to Hargeisa and connected to the water supply network, this should improve public perceptions.

A particular recommendation emerging from the End of Project Report was that the SDF partners should devote additional time to improve donor coordination in support of the Hargeisa Water Authority (HWA). It also recommends agreeing common international standards for equipment and construction. It gives the impression that the funding agencies and implementers underestimated that challenges of implementing a project of this complexity. As a result, the review gave a clear recommendation for the second phase of SDF to ensure that sufficient time and resources are allocated to manage projects of this scale.

A significant finding in relation to the quality of delivery was the role of the Fund Manager in providing technical assurance. Mott MacDonald's appointment into this role, given their particular expertise in this area, meant that they were competent to review the Hargeisa technical designs from the implementing agency, UNHabitat, before tendering. They also certified, in China, the pipes ordered for the transmission pipeline, prior to shipping to Somaliland.

There were challenges in hiring contractors, willing and with relevant skill and experience to bid for contracts. SDF used tender processes under the SDF to build capacity and confidence of suitable contractors, without experience of international bidding processes and contracts. They also supported less experienced contractors in improving their technical performance – one example being the pressure testing of completed pipelines to check for leakages. Other development agencies have adopted similar approaches.

The German Government through KfW and GTZ is now funding implementation of the extension of the distribution network, based on the design funded through the SDF, with a $20m investment. This will link the bulk water storage in the Chinese reservoirs to smaller reservoirs, and enable HWA to extend its water services to customers in the southern part of the city. The programme also includes some basic sanitation, as well as some capacity building support to HWA. It relies on the increased water supply from the HUWSUP project to be successful.

[29] This paragraph based on interviews with organisations involved.
[30] SDFI PCR December 2018
[31] Without any losses in the system this is equivalent to only 9 litres/person/day if distributed to 300,000 people.

The EU appointed UNHabitat to implement HUWSUP. In addition to increasing the supply of bulk water to Hargeisa, UNHabitat's work has also included hydro-geological studies, groundwater modelling and monitoring of the Ged-Deeble aquifer and neighbouring aquifers. A further component was capacity building for HWA.

SDF launched soon after this, with the expectation of an early appointment of the SDF Fund Manager. However, the process was delayed for a year, in part because of DANIDA's decision to pull out as the lead SDF donor on security grounds. DFID took over the lead, but this change contributed to the delay, with the SDF Fund Manager deployed in mid-August 2013.

A positive outcome was that the then DANIDA Adviser embedded in the Government used the time to establish the governance arrangements of the SDF, and provided technical advice to the Government to prioritise Somaliland's National Development Plan (2012–2016) – which includes clear WASH priorities. Out of these priorities, the National Planning Commission prioritised a number of infrastructure investments, including support to HWA.

However, the delay increased political pressure on SDF to demonstrate "boots on the ground". As a result, the Fund Manager was required to deliver early tangible activities, during the six-month inception phase. UNHabitat was already implementing the EU-financed project, and as a one-off decision, the Joint Steering Committee of the SDF decided to award the support to HWA to UNHabitat on a non-competitive basis. There have subsequently been some delays which we understand have been in part due to the procurement procedures of UNHabitat, which must refer procurement decisions for a contract of this size to headquarters in New York via the Nairobi Office.

The Coca-Cola Africa Foundation has provided funding (2017–20) to Terre Solidali to build an additional 62 km of primary and secondary distribution mains, with four 250 cum reservoirs and pumping stations;[32] a new IT based billing and accounting system; and the granting by HWA of 400 kiosk licenses (including 14 in the general and meat markets) to women and youth, upon providing adequate capacity building in water kiosk management. A further objective is to strengthen capacity within billing and accounting section, increasing capacity by 40% and gender balance to 50%, with an expectation to positively impact empowerment of women and youth.

4.5.1 Issues of Prioritisation and Co-ordination

The situation in Hargeisa resulted in a particular focus on the need to increase bulk water supply to Hargeisa. This was a clear bottleneck to increasing supply. However, it is clear from the research that there are multiple interconnected constraints to improving urban water supply in Hargeisa and in any post conflict situation. These cover a range of technical, institutional, financial, political, social and environmental issues.

Based on HUWSUP's experience, a focus on only increasing supply of bulk water to Hargeisa a city is unlikely to result in early benefits to those without access. This will require the addressing of a much wider set of institutional and technical issues, such as extending the distribution network and tackling leakage, in parallel.

> Delivering water is more than just conveying bulk water to the city, and managing pipe systems. It's a complex undertaking/enterprise.
>
> *Farah, K. op. cit.*

The funding agencies' response to meeting the urgent need to improve water access for the people of Hargeisa is impressive. However, the multi-agency approach has also led to some challenges in co-ordination between and within the different components. The failure to include the well field collector main within the original project plan implies the lack of a thorough, sequenced plan taking all actors into account. The research team has not been able to establish whether there is now a (master)plan for development of the complete water system – from source to kiosks/taps across the city including currently unserved areas.

4.5.2 Challenges of hiring construction companies to implement the projects.

Implementing agencies have struggled to find well qualified contractors willing to bid for work in Somaliland – in part because of the insecurity and operational insecurity elsewhere in Somalia. For the EU financed projects, supervised by UN-Habitat, the contractors were Ethiopian and French. There was initial strong interest for the SDF contract, with 36 companies expressing interest with six

[32] Conditional upon completion of increased supply to the city, with successful completion of interventions by other donors (EU, SDF, KFW, UN-HABITAT and possibly the WB) – to increase daily yield from 8900 cum/d to around 30,000 m^3/d

companies submitting bids. The component funded by KfW was put out to tender – however none of the bidders, including three from China, met technical requirements and a new call for bids was issued.

4.5.3 Capacity Building/Institutional Support

In parallel with the donor funded infrastructure programme, the World Bank's Water and Sanitation Programme provided institutional capacity building support to HWA. This aimed to build a "corporate culture" at HWA, to adopt robust plans and strategic actions to improve operational efficiency and reduce the service gap. Prior to this support, HWA department heads had limited involvement in the initial stages of the EU-funded project. There was also no adequate asset management system.

The WSP support ($0.5m) focused on corporate governance reform, improving HWA's poverty focus, human resources and financial management, together with the appointment of a board of directors.

Major challenges addressed were:

1. A lack of capacity within HWA
2. Insufficient financial revenues to cover full operating costs.

A joint HWA/WSP information note[33] suggests that this began a process of longer-term development planning, as distinct from short term emergency responses. It highlighted a number of early lessons:

1. The lack of baseline data generally and about informal settlements in particular. The Government's poor coordination of service delivery was one of the reasons for failing to extend water supply to informal settlements.
2. Top management commitment is important for successful implementation of investment plans.
3. Projects implemented by international partners provide transparency, accountability and impartiality.
4. Institutional reform and capacity building to improving the capacity and capability of HWA to improve water supply delivery was an essential component of the programme of support from external partners.

A 2014 report,[34] early in WSP's capacity building work, found that revenues were insufficient to cover operating costs let alone expand series coverage and capital maintenance costs of the wider system. The cost of pumping alone from the well fields to the 'Chinese Reservoirs' in Hargeisa cost the equivalent of 50% of the HWA annual budget at the time.

As a result, increasing income has been a primary objective for HWA, with encouraging results as indicated in Figure 2 below. Albeit, as noted earlier in this report, depreciation of the Somaliland Shilling significantly reduces the value of the income in USD which effectively increases the cost of fuel which is a major cost driver.

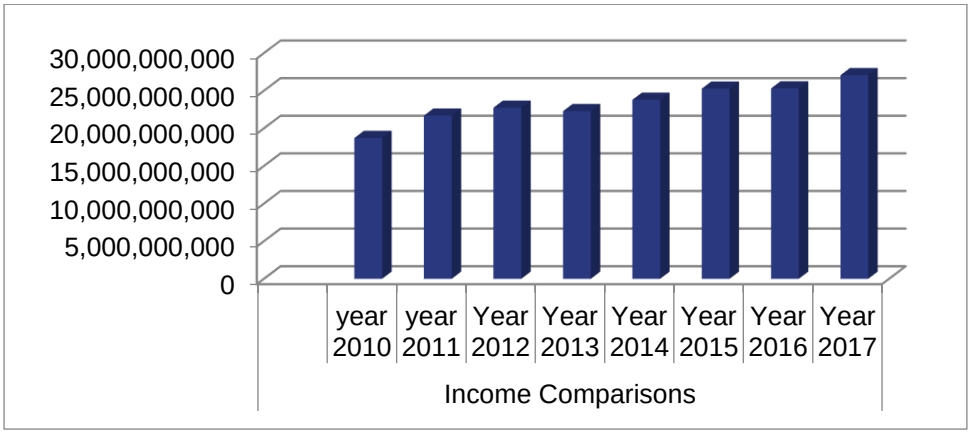

Figure 2: Increase in Revenue collections (Somali Shillings)

[33] HWA/WSP (op. cit.)
[34] EY/WSP, 2014, Corporate Governance Advisory Services Report

4.5.4 Strengthened engagement with consumers

There are a number of lessons from HWA's customer relations, as part of the WSP capacity building support:[35]

- Promote good customer relations and keep customers informed about the efforts in progress
- Support transparency and accountability with both internal and external stakeholders
- Conduct negotiations through dialogue in a fair and transparent way, consistent with local approaches to resolving conflict. This helped with the introduction of water rationing and facilitated cooperation with other private water vendors, of which there are many
- HWA actively encourages the involvement of women. More than 95% of kiosk operators contracted by HWA are women.

> HWA established a committee representing the truck drivers and HWA/Municipality. This resulted in a deal, with the Municipality reducing the road tax levied on truck drivers, and a controlled selling price $12/cm.
>
> HWA believe that a fully sustainable solution is only possible once there is an increased level of supply to meet demand, which will enable HWA to lower prices.
>
> Donkey carts fetch water from HWA owned/managed kiosks. Following completion of HUWSUP, HWA plans to lower the price for low income families who fetch water from our kiosks.
>
> *HWA – private communication*

For many Hargeisa residents, having access to piped water remains a distant dream. The current efforts to strengthen both the infrastructure and the institutional arrangements should ensure that many will soon start to see the benefits. However, the challenges to increasing access to unserved areas of the city are significant, and many still rely on private vendors from trucks, donkey carts and wheelbarrows.

Kiosks are the major channel for distributing water to the consumers. During the last ten years the share of water delivered through the kiosks was more than 30% of the total amount delivered. Today there are more than 500 public kiosks in operation all over the city. Most of the kiosks are found in the poor settlements which are densely populated residential areas. A substantial proportion of the kiosks are also located in the sub-urban settlements i.e. the parts of the city occupied by low-income families. This is intended to give the opportunity to collect water at a reasonable price.[36]

Further findings were that:

- The lack of budget for recurrent costs, and weak systems for operations and maintenance. Sustainability needs to be more strongly embedded across: financial, human resources; political; and social issues.
- The need for an integrated approach to WASH interventions to secure better health outcomes as opposed to just providing water supply systems without accompanying hygiene promotion and sanitation. Providing water alone is likely to have only limited impact on health outcomes.[37]

A WEDC conference paper[38] cites from its interviews that "most departmental heads were not fully and practically involved in the initial stages of current donor funded projects for upgrading Hargeisa water supply". The paper raises a concern that this is likely to lead to challenges with managing the system once it's complete. However, it suggests that the main challenge facing effective operations is the impact of weak institutional capacity.

4.6 *Gender and Social Inclusion*

The majority of the population of Hargeisa struggle to obtain sufficient quantities of safe drinking water to meet their basic survival needs. Those buying water from tankers and donkey carts are paying around 5 times the cost of those connected to the piped network. This is a significant exclusion issue.

[35] HWA/WSP, 2017 (op. cit.)
[36] Hargeisa Water Agency, http://www.hargeisawateragency.org/our-work/
[37] Mills, J. et al. London School of Hygiene and Tropical Medicine, 2016, The Impact of Water, Sanitation and Hygiene on Key Health and Social Outcomes, DFID Evidence Review
[38] Farah & Yonis, 2015, op cit.

Funding agencies are focused principally on increasing the bulk supply to the city, and it is not clear when poorer communities will benefit from access to kiosks closer to their homes.

Hargeisa Water Agency (HWA)[39] has drawn lessons from dealing with water scarcity issues. These include promoting good customer relations, keeping customers informed about progress with new works, and being transparent and accountable. According to HWA the culture of conflict resolution has helped the introduction of water rationing and improved co-operation with private water vendors. However, with the publicity around the investments, expectations were raised, and most remain disappointed that what was promised has not yet been fulfilled. This is reflected in protests, and articles highlighting the problems (see box).

A newspaper article from 2018 (Abdisalaan, Somaliland Sun, 8 August 2018), following demonstrations in the city, gives voice to the concerns of the many people in Hargeisa without access to a piped water supply either with a domestic connection or to a community standpost. It also refers to the 'mass demonstration' in December 2013, in which it reports many were injured. It raised a number of concerns, including:

- The government's tariffs imposed on water takers have resulted in increased prices.
- Truck owner cartels have divided and control areas of the city.
- Poor people paying more for their water from tankers and donkey carts than those who are better off and have piped supplies.

With the focus on bulk water transfer the research team found little information on the extent to which gender and other exclusions issues, such as disability, are being addressed. However, HWA has provided information that they are actively encouraging the involvement of women in managing the water kiosks, with over 95% of these contracted to women.

There is risk with the high degree of focus on bulk water supply that funding agencies have not given sufficient attention to the needs of the unserved. This is relevant both in relation to extending the piped distribution system, but also better understanding the parallel water service delivery system, using tankers and donkey carts, that are likely to be required for may more years.

4.7 *Emerging Lessons for Wider Application*

4.7.1 Understanding the Context

- Look at the earliest opportunity the operating environment allows, to transition from short-term emergency/humanitarian responses to longer term responses to address urban water issues.
- Support capacity building/institutional strengthening ideally prior to, and in parallel with, capital investments.
- There is a risk that funding of technical components, that do not require any direct engagement with consumers, reduces the need to consider issues of gender, social inclusion and disability as part of the programme.
- Understand demand side issues – seek to identify the needs of the population, served and unserved, to their water needs.
- Ensure that the local client, in the case of Hargeisa HWA, is directly involved in decision making processes. Previous research[40] has reported that HWA staff were not adequately involved in funding decisions and choice of technology by donor programmes. As a general principal, and basic good practice, funding agencies should involve the client in decisions on investments – both senior management and those who will be operating the system.

4.7.2 Delivery of water supply infrastructure

- Ensure good quality advisory capacity at the outset of any project of this nature to ensure a proper integrated problem-based approach to identify the critical issues and prioritisation of interventions. This review stage should include an economic assessment of the best value/least cost solutions. Ideally this should provide a good enough plan/road map to prioritise interventions and avoid some critical issues being overlooked.

[39] HWA/WSP, 2017 (op. cit.)
[40] See section 4.5.4.

- When identifying interventions, take a whole of system approach including supply and demand side issues. While the need to increase bulk water to Hargeisa is the critical bottleneck, addressing this is not sufficient to extend coverage within the city of Hargeisa to those currently unserved.
- Be aware of the risks of over promising and under delivering (in the case of Hargeisa in relation to time-scale). Announcements of major programmes give rise to hopes and expectations that may be unrealistic.
- Do not underestimate the time (and capacity/expertise) required to manage projects of this scale. This appears to have been a factor in the donor response in Hargeisa, which has experienced repeated delays to expected timelines.
- Ensure capacity and expertise in the management agency (where not the funder) to undertake due diligence on designs and quality of materials (e.g. pipes). In the case of SDF, Mott MacDonald appears to have competently fulfilled this role.
- The availability of some prior hydrogeological information provided useful early information for planning the development of existing and adjacent well fields.
- Recognise that the cost of pumping water over a distance with a significant increase in elevation will incur substantial costs in diesel or electricity. Consider use of solar PV with diesel generator backup to reduce operating costs – particularly in regions like Somaliland with high solar potential.
- Undertake a risk assessment for the resilience of supply. Apparently redundant components may, at limited cost, provide some backup capacity in the event of a systems failure, or major maintenance requirement. It may also provide a potential opportunity for alternative/additional supply. An example from Hargeisa was the earlier decision to decommission the existing bulk water trunk main, which is now being reconsidered.

4.7.3 Impact of water (and sanitation) services

Since the infrastructure funded under HUWSUP has not yet been completed there is no evidence from which to draw regarding the impact of the capital investment programme in terms of improved services. The parallel programme of institutional capacity building through WSP has, however, been completed.

There is some related learning from the information collected by the team:

- Embed sustainability more strongly: financial, human resources; political; and social (SDF PCR).[41]
- Develop a full analysis of the cost of supply and a tariff structure to cover full costs. This should include asset valuation.
- Any planned capital investments should take account of the impact on the costs of operation and maintenance, and consequential impact on tariffs.

4.7.4 Donor Modalities, Instruments and approaches

- Complex projects of this nature, with multiple components and actors, need good project management to ensure co-ordination and planning and avoid major oversights in design and delivery and duplication of effort.
- Funding agencies need to able to take a flexible approach to respond to unforeseen problems e.g. SDF's shift to include design of reticulation network for three unserved areas.
- Review the use of multi-donor funds to manage complex projects and, in particular, whether the arms-length arrangement ensures sufficient scrutiny or support for/engagement with the implementing agency.
- Beware of pressures to get 'boots on the ground' in order to achieve early results – as these are likely to result in decisions and actions leading to problems that ultimately delay delivery.
- Be cautious about appointing implementing agencies on the grounds of expediency.

[41] SDF, 2018, op. cit.

4.7.5 The Role of Other Actors

Based on the case study the most important 'other actors' operating in Hargeisa are the informal local private sector.

Investigate the modus operandi of informal water provision – including pricing structures, cartels, etc. They are important actors in providing access to water in many urban areas in and emerging from fragility and conflict. Funding agencies should consider ways of improving their service, and, through this, potentially reducing the cost of supply.

5 DRC case study – Goma and Bukavu

5.1 *Introduction*

This case study focuses principally on the DFID programme to fund an expansion of water supply service in Goma and Bukavu. Both these towns are located close to the border with Rwanda in eastern DRC.

In 2013 DFID approved a seven-year package of support[42] through Mercy Corps for the delivery of an urban WASH programme in Goma and Bukavu. This £38m urban water programme is one component of a £164m programme of support to Water, Sanitation and Hygiene in DRC and represents one of DFID's largest single country WASH interventions.[43] DFID recently agreed an extension to December 2020 for the Urban WASH programme, to reflect the challenges the programme faced particularly as a result of the introduction of DRC's new Water Law.

The authors are grateful for the considerable investment of time from Mercy Corps and DFID DRC in providing information on which to base this case study.

Figure 3: Eastern DRC map (Google Maps), Goma (north) and Bukavu (south), circled

5.2 *Background DRC*

DRC has the fourth highest population (86.4m) in Africa. It also has the third highest poverty rate in the world. The number of people in poverty has increased by over 7m since 2005.

It is a country that since its establishment as a sovereign state in 1997 (previously Zaire), has been plagued by conflict and fragility. The Second Congo Civil War (or the African World War), which started in 1998 was the deadliest conflict globally since the Chinese Civil War (1927-50). The Rwanda genocide in 1994 significantly affected the instability, in part due to the presence of ethnic Hutus and Tutsis in Eastern DRC – with Hutus taking refuge in Eastern DRC and Tutsi groups pursuing them because of their threat to stability in Rwanda. Since the genocide, Rwanda has enjoyed stability and economic growth. Although the war in DRC ended around 2002-3, the country has suffered from continuing instability as a result of the ongoing conflict in Kivu. As border towns with Rwanda, both Goma and Bukavu have been affected by the conflict in eastern DRC.[44]

Goma has transformed over the last 25 years from a small, dormant town of marginal political and economic importance, to a regional military and economic centre. More than fifteen years of state decline, violent conflict and massive displacement have facilitated the city's connection to extensive and flourishing transborder trade networks and have turned Goma into a notable centre of rebellion, attracting rebel leaders, businessmen, humanitarians and peacekeepers, but also vast numbers of

[42] DFID, 2013, Business Case and Intervention Summary - Increasing sustainable access to Water, Sanitation & Hygiene in the DRC.

[43] Other components covered in the overall programme were support to:

- UNICEF for Phase II of the National Village Assaini (Healthy Villages) Programme (£90 million)
- A Consortium of International Non-governmental organisations (NGOs) to deliver a comprehensive WASH package (£30 million).
- Oxfam for a sanitation marketing pilot study (£1.75 million).

[44] A precis of the Second Congo Civil War can be found in Gambino, T / World Bank, 2011, Democratic Republic of the Congo: Background Case Study. World Development Report 2011 Background Papers. https://openknowledge.worldbank.org/handle/10986/27324

refugees and internally displaced people in search of protection.[45] It is contiguous with the Gisenyi, a city on the Rwandan side of the border.

The 1994 census shows a population of 78,000 in 1984, increasing to 250,000 in 2004. No official data exists on the current population, but estimates suggest that it is now around 1 million.

5.2.1 Bukavu

Like Goma, Bukavu is a lakeside city at the southern end of Lake Kivu. Census figures for Bukavu give a population of 168,000 in 1984, 472,000 in 2004 with estimates suggestion it is now around 975,000 (CIA 2018). It is the largest city in South Kivu.

It has been badly affected by conflict, both during the DRC civil wars, and also as a result of the ongoing conflict in Kivu. Economic growth and opportunity are also held back because of the poor quality of connecting roads, both west into DRC and east towards Kigali in Rwanda. However, the improved access from Rwanda to Dar es Salaam may provide future opportunities in support of economic activity.

Bukavu is now particularly known for Dr Denis Mukenge (Nobel Peace Prize 2018), and the Panzi hospital, for the pioneering work in the treatment, physical and psychological, of survivors of sexual violence.

5.3 *WASH in DRC*

Access to improved WASH services is low in the Democratic Republic of Congo and has barely improved over the past decade. 2017 data[46] show basic water facilities in rural areas are available to only 23% (16% in 2000), and 68% (69% in 2000) of the population in urban areas; and 18% (20% in 2000) and 23% (23% in 2000) have access to basic sanitation. These access rates are substantially below Sub-Saharan averages.

A recent World Bank Report[47] indicates that Urban areas have much higher access to improved water sources than rural zones, although the difference in coverage for access to improved sanitation is extremely low in both rural and urban areas. Location is critically important: the poor in larger cities tend to have much better WASH services than small-town and rural households at the same or even higher level of income in some towns and cities.

The total number of urban dwellers without access has been rising rapidly over the past decade, precipitated by rapid population growth. The quality of supply has stagnated at low levels or even deteriorated.[48]

5.3.1 Institutional Arrangements

The WSP report[49] refers to urban water being under the shadow of REGIDESO.[50] As the former monopolistic urban water utility REGIDESO continues to dominate the urban water subsector – both with regard to investment funding and as an operator.

Due to lack of alternative options, autonomous water supply schemes[51] have become a critical part of the DRC's urban water infrastructure, in particular for the poor in peri-urban areas, small towns, and densely populated rural areas.

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[45] Vlassenroot K. et al. (2009) The City As Frontier, Urban Development and Country Processes in Goma.

[46] Joint Monitoring Programme (2019) Progress on Household Drinking Water, Sanitation and Hygiene 2000–2017. WHO/UNICEF

[47] World Bank, 2018, WASH Poor in a Water Rich Country – a Diagnostic of DRC.

[48] World Bank, 2018, op. cit.

[49] Op. cit.

[50] REGIDESO was established by Royal Order in 1933 by the colonial government. Former state monopoly for urban water supply, now a state owned commercial company. Formally responsible for 97 cities, but 75% of revenue from just three. The Ministry of Portfolio, Committee for the Reform of Public Enterprises (COPIREP) represents the state as owner of REGIDESO.

[51] In peri-urban areas, a popular model has been dubbed "ASUREP" (in French, *Association des Usagers des Réseaux d'Eau Potable*; in English, the Users Association of Drinking Water Networks).

Autonomous schemes enable pro-poor water supply in urban areas, because they have been disproportionately set up in impoverished peripheral neighbourhoods that lack access to a grid supply. Prices for autonomous schemes tend to be higher than the dominant water utility, but lower than available alternatives, such as bottled water. In Kinshasa, the water price in autonomous schemes is approximately USD 2.1/m^3 compared to USD 0.35/m^3 for REGIDESO private subscribers and USD 1.54/m^3 for the small number of REGIDESO standpipes.

One reason for the growth of autonomous schemes is relatively low investment costs, which have been estimated at approximately USD 35–50 per beneficiary compared to over USD 140 in recent REGIDESO projects.

WSP concludes that despite the many unresolved challenges, peri-urban autonomous schemes have been a pro-poor success story in urban water supply of the Democratic Republic of Congo. They provide a low-cost solution to basic water supply when citywide infrastructure is not financially or technically feasible. The key challenge will be to successfully extend this model beyond the present core areas, to make the support organizations less dependent on external financing, and to coordinate investments into autonomous schemes with larger-scale suppliers, in particular REGIDESO, to avoid duplication and conflict.

Urban sanitation is the WASH subsector with the lowest improved access, the weakest institutional structure, and less funding than water. In the absence of systematic interventions, the absolute number of urban dwellers lacking improved sanitation has risen dramatically from barely 6 million in 1975 to around 30 million today. This is expected to double again by 2035. Poorer households tend to have worse access, but access to safe facilities is low even for the top 60 percent.[52]

Funding for urban sanitation has remained minimal. Total disbursed and committed financing has been less than USD 50 million for the period 2005–20. This is just 5% of funding for urban water. The sanitation challenge is overwhelmingly large, particularly given limited financial resources and capacity, and no clear institutional lead. As a result, little is done to improve sanitation access.

5.4 *Legal Framework*

Following long delays within administrative and government processes a new water law was enacted in 2015. The new Water Law provides a significant opportunity to address many of the institutional weaknesses that hinder progress in addressing service gaps.[53] However, the timing of its promulgation in the second year of the Urban Wash Programme had a major impact, requiring fundamental changes in strategy to align with the new law. However, the shift of responsibilities to the local level has eventually provided opportunities that would not have been possible if REGIDESO had retained its earlier powers.

Important inclusions in the Water Law are full cost recovery, the principle of decentralisation and separation of asset ownership from service delivery. However, achieving the provisions and intent of the water law are likely to be challenging in the light of the complex political realities and vested interests.

Overall planning continues to reside with central government as does the power to set the national water policy, and being the regulatory authority. The major changes are with the local responsibilities, with provincial governments, local authorities or user associations being the asset owner. As such they are responsible for investments. They are also required to delegate service provision to public or private entities.

These changes have been difficult to implement in a fragmented sector, with centralised asset ownership and investment decisions. However, the challenges for the project from the new Water Law were compounded by key changes in local politicians and civil servants, and forthcoming national elections.

It also became clear that Mercy Corps' local partner NGO was not in a position to provide sufficient guarantees for a well-governed water system management. The level of revenue earnings from an

[52] World Bank, 2018, op. cit.
[53] Op. cit.

urban water network require a commercial orientation, which in Mercy Corps' view was not the strength of the appointed NGO. For these reasons Mercy Corps decided to bring the partnership to a close.

This was followed by an attempt to let a PPP contract with REGIDESO. However, no tenders were submitted, reflecting the view in the market that the private sector considered the risks to be too high to make it a viable proposition. This is the reason for exploring alternative options **leading to the establishment of Congo Maji** to take on the operational management role.[54]

5.5 *International Agencies Active in WASH*

Water supply has historically received significant donor support in DRC. Over the ten years 2006-16 development assistance to the sector totalled US $1 bn. Commitments for the four years, 2017-21, are US $ 458 m. There has, however, been a significant shift in allocations. For the period 2006–16 this was 56% urban: 46% rural. For the current funding period, 2017-21, the allocation is 78% urban: 22% rural – a significant increase in allocations to both large urban centres and secondary cities/towns.[55] The proportion of the funds allocated to urban wastewater collection/treatment and basic sanitation is very small.

Germany[56] (KfW and technical co-operation through GIZ) is currently the largest bilateral donor focused only on urban water supply in secondary cities/towns. DFID as the second largest bilateral donor has a mix of support to rural and urban water supply and sanitation. The European Union, France, Belgium are the only other donor agencies providing support for urban water supply – although the World Bank and African Development Bank previously funded urban WASH programmes.[57]

DFID's support for urban water is focused on Goma (North Kivu) and Bukavu (South Kivu) through its IMAGINE programme, where is has been the principal funding agency. Others have also had some historic involvement – including ICRC and USAID in Goma and Swiss Development Cooperation (SDC) in Bukavu. There are indications of further funding interest from other agencies.

World Bank – has made available (ongoing since late 2009) a grant of $294m to improve access to drinking water in Kinshasa, Lubumbashi, Kindu and Matadi and improve the efficiency of REGIDESO at the national level. Implementation initially suffered severe delays and difficulties, particularly as a result of REGIDESO reform.[58]

African Development Bank cooperation since 2002 focused on either multi-sectoral emergency projects or large-scale infrastructural projects with commitments of around US $200m from 2006-16.

In addition to the main donors, there is an abundance of international and national NGOs attempting to fill the shortfall in drinking water and sanitation services in peripheral areas of big cities and in rural areas, predominantly as part of a broader humanitarian and emergency relief effort. Many of these NGOs currently bid for funding under the Humanitarian Pooled Fund programme, even though some of the projects are developmental in approach.

5.6 *Summary of water and waste water systems in Goma and Bukavu*

Goma's position on Lake Kivu provides it with an inexhaustible supply of raw water. Annual rainfall in Goma is also high at around 2.5 metres. A pumping station to abstract the water from the Lake, dosing with chlorine and further pumps to distribute to the population of Goma has been in place since colonial times – when the population was around 5% of current levels. The influx of refugees and IDPs into Goma, living in camps and elsewhere overwhelmed the existing water supply system.

[54] Further information on this new arrangement is provided in section 5.8.1, below.
[55] Figures from UNICEF/DRC WASH Donor Group
[56] With REGIDESO
[57] No figures included in the UNICEF/DRC WASH Donor Group data for the IFIs – World Bank and AfDB – which were previously active in the sector.
[58] For a discussion of these issues, see page 4 of the Project Paper linked to additional financing for this project (World Bank project ID P155266), published 3 February 2016. http://projects.worldbank.org/P155266/?lang=en&tab=documents&subTab=projectDocuments

Recognising the situation in Goma as a humanitarian emergency led to a range of short-term interventions to supply water to the camps. The source of the water was from Lake Kivu and also from inland spring sources for the refugees/IDPs located on sites distant from the lake. A number of international agencies and NGOs were involved in delivering these emergency supplies. ICRC has been active in Goma for many years – installing in new pumping station around 15 years' ago and also providing some maintenance support to REGIDESO. Recognising the need to move beyond short term interventions ICRC worked with REGIDESO in 2009 to develop a more long-term and comprehensive plan for water supply to Goma. However, despite further support to improve Goma's water supplies, Mercy Corps recognised that interventions continued to be limited in scale and relatively short term in outlook. This is the situation that prompted Mercy Corps to approach DFID with the design for their current programme.

Bukavu's water supply and treatment system has similar origins back to the colonial era. However, there is significant difference in the geology between the two cities. Goma, lies close to the Nyiragongo volcano, which erupted in 2002 resulting in a lava flow that ran through the city to the lake. This affects the laying of pipes in many areas, and also limits the availability of other sources of water, apart from the lake. Groundwater is also contaminated by gas from the volcanic activity.

Bukavu also has mountains close to the city, with perennial rivers. As a result, water for the Bukavu water supply network comes is river water, that is treated prior to supply. The population of Bukavu are opposed to Lake Kivu as the source for the city's water supply, on grounds of taste.

5.7 *History of donor interventions*

Mercy Corps has been operating in the DRC since August 2007. It has a staff of more than 200 people, and has a presence in North Kivu and South Kivu. Mercy Corps started its urban WASH intervention in Goma with USAID Food For Peace (FFP) funding (initially 2009-11 but extended to overlap with the EC funding). The main objective of the emergency intervention was to provide food to the population. As a result of the intervention, a reservoir of 700 m^3 was built and linked to a couple of pumping stations constructed by the ICRC, and a distribution network with approximately 25 tap stands was developed.

The European Commission and DFID built on that intervention with funding (2012-14) to expand the network to approximately 50 tap stands, and added a similar reservoir to improve storage capacity. This second phase of funding was accompanied by a pilot management system designed by Mercy Corps and implemented by a local NGO together with the State water utility.

In the current phase, Mercy Corps is scaling its infrastructure activities up in Goma, with the addition of two 5000m^3 reservoirs and the expansion of the tap stand network at least four-fold, and replicating a pilot model in a different context (i.e. Bukavu). The infrastructure works are tied to the existence of a management system, to secure the assets funded by DFID.

> "A comprehensive long-term plan is better than a series of emergency projects."
>
> *ICRC 2009*

The International Committee for the Red Cross (ICRC) has also played an active role in water provision in Goma. In 2009 ICRC supported the development of a master plan for Goma[59] – claiming that this was the first comprehensive plan to bring water to the population of Goma. The existence of a plan, that was subsequently updated to a 15-year masterplan, as part of the DFID funded IMAGINE programme, has enabled a rational and targeted approach to prioritising investments to improve access. For example, Mercy Corps initially targeted its efforts using the USAID and EU/DFID funding) on two zones to have greater impact and minimise the problems in one area – rather than spreading limited resources too thinly. However, the relatively smaller scale and short-term nature of these interventions meant that Mercy Corps were not able to address structural issues affecting operations and maintenance.

[59] Key informants have advised that the time horizon of the ICRC plan was only 5 years, which also had the effect of some short-term investments not consistent with longer-term needs.

5.8 *The Urban WASH Programme*

The DFID Business Case gives a **total cost** of the Urban WASH Programme through Mercy Corps (excluding design) would of £36.9 m from 2013–2017.[60] The **unit cost** of the programme was estimated to be $36.93 per capita. The annual maintenance cost is estimated to be $0.97 per capita.

The Business Case does recognise that DFID has a role to play in the reform process and commits through direct advocacy to 'influence the current donor and government coordination mechanisms in order to make incremental improvements to sector management and to improve the quality of dialogue between donors in order to facilitate a communal view of changes required to the institutional framework'. This commitment was and is important for future progress of the programme, when it was stalled as a result of the introduction of the new Water Law – seen as vital for the much-needed institutional reform.

> An example of targeted advocacy/diplomacy to address institutional bottlenecks Parliamentary Under Secretary of State, Nick Hurd, communicated a message to the DRC government and former national water utility company REGIDESO by highlighting that "decentralization and private sector participation are crucial in paving the way for making further UK investments in the water sector". This high level intervention was critical in addressing major challenges that Mercy Corps was facing in making progress with the WASH programme in Goma.
>
> *From Mercy Corps' submission to the International Development Committee's Inquiry in 2016 into Fragility and Development in DRC*

DFID's renewed engagement with the WASH donor group after a hiatus in 2016, during the transition between WASH advisers, was seen as significant. The strengthened relationship assisted DFID, and Mercy Corps, in driving negotiations on the water service delivery. It also enabled DFID to better understand the sector and coordinate with other donors in a more informed manner.

DFID's DRC programme had previously identified lessons in relation to a rural roads programme in North and South Kivu. One particular element of this had been the quality of preparation and design, which had resulted in some sections of the project not being successfully completed on the roads programme. For this reason, DFID DRC included in the programme budget funds for an external WASH technical assistance to support the design and quality assurance of the urban WASH component with Mercy Corps over the life of the project, including the design phase. However, DFID was clear that this was complementary, and would not replace DFID's input or DFID's relationship with Mercy Corps. DFID would still undertake all review missions, as well as joining some of the proposed quarterly missions to be undertaken by the Consultant.

Additional technical advisory was intended to provide both a safeguard to DFID's interests, as well as regular support and advice to Mercy Corps during design and implementation. This was considered necessary since NGO's are not typical implementers of large scale infrastructure works, and would need support in some areas – in particular preparation of bidding documents for construction under FIDIC contract rules.

Mott MacDonald are able to bring in much wider international best practice and lessons learned. This decision was taken despite having some technical capacity in the DFID DRC team – but reflects the importance of ensuring sufficient attention is given to the technical aspects of infrastructure projects.

The intermittent conflict in Goma was recognised as a risk to the programme. Mercy Corps therefore proposed to phase the implementation of each component of the water system. This was to complete a section at a time, to provide a usable element of the system should DFID decide to end its support in the event of heightened conflict. The Accountable Grant was structured to take account of this approach. Given this arrangement, the timeline and design of the programme were subject to approval by DFID DRC head of office. This provides another example of lesson learning to avoid, to the extent possible, the creation of stranded/partially completed assets – that are generally written off as a total loss due to damage or deterioration.

[60] DFID, 2013, DRC WASH Programme Business Case

5.8.1 Current Activities Under the Urban Programme

Mercy Corps has been building water and sanitation (WASH) infrastructure in Goma for more than a decade, with funding from a range of agencies.[61] This has included two reservoirs of 700 m^3 each, 27 km of pipelines, 2000 public latrines and 53 public tap-stands (would be useful to differentiate pre-urban programme activities from earlier funding sources).

Under the DFID programme Mercy Corps developed and put in place a **pilot management system** (named Système de Gestion Pilote – SGP) for the 53 public tapstands, in March 2014, targeting 200,000 under-served poor people. The SGP, is a Public-Private-Partnership (PPP) type arrangement between the former national water utility company REGIDESO, a local NGO operator and Mercy Corps (providing oversight).

Mercy Corps piloted the approach to address the failures of public infrastructure projects in the DRC. This was based on theirs and others experiences of assets handed over to existing entities, utility companies, water associations or local NGOs that were not competent to manage or maintain them. There were multiple reasons for this including weak governance and capacity, poor transparency and financial mismanagement.

As referenced in section 5.4 above, the Water Law required a fundamental change in approach with regard to the management arrangements for service delivery. The original project delivery structure included a Mercy Corps Water Services Delivery team seconded to a local NGO that had entered into an agreement with REGIDESO. However, the new Water Law meant that this arrangement had no legal basis, considering that the provincial authority, which is the asset owner according to the new law, was not included in the agreement. An innovative setup, inclusive of the Provincial authority had therefore to be designed.

Out of this situation Mercy Corps developed a revised strategy for service delivery through the creation of a Public Private Partnership management model. The main achievement of the project is a 5-year contract (twice renewable) with the state-owned water utility company REGIDESO, for the management of parts of the network financed by donor funds. This is similar to a user-pay PPP, a novelty in the DRC water sector, and it required the creation of a specific independent structure, namely Congo Maji and Enterprise for Impact (E4i), to secure the model sustainably. Congo Maji is a DRC registered utility company (limited by guarantee) 100% owned by E4i – an England & Wales registered charitable company. Thanks to the PPP contract, operating expenditure (OPEX) is fully covered and a dedicated fund has been built in for renewal and extensions (capital expenditure - CAPEX) and audit purposes.

Congo Maji operates the tapstands. It collects water fees, currently in cash, using hired tapstand operators and revenue collectors. Collections are automatically recorded centrally, which enables tracking of revenue in real time – with checks on the system to identify misappropriation of payments. Tap stand users pay approximately \$0.06 for a 20 litre jerry can (equivalent to around \$3/m^3).

Construction of the major infrastructure components are reaching a critical point. The contractors are now on site in Goma and Bukavu constructing the main infrastructure elements needed to extend the system coverage. This is due for completion by the end of 2019 but is already experiencing delays.

Other components of the programme such as governance, behaviour change communication and gender are all continuing and scheduled for completion by the initial close date in August.

Another one of IMAGINE's components/ objectives is to build robust and effective governance mechanisms for the wider stakeholders in the water industry. This supports complaints handling, lobbying for improvements and communicating changes.

Although progress with the new institutional arrangements is encouraging, a recent review[62] recorded concerns about the fragility of the new operational management structure. It notes that: "the sustainability of this new governance mechanism is strongly reliant on both parties continuing to see mutual benefits. As these benefits start to materialise, trust in this accountability mechanism can be strengthened. Mercy Corps must ensure adequate resources are provided to sustain this new accountability link and maintain enthusiasm in both parties until infrastructure works are completed."

[61] From Mercy Corps' submission to the International Development Committee's Inquiry in 2016 into Fragility and Development in DRC.
[62] 2018, DFID, Annual Review of Urban WASH Programme

5.8.2 Sanitation

IMAGINE does have a component dedicated to sanitation, although not yet implemented. As part of this it is developing a case for implementing a sanitation improvements Master Plan for Goma. However, the challenge is how to make sanitation a financially sustainable industry across the full life cycle from defecation to disposal.

5.9 *Gender and Social Inclusion*

During the inception phase, Mercy Corps commissioned studies in a number of areas including environment, gender and socio-economic aspects of the programme. This early work informed the design of the programme. As a result, gender is central to the interventions, and aims at transformative change in the lives of women and girls. Mercy Corps is expanding the scope of their gender approach to include consideration for other vulnerable groups, through the development of their Protection and Integration Strategy.

Through the programme Mercy Corps has been developing a 'Gender Status Index' tool. The purpose of the tool is to support data gathering and interpretation for key statistics defining the status and impact of water access for women and girls. This appears to be a robust and useful tool for the global WASH sector and is applicable for dissemination outside DRC. Although currently MC does not have a dissemination plan for the GSI tool. IMAGINE has developed a manual on how to adopt the GSI to other DFID programmes.

In its submission to the IDC,[63] Mercy Corps included a reference to the integration of its Behaviour Change and Communication approach highlighting the importance of gender transformative practices that also involve men and boys. The communication campaign included some specific activities with the husbands of the women. Mercy Corps focus on 'positive masculinities', as part of its gender strategy, reflect the importance of involving men and boys as part of a gendered approach, particularly in situations of conflict and fragility where violence against women is a major threat.

With the price of water at the tap stand projected to be US$3/m^3 this does raise issues of affordability, and ability to pay. Mercy Corps collect data on the willingness and ability to pay for various water services through a biannual survey. The impact of pricing on the ability of poor people/families to access safe drinking water is a fundamental issue. The annual review noted that affordability in the urban component should be more concretely incorporated into the DFID output for the programme. In response to this Mercy Corps has commissioned a study, through the London School of Economics (LSE), to investigate the price of water in more detail and how changing water tariffs might impact household economics.

It seems apparent that each community has a particular way of identifying vulnerable persons. The outcome of this exercise is to stimulate the community to help the vulnerable access water.

Mercy Corps is addressing vulnerability as part of their safeguarding strategy. There is scope for deepening the approach, not only to safeguard vulnerable persons, but also to address the particular needs of more vulnerable groups – in particular people with disabilities. Mercy Corps has put effort into expanding the work that they do on safeguarding, identifying more vulnerable groups and developing tools for assessing the impact of programming on them. The location and the design of the tap stands have both been informed by focus group discussions including individuals with reduced disability.

Mercy Corps engaged with a specialist in accessible design to improve the efficiency, safety, security and accessibility of the tap stand cage. For example, the entrance and exits of the cage are wide enough to allow for wheelchair access and the tap height and reach of the taps allows for a person with a disability ease of water collection.

[63] Op. cit.

5.10 *Risk*

Mercy Corps have from the outset used a comprehensive risk matrix to identify and monitor risk in real time. Although the security risks have receded, there are many programme related risks that threaten the successful completion of the programme and achievement of planned outcomes.

In progressively realising the water service delivery goal in Goma and Bukavu, there are multiple technical, legal, demographic, and political uncertainties and hazards. In their own risk assessment, Mercy Corps have identified 100+ risks and defined various mitigating actions for each.

There remain some risks with the operational management arrangements – although to a degree these have been mitigated by the signing of an agreement between REGIDESO and Congo Maji SARL, as the operator of the system responsible for supply of water to customers and collection of tariffs. Under the agreement a proportion of the tariff collected is transferred to the owner of the infrastructure assets for long term maintenance and replacement costs.

5.11 *Emerging Lessons for Wider Application*

5.11.1 Understanding the Context

- Recognise that the political economy will be the main factor determining the rate of progress, the ability to influence institutional change and ultimately successfully deliver improved WASH services. The complexities of the political economy and institutional changes slowed the pace of implementation of IMAGINE. This reality implies the need for implementing agencies to be attuned to and able to respond effectively to the realities of the political economy.
- Prior experience of the operating environment is a significant advantage. The Mercy Corps team developing and implementing the programme already had several years' experience operating in this particular context. This enabled a "reality check" on what was realistic/possible. Prior experience enabled staff to pick up the signals and sense when something was not right – whether in relation to security or broader programme/relational/institutional issues.
- Continuity of involvement of expatriate staff is important. This was achieved with some key members of the team likely to complete the 5/6 years of the project. Mercy Corps made efforts to accommodate some of the key personnel's family situations – allowing families to be based in the region but outside DRC (e.g. Kigali and Nairobi).
- Ensure sufficient capacity, through staff or consultants, to research and advise on cross-cutting issues.
- Track security and other risks in real time. Mercy Corps used a comprehensive risk matrix that was updated regularly to monitor and track changes in the situation. Despite the conflict in the area, albeit low level, Mercy Corps did not see security in Goma and Bukavu as a major threat to the programme.
- Regularly monitor political shifts. Identify individuals with influence, particularly those likely to remain in position, and work with them rather than the institutions, given the importance of personal relationships in a failed state. Use tools to map influence as relevant to the changes and project implementation.
- Clear communication with stakeholders and interest groups is an essential part of operating in a fragile environment. However, this requires sufficient capacity.

5.11.2 Delivery of Infrastructure

- It is essential in situations such as Goma and Bukavu that WASH interventions transition from a series of unconnected emergency interventions, to forming part of a longer-term plan. A 5-year plan, developed by ICRC in 2009, provided the basis for funding agencies to support projects on a more rational basis. However, 5 years is still relatively short-term. The 15-year masterplan developed as part of the inception phase for IMAGINE, has enabled a more coherent targeting of priorities, and included systemic institutional issues in relation to operations and maintenance.
- Ensure sufficient technical capacity with a high level of competence, appropriate to the project, for the infrastructure component. Mercy Corps hired a regional engineering consultant, in addition to its own team of engineers, to design and supervise construction of the main

infrastructure works.[64] This, together with the consultants (Mott MacDonald) hired by DFID, has been important in ensuring a thorough approach to ensuring good quality planning, design and delivery.

- Agree the preferred form of contract, and identify suitably qualified, competent and reliable contractors. Mercy Corps placed significant importance on the bidding process – including the use of FIDIC conditions of contract (as adopted by the World Bank) and proactively informing prospective international contractors of the opportunity. This has resulted in the award of contracts for Goma and Bukavu to contractors with good track records for quality of work and delivery on schedule.[65]
- Involve local partners in the selection process for contractors. Both REGIDESO and the provincial authorities were involved in the selection of the contractors following the international tender – although did not have a controlling vote in the final selection.
- Engage with and involve the community. The community was engaged in selecting public tap stand locations. Men, women, girls and boys (inclusive of persons living with disability) were consulted separately during focus group discussions, and provided Mercy Corps with a pre-selection of locations from which the infrastructure team made a final call based on technical feasibility. At tap stands locations, community groups have played an important role to address violence, vandalism and malpractice.
- Recognise local community groups as an important resource for communicating messages and receiving feedback. Community groups were reformed/reinforced during the programme and were useful as relays of information to the community, and also called upon to sort out issues when there was some questioning by the community.
- Use labour from the local community where possible. This results in direct benefits from salaries, further engagement from the community and development of skills for future maintenance of the system – particularly for tap stands and pipe repairs.
- Adopt a rigorous approach to assess the relative merits, where relevant, between rehabilitation of the existing system, or replacement/renewal of the assets. An emerging principle from this is that an economic assessment of options, engaging with the entity responsible for operations to ensure their views are reflected, as well as customer acceptance, should be fundamental to decisions on rehabilitation of existing, or replacement with new assets.[66]
- Technology choices should be realistic based on the availability of skills to operate and maintain. For example, the water treatment plant in Bukavu provides basic but adequate treatment and the technology is well understood, although sometimes not operated and maintained adequately. For this reason, Mercy Corps decided on-balance to simplify the existing treatment process further, rather than opting for a new and more complex system.
- Ensure the acceptability of water sources to communities. Water from Lake Kivu is acceptable to the inhabitants of Goma, but not to those of Bukavu who favour treated river water. For this reason, Mercy Corps opted for the pragmatic option to further develop an existing river source, with capacity based on population growth projections through to 2030.
- Consider availability and cost of limited electricity. Providing sufficient elevated storage in Goma means that water is pumped during the hours of low electricity tariff. The elevation of the river intake and water treatment works for Bukavu means that there is limited need for pumping into supply.
- In a situation where corruption is endemic, ensure that systems are in place and policies are clear. One example from this case study is registering cash payments in real time over the mobile network. These are cross checked against water meter readings. Financial reconciliations and issues logs are all in real time, which helps identify issues quickly. Congo Maji applies strict zero tolerance against stealing funds.

[64] Mercy Corps also considered hiring additional technical staff directly to fulfil this function, but opted to hire consultants in order to limit the number of staff on their team. There were some performance issues with this contract.

[65] It is somewhat early for Mercy Corps to draw lessons, as works have only just started. What can be said already is that the tender packages attracted a variety of internationally experienced contractors, which are willing to risk venturing into a fragile context.

[66] In retrospect Mercy Corps suggest that there should have been a more comprehensive assessment of the options – to take account of costs and also the operational considerations of any rehabilitated or new system. However, at the time of the design options were to a certain extent constrained by the existing assets, which were built with emergency funding with a short horizon in mind

- Considering the minimal regulation by authorities, it is of utmost importance for implementing agencies (and funders) to monitor the works closely from a technical perspective, but also for health safety and environmental impacts.

5.11.3 Impact of Infrastructure

From the perspective of the potential beneficiaries, successful completion of the infrastructure represents the beginning of what should make a significant difference to their lives and well-being. The reality is often very different. There are numerous tap stand projects implemented by NGOs and INGOs in Goma and Bukavu, most of which ended up failing, either for:

1. technical reasons (e.g. building a tap stand network without considering the supply of water), or
2. poor management of the assets – handing over the assets to local committees setup in the course of the project with the unrealistic expectation that they will be able to maintain the assets and sustain delivery of the service.

Unsuccessful delivery of benefits, or over promising and under delivering, creates mistrust with the community that is difficult to restore. The level of scepticism in Goma was such that the team were often told that the communities did not expect the water to flow from the tap stand for more than a few weeks when the first phase of the project came into operation.

Key learning points from the Urban WASH Programme are:

- Address operations and maintenance and sustainable delivery of services as a critical issue, from project inception.
- Consider the distribution of benefits from the programme. Be pragmatic. For example, Mercy Corps chose to improve services not just targeted to poorer communities – but also to better off areas. The capacity and financial model agreed was such that the majority of demographic groups in Goma are likely to benefit from IMAGINE's increased water supply.
- Ensure that the revenue stream, or committed recurrent budget allocation, will be sufficient to cover operations and maintenance costs. This is for a fundamental requirement for any infrastructure project/programme – particularly in FCAS where sustainability/resilience of infrastructure and delivery of services is a major challenge and government budgets are low. With its focus on sustainability Mercy Corps calculated a user fee for tap stand users of approximately 0.06 USD for a 20-liter jerrycan of water – approximately 3 USD/m^3. A percentage of this is payable to the asset owner for their maintenance. Perversely, the water from private connections is less expensive than from tap stands. Mercy Corps has commissioned a study by LSE to see to what extent low income household using tapstands has had an impact on households' spending. Prior to the launch of the tapstand network, customers were paying between 4 and 10 times the price for a 20-liter jerry can. Mercy Corps commissioned the survey to assess how the potential savings were used at the household level.
- Early delivery of some outputs is resulting in positive outcomes – and helps to address earlier comments about lack of trust that the project will deliver. Feedback from consumers benefitting from the tap stands is that they no longer have to take the long, exhausting (when carrying 20 kg of water), and at times dangerous walk to the lake for water. For those without access to tap stands the price of water from vendors is reported to have dropped to 25% of its pre-project value.
- Do not over promise and under deliver against expectations. In this context be aware of past performance of other projects and how this has coloured views of potential beneficiary groups. Mercy Corps were aware of a DFID-funded road construction project around Bukavu that did not deliver expected outputs. This has led to a certain level of mistrust from local authorities. It also increased donor pressure to deliver this programme. Awareness of this led Mercy Corps to be cautious with its communication about outputs and timeframe. For example, Marcy Corps informed the public that, despite the size of the project, it would not solve all the water problems in those towns.
- Recognise that improved access to water is likely to increase land values that may adversely affect poor people living in those areas without tenure. Property values, on the edge of Goma that previously had no local supply, have gone up 10 times.[67] Although the proportion of this attributable to the improved access to water is not clear.

[67] Information provided by Mercy Corps

- Innovative management arrangements are possible and worth testing in FCAS – if adapted to the context. With the introduction of the new water law, and with support from a consultancy team, Mercy Corps created an innovative social business model for managing service delivery.[68]

5.11.4 Donor Modalities, Instruments and approaches

A significant proportion of funding in FCAS, particularly involving infrastructure investment, is funded through multilateral agencies or other multi-donor instruments. The Urban WASH programme provides a useful opportunity to learn from a bilateral programme, implementing a major WASH programme, with a significant infrastructure component. This was a viable option for DFID because the level of funding was arguably proportionate to the additional transaction costs of a bilateral programme. In terms of scale the overall WASH programme (£164m) is larger than many multi-donor programmes. There are some important lessons from the bilateral funding approach – although some of these apply equally to multi-donor programmes.

A distinctive of bilateral programmes is the level of exposure – to reputational risk in particular. Multi-donor funds operate more at arms-length, and major failures are, therefore, less directly attributable to any one funding agency. There is also less ability to influence/steer the programme. Conversely, there is more of a direct association for the donor government with bilateral programmes that are successful.

From the Urban WASH Programme in Goma and Bukavu there are a number of emerging lessons for donor modalities, instruments and approaches:

- Recognise the importance of being an intelligent and informed funder, with a consultant providing advice, if necessary, in support of the implementing agency. A specific example was including an additional budget for an international firm of consulting engineers (Mott Macdonald) to represent DFID's interests in the design and delivery aspects of the programme, and play a supportive role to Mercy Corps. This was significant as it reduced the risk of major or minor oversights through the programme cycle, that could have resulted in technical, legal or managerial problems and subsequent partial or total non-delivery of programme outputs and/or outcomes. There are numerous examples in DRC of substantial investments failing for want of basic technical competence. The cost (< 5%) is relatively small in relation to the total value of the investment.
- Allow time for a long enough inception period for the project to enable a full contextual assessment to inform design, even where the implementing agency is relatively familiar with the operating environment. DFID granted a one-year inception phase prior to the actual project that allowed Mercy Corps to hire consultants for a series of assessments (including environment, gender, water governance, social economy). Other studies followed – in particular the legal and governance implications of the new Water Law.
- DFID, and other funding agencies, need to stay engaged[69] and not consider that all responsibility for achieving a successful outcome has been contracted out to a third party – in this case, Mercy Corps. To ensure collective agreement throughout the programme DFID imposed a requirement for a trilateral agreement on management arrangements between Mercy Corps, the water utility and the Provinces (owners of the assets). DFID required this to happen prior to the signature of construction contracts.

5.11.5 The Role of Other Actors

Other donor agencies

Look for opportunities to secure complementary funding to extend the scope of work. Early in the programme, Mercy Corps identified the need to increase the quantity of raw water to enhance the supply to the water treatment works in Bukavu. Since this was outside the scope of the DFID funding, Mercy Corps approached other agencies for possible parallel funding. The Swiss bilateral agency Swiss

[68] Consisting of two entities: Congo Maji, a Congolese company (limited liability) owned by a second charitable company (Enterprise for Impact – E4i). Congo Maji then negotiated a management contract of 5 years (renewable twice) with the water utility REGIDESO and the Provincial Government to manage a section of the town of Goma. This PPP model will also be applied to the Panzi area of Bukavu.

[69] DFID's ability to convene government to government discussions helped move some things forward, while Mercy Corps' direct government discussions were able to move *different* things forward, without the international political dimension. DFID/UK and NGOs take a different view on political economy – which also affects awareness of risks, particularly any with reputational implications.

Development Cooperation (SDC) agreed to fund this discrete component. Mercy Corps facilitated exchanges between DFID and SDC, which enabled the inclusion of the missing component (increased supply into the distribution system) with SDC support based on a master plan that was done with REGIDESO during the inception phase of IMAGINE.

Informal Sector/Private Water Vendors

Understand the role of private water vendors, as this is an important source of information on system failures. For example, at the start of the programme, the water utility was providing services in parts of the cities, while local water vendors – sometimes with linkages to the water utility – were covering other parts of towns. However, the price of this water was unaffordable to most of the population. The introduction of a tap stand network has shifted their business to more distant areas, or forced the vendors to modify their service (e.g. home delivery for people not willing to walk to the tapstand and queue). There are significant political economy/vested commercial interests in current arrangements. Early work in seeking to understand how the informal water sector works, and is controlled, may be useful in avoiding unnecessary conflict in relation to any new water distribution and delivery systems – while seeking to root out the most egregious forms of corruption. As water vendors are likely to remain vital medium/longterm providers of water services there is also a case for looking for opportunities to work with them as part of the solution.

Monitor the extent to which the poorest are still accessing unsafe water sources. In Goma access to the lake remains the least costly alternative for the more destitute. In Bukavu they access water from unsafe shallow wells and surface water sources. The extent to which the poorest continue to access unsafe water, and the market shifts for the private vendors, are important indicators of the impact of the programme. Mercy Corps has commissioned LSE to research the issues of access and affordability (from the tapstands), which should provide some further important insights into these issues.

6 Sierra Leone case study – Freetown

6.1 *Introduction and context*

Freetown is the capital and largest city of Sierra Leone, with a population of around 1.2 million. It offers the opportunity to examine the progress of donor interventions to improve water and sanitation in a country which experienced a brutal civil war (1992-2002) but a comparatively fast cessation of hostilities and a post-war period largely free from continued political violence.

This case study focuses on the post war period, from 2002 until the present. This is a long period for a case study, but it reflects the slow pace of change in the sector since the immediate post war years. Although DFID has been one of the leading donors in the WASH sector in Freetown (accompanying significantly larger investments in WASH outside the capital), there has been a history of tentative projects and stop-start capacity building. DFID has recently begun a large water infrastructure rehabilitation programme in Freetown and the AfDB has also initiated large projects, but lessons learned from these are not yet available and impact will only be apparent several years from now.

The country has been subject to additional shocks and crises since the war, with the most prominent being the Ebola crisis of 2014 which was initially met with 'confusion, chaos and denial'[70] and revealed the poor state of Sierra Leone's health systems, while absorbing the energies of the whole of government for an extended period.

Although seemingly free of conflict, Sierra Leone is broadly considered a fragile state with political systems still heavily influenced by structures and tensions that dominated in the pre-war period and led to the conflict.[71] This deep instability and hidden contestation for resources affect visible actions and confound donor driven reform programmes. In the water and sanitation sector, the relatively small economic goods involved have resulted in a broad lack of political drive to solve longstanding problems with urban services, accompanied by donor reluctance to engage major capital resources.

6.1.1 Methodology

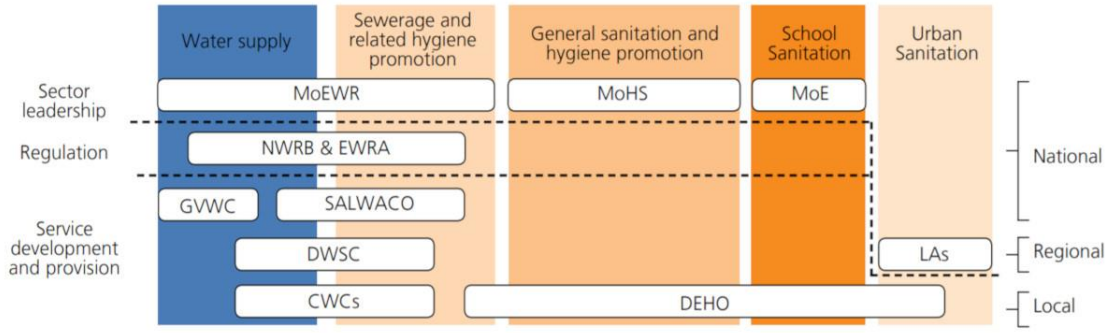
This case study is based on: donor and implementer project documents; government records and statistics; maps, reports and data published by NGOs; academic studies (to a lesser extent); and around 10 interviews with sector stakeholders individually and in groups. These were primarily conducted in person in Freetown in May 2019. Some former DFID staff kindly contributed their observations. We are grateful to all interviewees for their time and kind support. To promote open discussion, we have not named individuals. Information derived solely from interviews is indicated.

[70] Chatham House, 2017. Sierra Leone's Response to the Ebola Outbreak: Management Strategies and Key Responder Experiences.

[71] For more detail, see an up to date analysis by M'cleod and Ganson / IGC (2018): The underlying causes of fragility and instability in Sierra Leone https://www.theigc.org/wp-content/uploads/2018/04/Sierra-Leone-Report-v2.pdf

6.2 *Water and waste water systems in Freetown*

6.2.1 Roles and responsibilities



MoEWR: Ministry of Energy and Water Resources, lead for water resources and the custodian of the Water Law. Exercises oversight over sector agencies through Water Department.

MoHS: Ministry of Health and Sanitation, lead for overall coordination of sanitation and hygiene activities, through the Environmental Health Department (EHD) taking the lead in the promotion of sanitation and hygiene programs.

MoE: Ministry of Education, lead for sanitation and hygiene education in schools

LAs: Local Councils, focal entities at the district level for implementation of water and sanitation delivery. Work through District Water and Sanitation Committees (**DWSC**).

NWRB: National Water Resources Board, regulation and oversight for water resources management.

EWRA: Energy and Water Regulatory Authority, economic regulation of water and related sanitation delivery.

GVWC: Guma Valley Water Company, provision of water to Freetown and its environs.

SALWACO: Sierra Leone Water Company, water and sanitation in all urban areas outside of Freetown and some rural areas.

DEHO: District Environmental Health Officers, responsible for health, sanitation, and hygiene promotion at the district level.

CWS: Community Water Committees: management of water and sanitation delivery at the community level. Additional actors include the private sector and a significant number of international and local nongovernmental organizations

Figure 4: Institutional roles and relationships in the water supply and sanitation sector (World Bank WSP, 2011 - based on National Water Policy)

The public water utility supplying Freetown with treated, piped water is the Guma Valley Water Company (GVWC). This is a parastatal organisation established in 1961, currently under 99% ownership by the National Commission on Privatisation (NCP) and 1% owned by the Freetown City Council (FCC). It is regulated by the Energy and Water Regulatory Authority (EWRC), which among other things sets water tariffs. The Ministry of Energy and Water Resources is the overall water sector policy body for Sierra Leone. The Mayor of Freetown sits on the GVWC Board on behalf of FCC, along with a representative of the NCP.

The arrangement between FCC and GVWC in theory allows for coordinated municipal development planning, but in practice there has been little coordination and planning in urban development. A recent (March 2018) mayoral election and change of mayor may improve things, as the new mayor is pursuing a coordinated municipal development strategy, the Transform Freetown Initiative, which includes water as a technical pillar.

Responsibilities for sanitation in Freetown are complex and have historically changed quite often. The FCC bears responsibility for managing solid waste within Western Area Urban, which comprises the original built up area of Freetown (see map in Figure 6), while a separate authority has this mandate in the Rural Area. In practice, public management of solid waste is piecemeal and reactive, and there are ongoing discussions about how to set up sustainable managed solutions. The MoHS has overall policy

responsibility for dumpsites and managed landfills, though in practice has had very little role in managing Freetown's sites.[72]

Faecal and liquid waste services are not provided by government authorities (see section 6.2.3 for details on how these are handled), though in Freetown the FCC is considering taking on more responsibility for this.

6.2.2 Water supply

Geographical context

Freetown is built on a mountainous coastal peninsula referred to as the Western Area, administratively divided into the older urban extent – Western Area Urban – and the remaining area – Western Area Rural.[73] The city's growth is constrained between the mountainous forested area in the centre of the peninsula and the Atlantic Ocean and Rokel river delta and swamp areas in the east. Figure 5 shows a satellite view of the city, with urban extent identifiable as lighter coloured areas.

The shape of the city is a major challenge for urban planning. Access to the central business district and other economically important areas of the city in the northwest requires long transport times along roads through built up areas. The same is the case for water and waste management services, which have to travel around the long curve of the city. Solid and liquid waste management has been in a state of crisis for a long period of time due to the lack of identified suitable transport and disposal solutions which can serve a city with this geography at a price that is affordable for a poor country with weak governance institutions.

Rainfall is relatively plentiful, at around 5,200 mm/year, but is strongly seasonal. Half the year is a dry season from November to April, during which water resources are strained and up to 40% of water points reliant on small surface and groundwater sources will dry up. May to October is the rainy season, with rainfall building to a peak around August. Rainfall events are often extreme, leading to recurrent severe flooding in low lying – especially poorer – areas of the city and occasional disasters such as the 2017 mudslides which killed over 1000 people in the central Regent district and surrounding areas of the Babadorie river valley.

[72] There is only one known sanitary landfill in Sierra Leone, built and managed by a mining company. This does not serve Freetown. The remaining waste sites are uncontrolled dump sites. These sites in Freetown are a severe and ongoing environmental and social problem.

[73] The naming distinctions are outdated, as Freetown's city limits have expanded to the east and west into the rural areas, to the extent that about a third of the city's population lives in urban areas located in Western Area Rural. The FCC only has jurisdiction over Western Area Urban district. As the two areas have shared development and service delivery challenges and the city is a single unbroken urban area, these administrative distinctions hinder effective urban planning.

Figure 5: Satellite image of Freetown peninsula (Western Area). Image and map data: Google.

Guma Valley Water Company supply

There are two significant piped water networks and three associated source and treatment systems serving Freetown, which are controlled by GVWC and formally supply around 22,000 registered connections, including households as well as government and commercial customers. GVWC also supplies public standpipes – the primary source of water for much of the population in poorer areas – and bowser filling points, which are a major source of water for households not served directly by piped supply.[74]

Numerous minor run-of-river sources are exploited but not all are managed by GVWC. The main water source for the GVWC network is the Guma Valley Dam, which supplies a treatment plant and reservoir at Spur Road in the north-west of the city (the first node in the network map in *Figure 6* below). Distribution from Spur Road is gravity-fed to the districts comprising the 'low level system' (90% of Freetown's demand)[75] while the higher altitude districts ('high level system') of the city which receive piped water are supplied by another source and treatment plant at Babadori or water pumped up from service reservoirs supplied from the Guma Dam. There is a significant additional source and treatment plant which feeds into the distribution network in the east of the city at Charlotte, using water from the currently underexploited Orugu river watershed.

[74] Statistics showing percentages of people by primary water source appear not to be collected. 2018 GVWC / MCC documents make assumptions based on what is known about GVWC customers alone. NGOs in the WASH sector have specific data applicable to their areas, but we found no city-wide census data quantifying the relative use of different supply methods. This is concerning, considering that the number of household customers is a small fraction of the total urban population.
[75] Atkins, 2008

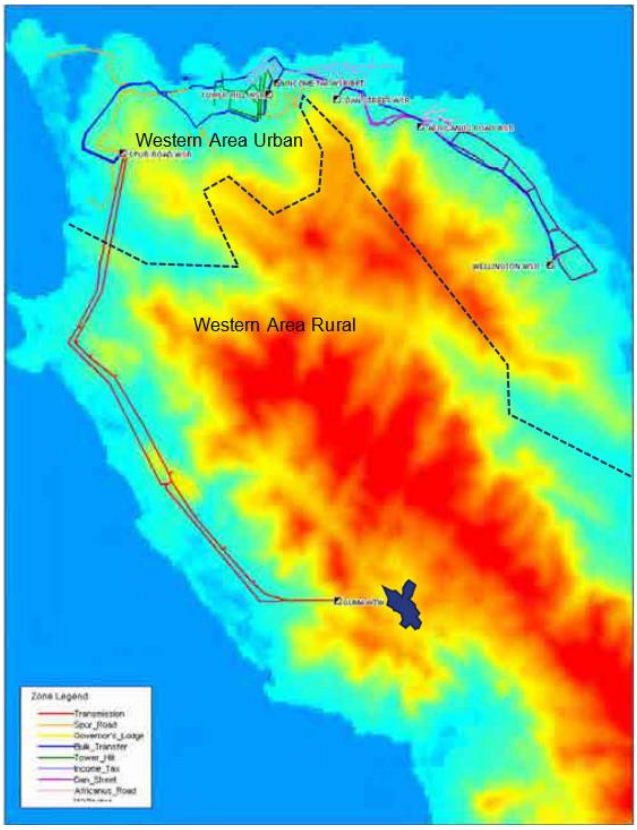
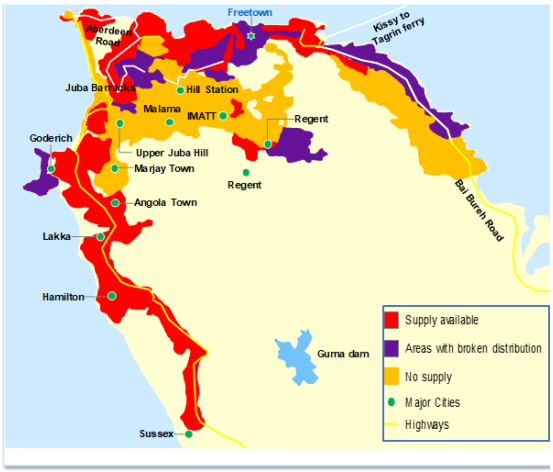


Figure 6 (left): Guma mains and service reservoirs as mapped in 2008 (Atkins/DFID), on topographic heat map. Additions of Guma Valley Dam and reservoir and border between Rural and Urban areas.

Figure 7 (below): estimated status of GVWC network



SOURCE: Guma Valley Water Company (GVWC)

Ninety percent of water in the system originates in the far south-west of the city at the Guma Dam, which is situated immediately to the east of the Guma water treatment works at the anticlockwise end of the distribution system shown in *Figure 6*.

The lack of adequate supply to meet total demand results in very unreliable supply at the far end of the distribution network in the east. A bulk transfer system aimed at ameliorating the inequitable distribution arrangement was constructed but not commissioned in the late 1990s, and has as a consequence been one of many factors exacerbating difficulties with leakages and pressure management (see sub-section below).

Service levels vary seasonally and by location, but 24 hour piped water is not available anywhere in the city through Guma supply networks. Water is available to Guma customers only on some days of the week and some hours per day. The *best* averages in some of the better-served areas in the north west are around 11 hour per day in the dry season and 17 hours per day in the rainy season.[76]

The city's topography allows the transmission system design to be based largely on gravity supply, leading to minimal pumping requirements and keeping the basic energy costs for the water network down compared to other urban utilities in Africa. This has contributed to GVWC's survival as a financially autonomous institution that is not subject to civil service salary limitations and can thus 'retain a strong management team'.[77] However, this autonomy has also contributed to the lack of attention and capital investment afforded to urban water supply in Freetown by central government (see below section on political economy), and due to the existing build-up of problems revenue remains at a level that would be inadequate to extend or even sustain the existing systems without continual donor intervention.

Non-GVWC supply

Much of the water that is not directly supplied by GVWC connections to customers is indirectly abstracted from GVWC supplies through drinking water bottling/bagging and water tanker filling points. There is also a reliance on rainwater harvesting during the rainy season, particularly in poorer parts of the city, on groundwater from shallow wells and on some smaller streams. Reliance on groundwater

[76] GVWC/MCC KAP baseline survey July 2018
[77] World Bank, Delivering Water, Sanitation, and Hygiene in Fragile and Conflicted Affected States: Learning Review of WSP's Technical Assistance Program, March 2014

and unprotected surface water has adverse impacts on health, as there are no sanitary disposal solutions and invariably any urban development in water catchment areas leads to pollution of surface and groundwater downstream.

Institutional problems at GVWC

A performance improvement plan (PIP) authored by GVWC in 2014 with DFID TA support identified a recurring list of institutional challenges faced by GVWC, many of which have been plaguing the institution since before the civil war and have led to the repeated failure of infrastructure rehabilitation works to achieve sustained improvements in water supply.[78] This analysis was completed at a time of notably high performance for GVWC following several successful PIP initiatives supported by DFID. The latest analyses from 2018 show subsequent declines in many performance areas, underlining the problems with sustaining improvements. Problems included:

- Inadequate staff capacity to sustain and improve upon performance gains made during PIPs, especially in engineering, accounting and management.

- Inadequately resourced project teams and highly bureaucratic human resource, stores and financial management systems which slow down all activities.

- No long-term corporate, investment and business planning; inadequate budgeting.

- Insufficient/obsolete operational, management and corporate policy manuals and guidelines

- A cluttered and ineffective customer database that includes arrears of over 50 billion Leones, most of which is not collectible. An updated figure from GVWC in October 2018 is 133 billion Leones – the equivalent of USD 14.4m, or about 4x annual revenue.

- Insufficient Management Information Systems (MIS).

- Aging water transmission and distribution infrastructure with additional engineering and network design issues accumulated over time. Some of the pipes and fittings are exposed and prone to damage and vandalism. The distribution network is characterized by rampart bursts and leakages, high and low pressure zones, dry zones and intermittent water supply.

- Insufficient developed water sources to meet demand.

- Insufficient capital to invest in the transmission and distribution network, and in source improvement for increased water supply.

- GVWC supplies public standpipes which are not adequately designed or managed to promote equitable water supply to the urban poor. The standpipes are not metered, and are paid for by Government of Sierra Leone at a flat rate. Many poor households are excessively distant from a standpipe and some end up illegally cutting into water mains to obtain water.

- There is limited metering and hence low volumetric water usage billing. This harms water conservation and precludes active water leakage management techniques.

- The water tariff is very low and cannot adequately cover operation and maintenance costs.

- There is developing encroachment on and deforestation of key water catchment areas.

According to a former DFID infrastructure adviser in Sierra Leone,[79] summarising: the fundamental problem GVWC faces is a vicious circle. They cannot deliver the services they are responsible for efficiently but have no money to invest in improving this. They cannot generate more money without first improving services. Donors have focused on improving revenue collection through metering initiatives and targeted TA addressing customer databases and billing system shortcomings, but significant capital investment has been in short supply. The current DFID infrastructure rehabilitation

[78] WIN-WIN 365 Programme description document, April 2014. List has been paraphrased directly from the report.
[79] Interview December 2018

project (2016-2019/20, £43m) is a significant contribution to resolving some of the longstanding network issues. However, even this is "essentially emergency rehabilitation", according to interviewees:[80] trying to get the water to stay in the network, rather than expand the system significantly. If successful it improves the strength of GVWC's position but there remains a risk that they do not significantly raise their revenues in the next few years and so the infrastructure will again slip into a degraded state and require yet another emergency donor project.

Metering is severely lacking, both at customer level and in the distribution and transmission systems, leading to customer overuse of water, a lack of operational knowledge about how much water is supplied to different parts of the network and no ability to proactively detect leaks through metering data. Meters are frequently installed, through donor projects or otherwise, but rapidly cease to function through a combination of theft, vandalism and lack of maintenance. Investigations into commercial performance in 2018 as part of the ongoing institutional reform work by MCC revealed that of GVWC's 22,000 registered connections, only 6,796 are metered[81], of which only 2.4% are read and typically only around 150 of the readings from these are actually used to generate bills (other metered customers were billed flat rates due mainly to either complete failure of the meter or suspiciously low readings). These proportions are illustrated in Figure 8 below.

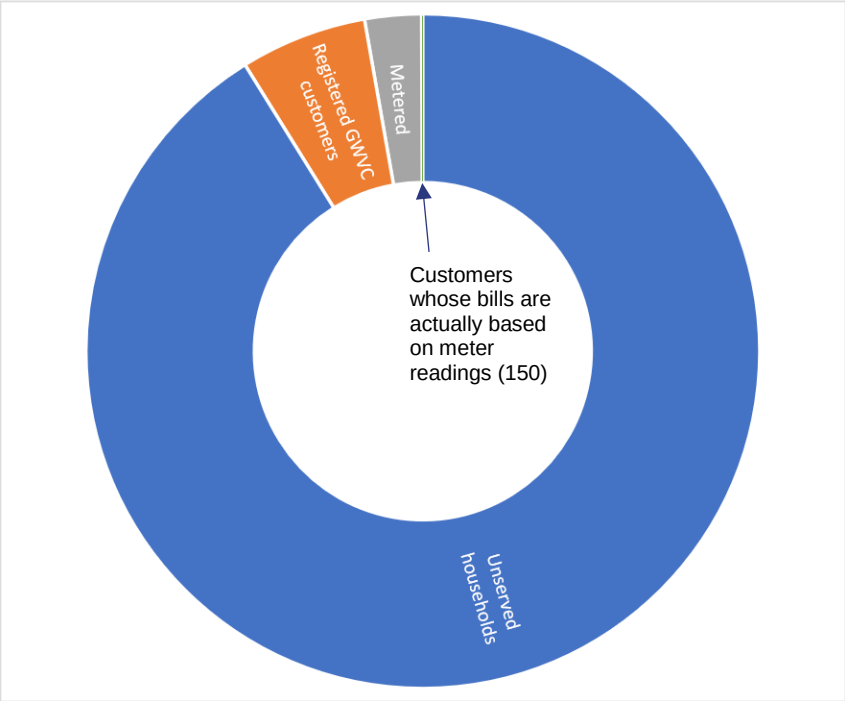


Figure 8: Metered connections in Freetown - to scale

When bills are issued, an average of 25% are returned or not delivered, mainly due to customers reporting there is no water in their supply pipes. Of the 75% of bills that are successfully delivered, over 40% of their total value goes unpaid. The collection ratio figure (value of bills paid / value of bills issued), has fluctuated around 65% over the past three years but was at just 56% over the first 6 months of 2018. By comparison, a notably well-run African utility in a more permissive context will have a collection ratio over 90%,[82] while peer utilities in similar contexts of fragility can manage around 75%.[83]

Use of public standpipes is not charged. Some are billed to the government, however this account is typically in arrears along with most other government water bills. Private water tankers / bowsers are supposed to be charged at filling points, but in practice this is not consistent or revenues are not always received by GVWC.

[80] Interviews with two infrastructure technical specialists who had design input into the programme.
[81] September 2018 GVWC data
[82] van den Berg & Danilenko / World Bank, 2017: Performance of Water Utilities in Africa
[83] World Bank, 2017, Water Supply: the transition from emergency to Development Support. p17.

Overall, taking into account non-revenue water (NRW) and billing and payment issues, we estimate that 75% of water produced by GVWC is not paid for.[84]

Future water sources and encroachment

Freetown faces a fundamental shortage of developed sources to supply water to its piped system, on which the majority of water supply in the city depends. Failure to increase this supply will inevitably lead to further exploitation of unsafe sources and accompanying health and development issues.

Table 11.1 - Baseline deployable output

	'Normal' dry year*	Drought year*
Deployable output (Mld)	86.5	80.0

** 'normal' dry year conditions are based on 2006, drought year on 1987*

The figures above are taken from Atkins / Oxfam (2007/8). They show the modelled maximum available water to GVWC from current sources. These sources have not changed since the modelling was done. 95% of piped water is from the Guma Dam system.

Table 11.2 - Baseline Supply-Demand Deficit (Standard Mid-Range Demand Forecast)

Date	Baseline Supply-Demand Shortfall (Mld)	
	Drought Years	Normal Dry Years
2008	48.3	41.8
2035 (year 25)	116.21	109.71
2038 (year 30)	135.00	128.50
2043 (year 35)	153.79	147.29

The 'normal dry year' deficit currently represents 35% of demand and is projected to increase to 68% by 2043. It will be important to address this shortfall to enable a sustainable water supply for the city.

The figures above show the scale of the supply/demand deficit. They were based on an assumption that an effective leakage reduction programme would be implemented, which has not happened in the 11 years since the report was published. The volumes of water that could be saved through leakage reduction are a significant proportion of total available water (the Atkins team modelled this at between 10 and 25 Mld), but do not eliminate the need for additional sources to be developed.

Atkins assessed various schemes for providing additional water supply to meet this growing demand, concluding that no other options are available that approach the scale of additional water required other than developing the Orugu catchment, which is in the high altitude areas above Wellington in the east of Freetown.

Unfortunately, the Atkins study also included a sharp warning about developing urban encroachment on this catchment:

> "However, recent development has begun to penetrate the Orugu catchment via the Babadori saddle. A recent satellite image showing development encroachment and the limits of the Orugu catchment is shown in Figure 3.3. This is a potentially extremely serious development. The Orugu catchment and Orugu Dam site represent the largest, most reliable potential water resource for the future of Freetown. **It will be almost impossible to cost effectively ensure the future reliable supply of water to Freetown if large scale development occurs within the Orugu catchment**. If this degradation continues, then outputs from resource schemes will reduce (due to more rapid recession), dams and impoundments will silt up much more quickly and nutrient loads from pollution will cause algal blooms and other water quality issues."

[84] This is a basic estimate from multiplying the various percentages when water and revenue leak out of the system. Data is insufficient for an accurate estimate. DFID's estimate was even higher (85%) in the 2007 ToR for the project that Atkins and Oxfam implemented.

Since the study was published, there have been no significant efforts to either develop the Orugu catchment as a new GVWC water source or to protect it from further encroachment.

Political economy

The political economy of Sierra Leone in the post-war period is characterised by a highly complex interplay of competing interests any dynamics which have not changed greatly from those which led to the civil war. Apparently confusing actions by government institutions such as the blocking or lack of cooperation on essential sector reforms are understandable in terms of a broader expression of competing interests by some senior politicians who have their personal political agendas and allegiances in mind. A useful analysis of these dynamics is given in a recent paper by IGC / M'cleod & Ganson (2018) analysing the roots of fragility in Sierra Leone. Without going into these dynamics in too much detail, this section outlines some of the consequences for WASH sector governance.

Low water tariffs are major long-term problem for the GVWC. According to 2012 political economy research commissioned by DFID on tariff setting in the water sector,[85] the tariff agenda is influenced by high level political dynamics pitting populist narratives on free water for all against a privatisation agenda which emphasises cost recovery. After considerable analysis of the issues around this topic, the 2012 research concludes that the lack of capacity in sector institutions is the primary obstacle to building up political momentum and public support for tariff reforms and longer term sustainability of GVWC's operations.

It was suggested in some interviews that corruption is one issue that damages donor trust and prevents significant capital investment in the water sector. The form of corruption is important to distinguish, however. We have not found any public domain evidence of direct financial benefit accruing to officials from their positions within the water sector, although many interviewees have been happy to confirm that procurement and quality issues attributable to corruption affect many infrastructure projects in Sierra Leone more broadly. The prevalence of corruption more broadly in Sierra Leone's public sector is also well documented and the subject of several new Commissions of Enquiry by the recently elected government.

Corruption and rent seeking are prevalent at the ground level. Processes highlighted by ODI include:

- Utility staff taking personal payments for connecting people to water supply without indicating this corporately (which means this connection is not billed), or re-connecting connections that have been removed during crackdowns.
- Damage and theft of water meters, which ensures bills are based on a lower flat rate
- Intermediaries controlling public standpipes and charging for supply
- Use of filling points free of charge by private water suppliers who should be paying

There are other examples from the waste sector, where for example tipping fees drive local corrupt payments or result in significant illegal dumping after working hours.

There is an ongoing effective immunity provided to public sector institutions against paying their bills for water use to GVWC, resulting in significant arrears (19.2bn SLL in October 2018 – around USD 2.1m or 2/3 of GVWC's annual revenue). The apparent lack of motivation[86] by the Ministry of Finance and Economic Development (MoFED) to require departments to budget for these costs and pay the bills is a good indicator of the low priority urban water supply is given compared to other sectors.

Institutional relations between ministries and departments in Sierra Leone are often dysfunctional, broadly as well as in the water and sanitation sectors.[87] A recent change in government has exacerbated some of these issues, with officials appointed by the previous government facing problems collaborating with institutions headed by new political appointees.

Powerful vested interests are a deterrent to serious reform wherever there are economic incentives involved. This can literally be a life-threatening issue. According to a donor interviewee who was in Freetown between 2005 and 2008, during this period the Water Distribution Manager at GVWC (a senior position) was beaten and killed by soldiers while trying to stop them

[85] ODI, The political economy of the urban water-pricing regime in Freetown, Sierra Leone, 2012.
[86] ODI 2012, ibid
[87] See e.g. IGC 2018

illegally drawing water out of the GVWC network using a tanker truck. While this was over ten years ago, a culture of official impunity remains over smaller issues such as non-compliance with rules or non-payment of bills. NGOs in the sanitation sector have also been informed of illegal use of government sludge tanker trucks by sanitation teams working within the police and military to run jobs on the side to supplement their income, undercutting the services of private suppliers who must buy and maintain their own equipment.

Elections have remained highly charged in Sierra Leone, accompanied by sometimes violent protests. The political system and politics are divisive and tribal. The elections themselves are deeply disruptive to development programmes working with public institutions. According to one interviewee: "Donors will not offer anything new in the year prior to elections, and when the elections happen the government stops functioning for six months before and six months afterward". This expanded uncertainty limits the scope of infrastructure programmes, which need to fit within the limitations imposed by the electoral cycle.

Structural inequality: the Bulk Transfer System

Freetown's water supply system is over-subscribed and constructed around one linear supply main that circles the city from west to east. Consequently, water is comparatively plentiful in the low lying parts of the west of the city (generally wealthier) but supply is far less reliable in the newer parts of the city to the east (generally poorer). An attempt to adjust the system to even out this inequity was made by the World Bank in 1993-2003, during which a high pressure 'bulk transfer' main was installed to bypass the distribution networks in the west and shift water to reservoirs in the east.

The World Bank described the BTS as complete in 2003, and DFID and GVWC subsequently described this system as 'achieved' and operational in the ToR to be implemented by the Atkins consortium in 2007/8, although the ToR did note that "Transportation networks are also functioning as a distribution network for areas adjacent to their routes."

Atkins subsequently investigated and put this much more strongly: "Unfortunately improvements constructed under the relatively recent World Bank Rehabilitation Project **have not been fully implemented and are therefore not effective** - the proposed Bulk Transfer System (BTS) conveying water from west to east through the city is cross connected into the zonal distribution systems, which prevent pressures in the BTS from building up to the level where water will fill the service reservoirs."

Effectively, the BTS was constructed but never used for its intended purpose. Rather, it was essentially used as an expensive means of supplying additional water to the low pressure local distribution networks in the west. Commissioning the BTS for its intended purpose is now a difficult engineering problem that has not been addressed by any donor support since 2003 and will not be addressed by the current DFID rehabilitation programme.[88]

In the words of an interviewee with extensive engineering experience of Freetown's water systems: "Nobody knows what will happen if you push up pressure [in the BTS] to the levels originally intended. It is clear that things will go wrong, but it is difficult to cost the advice before it is needed, so this problem has been left up to Guma to sort out". The fact that – directly acknowledged by Atkins (2007/8) – operationalising the system will result in more rationing of water in the west of the city may be related to the lack of political will to push through this intervention.

As well as representing a fundamental constraint to equity in water supply, the current condition of the BTS contributes to leaks in the low pressure networks because of poor maintenance of valves intended to step down pressure, leading to over-pressure in parts of the low pressure network under certain conditions.[89]

[88] Correct at time of drafting; this position may since have changed. See DFID's Devtracker website.
[89] DFID/GVWC (2007)

6.2.3 Wastewater and sanitation

There is essentially no public sanitation infrastructure in Freetown other than a short sewer system under the central business district, which discharges untreated into the sea (estimated 4% of Freetown's faecal waste).[90] There is limited collection and there are no treatment options.

NGOs have been very active in the sector, building and managing public toilets and working with communities and private service suppliers to improve sanitation practices. The Irish NGO GOAL has taken the initiative on improving systems, including public organisation and management, and is working with the Freetown City Council to secure additional funding from DFID for this work. Much of what is known about sanitation in Freetown is derived from research commissioned or conducted by GOAL, Oxfam and other NGOs.

Wealthier citizens have lined pits and septic tanks, which they pay private companies to empty. The resulting waste is either discharged into the environment by dumping in watercourses or burying (the population density and hydrology of Freetown does not present many safe opportunities for burying faecal waste in situ), or transported to an approximately defined area of the city's main dumpsite (Kingtom), where it is discharged onto the surface of accumulated solid waste.

Figure 9: Current faecal sludge disposal 'arrangements' in Freetown. Note informal picking community structures on dumpsite. Image credit: GOAL

Poorer citizens are more likely to be using shared toilets and unlined pit latrines, or toilets that discharge directly into watercourses. There is also significant open defecation, amounting to perhaps 7% of faecal waste, according to 2011 estimates.[91]

According to the WB WSP's 2014 FCAS WASH learning review:[92] "The proportion of households with access to sanitation in urban areas of Sierra Leone stood at 22 percent in 2011 **and is slipping backwards**. The urban component of the Millennium Development Target for sanitation will be missed by a large margin. In 2012, Sierra Leone experienced its worst cholera outbreak on record, reporting 22,614 cases. Freetown was the most affected location with more than 50 percent of total reported cases."

[90] Mikhael, G. / GOAL (2011). Sanitation market assessment, Freetown, Sierra Leone.
[91] Mikhael / GOAL (2011), ibid.
[92] World Bank (2014). Delivering Water, Sanitation and Hygiene in Fragile and Conflict Affected States: Learning Review of WSP's Technical Assistance Program (P131964).

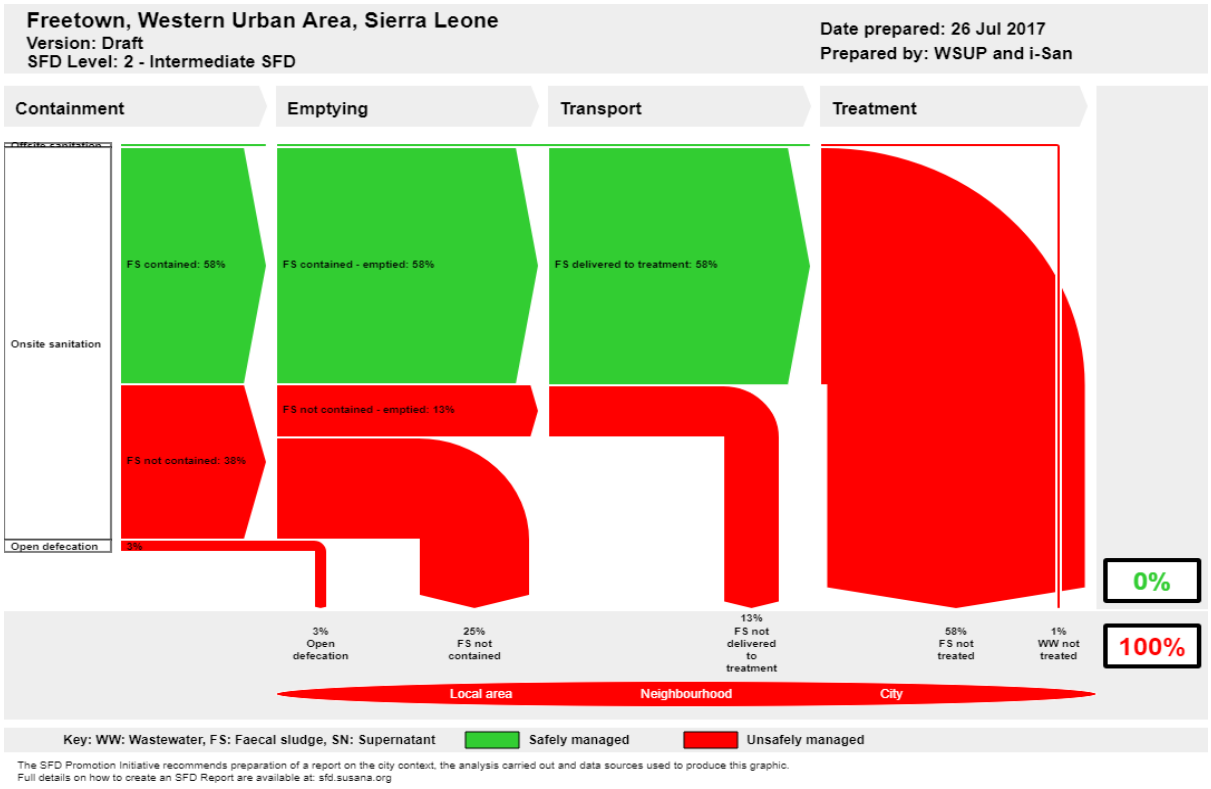


Figure 10: Freetown 'shit flow diagram' (WSUP / i-San, 2017). Note that all outcomes are 'unsafely managed'. Some sector stakeholders consider even these figures to be highly optimistic.

Figure 11: Typical heavily polluted watercourse, Kroo Town, Freetown. Credit: ICED.

An 'emergency' solution to the glaring absence of treatment and disposal has very recently been constructed by AfDB within the Kingtom dumpsite, consisting of a collection pond and drying beds, along with an access road constructed by GOAL. However, this is not in operation and its operating parameters and functions have not been made clear.

Institutional responsibility for sanitation and hygiene in Freetown has been passed around between ministries and departments and the government has not been keen to take responsibility. Within Freetown, this responsibility has ended up with FCC and they are engaging the NGOs previously involved to try to tackle the issue with DFID support. The ambition is low, however, as there is as yet no plan to treat any collected waste. The best that can be hoped for is a reduction in the amount of liquid waste that is dispersed widely into the environment, instead concentrating the pollution in low lying dumpsites, from which it will leach into waterways and pollute coastal waters, usually flowing there through the slums which occupy most of the low value low-lying land in Freetown (see Figure 11).

6.2.4 The effects of conflict

Due to the passage of time, there is not a lot of information regarding the acute effects of the 1992-2002 civil war on WASH in Freetown. Interviewees agreed that the war caused very little physical damage to the water infrastructure from the direct effects of fighting. The main acute effects were:

- Loss of equipment and vehicles[93]
- Loss of revenue and an inability to handle O&M due to a significant drop in collections from consumers who could not afford to pay
- A surge of population during and immediately after the conflict[94]
- The loss of engineers and other specialists, who fled the conflict and had little incentive to return[95]

Subsequent to the end of the war, the city faced immediate issues with immigration from the countryside to new and rapidly expanding informal communities throughout the city. The growth of demand for water services quickly outstripped both the basic capacity of the resource (amount of water available in the system) and the ability of GVWC to handle operations of the network, causing lasting damage to the infrastructure (illegal connections, piercing of pipes to fill containers, contamination of pipes with liquid waste) and to GVWC's ability to raise revenue and act on the challenges.

Deliberate policies implemented by the government after the war led to long-lasting health and environmental risks in poor areas of the city by paying for the construction of shallow dug wells with concrete rings. Atkins (2007/8) wrote:

> "Their construction was encouraged immediately after the war both as an employment measure and to address an acute water shortage. It is regrettable that these wells tap grossly polluted groundwater in shallow unprotected formations which receives the soak away of approximately 100,000 unlined pit latrines."

The continuing instability and weak governance that have characterised the post-war period were identified by interviewees as a key factor in the lack of government support for improved WASH in Freetown and for continuing unhelpful political narratives such as the promotion of the idea that water should be free and an accompanying resistance to privatisation (see political economy section above).

6.3 *Donor efforts*

Relatively few donors have supported **water supply** improvements in Freetown, with DFID and the World Bank (occasionally with DFID funding) by far the most involved in the post-war period, although there has also been some input from the EU, JICA and other donors to the water sector. Much more work has been done on water systems (rural and urban) outside Freetown. **Liquid waste management** in Freetown is (as noted in the sections above) essentially devoid of public infrastructure or services. Poor communities with access to improved sanitation are often reliant on services supported by NGOs funded by a variety of donors (DFID prominent among them).

Due to the lack of infrastructure for liquid waste and limited planning from either donors or government to change this, this section mainly focuses on donor support to water supply systems.

[93] DFID, 2006
[94] World Bank programme documents, 1993-2003.
[95] DFID infrastructure adviser, ICED interview.

MCC

The MCC has only recently become involved in the Freetown water sector through its 'Threshold Program'.[96] This has involved updating laws around water management, providing TA to strengthen GVWC (taking up the work most recently pursued by DFID), and mapping and condition assessment of the water supply network. There is only limited funding for hard infrastructure from the MCC at present, relating to the implementation of District Metering Area (DMA) pilots with GVWC. The technical assistance component includes initiatives aimed at improving revenues and reducing maintenance costs, such as a non-revenue water reduction initiative, a push to replace inefficient and leaky distribution lines and an improved customer service initiative. Significant seed capital is required for these before they will begin to be self-financing through improved commercial performance. As there are no funds available for this from donors, it is currently the subject of an interim tariff application to the regulator, EWRC.

The MCC programme is intended to conclude before the implementation of the African Development Bank's (AfDB) upcoming masterplanning process for Freetown's WASH sector (see below on AfDB). The masterplan will cover a broader scope than just GVWC's remit and is expected to include 16 other SL government organisations apart from GVWC.

DFID

DFID currently has £72.7m of WASH programming ongoing in Freetown, split between delivery of local level sanitation and hygiene interventions by NGOs and a major infrastructure rehabilitation programme implemented by a consortium of international engineering and infrastructure consultancies.

There are also plans to use existing programming to fund the establishment of solid and liquid waste management systems administered by FCC (with initial works conducted by NGOs using an accountable grant arrangement via FCC).[97]

Current projects:

- Freetown Water Supply Rehabilitation (2016-19) – ongoing hard infrastructure project £38m.

- Water, Environmental Sanitation and Hygiene (WESH) Programme (2016-21) – £29.8m ongoing modular WASH and environment programme. In Freetown it is focused on WASH Alliance NGOs, which work at community level, however it has also flexibly funded work on waste management, noted above.

Past projects:

- Supporting the Government of Sierra Leone to implement its National Water Supply and Sanitation Strategy (2009-16) - £14.8m. This was focused primarily outside Freetown. It was only in the later stages of the project that DFID moved towards engagement with GVWC.

- Water supply, sanitation and hygiene in Freetown, Sierra Leone (2016-17) - £12.6m programme implemented by Oxfam in 51 city and peri-urban areas: schools, community health centres, peripheral health units.

- Water and Sanitation in Freetown (2007-10) - £4.9m programme. Little documentation was available on this programme, but it is likely to represent the funding for two pieces of work: 1) the development of the 'Atkins Study' noted below and 2) some technical assistance work within GVWC through the World Bank (with two consulting companies implementing). Notable delays to the beginning of the World Bank element of this work caused a lack of coordination between the Atkins/Oxfam team and the World Bank's implementers, which were both working on Freetown's water systems.

[96] An MCC Threshold Program is a type of preparatory technical assistance grant managed by an in-country unit of MCC to improve governance to a level at which MCC would consider larger 'compact' grant funding for economic growth projects through national government mechanisms.
[97] The ICED Facility is concurrently involved in analysis work for FCC on waste management, funded by DFID SL.

- Freetown WASH Consortium – a consortium of NGOs funded by DFID through various programme budgets beginning in 2010 and ending in early 2019. Primarily focused on community level WASH interventions in poor areas of the city, however increasingly involved in wider management issues as time passed.

- DFID has funded much of the technical planning work done since the end of the civil war, with the major landmark document being the 'Atkins Study'[98] conducted in 2007/8. Eleven years later, this is still the primary reference document for what is known about the water system, though there is additional system mapping work being conducted as well as more detailed knowledge developed through the design of the current DFID rehabilitation programme.

The current DFID rehabilitation project has faced some delays relating to contractual and implementation arrangements, which has led to several changes in project governance structures.[99] These are now in a position to oversee implementation after an extended design process. Implementation of works has recently commenced.

World Bank

The World Bank has been a strong presence in donor support to water supply in Freetown, often in collaboration with and part-funded by DFID. The WB was the funding agency responsible for the last major system upgrade during the war period, running from 1995-2003. Since the end of the war, the Bank's Water and Sanitation Program (WSP) has mostly provided short technical support rather than long-term support from an established country office. Projects have included:

- Surveys to produce a national map of 28,000 urban and rural points, reporting location, functionality, technology, and management. This remains the most referenced and up to date survey data on water supply across the country

- 'Fixing Freetown' case study, preparatory to an upcoming project currently at concept stage: the Resilient Urban Sierra Leone Project. The Bank is in conversation with donors and urban authorities on the scope and sectors, including conversations on solid and liquid waste management.

- Replacement of GVWC's billing system (funded by DFID and GVWC)

- Developing with GVWC a complete survey of household, commercial and public customers (covering 19,500 connections).

- Power and Water Project, 2004-2011 – urban water supply and solid waste management components. The water supply elements of this project were funded by DFID as noted above (2007-10).

    - In water, small scale infrastructure improvements were made (increasing the number of functioning water meters, some pipe works), a computerised MIS was installed at GVWC and management assistance helped a modest improvement in NRW rates and billing/collection ratio. However, the World Bank's internal review concluded that the water components failed to achieve their targets and "sustaining even these partial improvements will be difficult". The reviewer also made reference to the design but lack of implementation of some critical management reforms.[100]
    - In solid waste management, the project created a new autonomous public company named the Freetown Solid Waste Management Company (FSWMC) and supplied it

[98] Strategic Water Supply and Sanitation Framework, March 2008. This included two parts, first the main report which was a problem analysis and solution framework and secondly a 'Water Supply Improvement Plan' covering the detail of necessary improvement projects and assessing the various options on relative merit and complementarity. The work was led by Atkins and the consortium also included Oxfam and 3BMD.
[99] See latest annual review, https://devtracker.dfid.gov.uk/projects/GB-1-205195
[100] World Bank, 2012, ICR Review: Power and Water Project. WB document number ICRR13772.

with startup equipment and resources, however the internal review in 2012 notes that the company was taken back under direct government management very soon after it was created (and renamed to FWMC) and showed indications of failure. When ICED conducted work on solid waste management in Freetown in 2019, there was no indication that FWMC continued to function.

African Development Bank

The AfDB is financing the development of a WASH sector masterplan for Greater Freetown (urban and rural), in collaboration with the Netherlands Ministry of Foreign Affairs. This is currently (August 2019) undergoing procurement and is behind schedule. There may well be a gap in technical assistance to GVWC after the end of the current MCC programme (scheduled for February 2020, but seeking extension to January 2021).

AfDB also beginning recruitment and procurement for a major new project called the Freetown WASH and Aquatic Environment Revamping Project (WASHAERP), which will invest around USD 96m over 5.5 years, working with GVWC and FCC on access to safe water supply and improved sanitation, using Integrated Urban Water Management (IUWM) approach. Notably, this is intended to **increase the capacity of raw water sources by 53,000 cubic metres per day** (53Ml). The means of accomplishing this is not apparent from the project design documents we were able to review, but based on the 2007/8 Atkins assessments, this figure might just be reachable with smaller schemes below the size of dams on the Orugu catchment. The plans also envisage the development of **faecal waste treatment facilities** at the Kingtom and Granville Brook dumpsites, as well as liquid waste transfer facilities elsewhere.

6.3.1 Gaps and problems with development efforts

The construction of the bulk transfer system but failure to operationalise it is a clear example of the lack of long-term commitment and cross-donor programme coherence. The system was never properly used and has caused leakage problems due to high pressure in parts of the system being used in ways they were not designed for.

Lack of action on new water sources. It has been clear for decades that the Guma Dam would be an inadequate source to supply the city's growing population. This problem became acute in the immediate aftermath of the civil war and has led to water rationing and substantial inequities in water supply. However, assistance from donors has been series of short-term emergency and urgent works, with few attempts to tackle the key overriding problem of lack of sufficient supply.

Donor plans have frequently not had practical effect due to long delays before action. For example, the Atkins plan was part of serious efforts to fix the wider water resource challenge, but it has taken more than 10 years for donor programmes to be prepared to respond to these challenges. Projects in the intervening years had limited scope.

Freetown's water supply infrastructure has been subjected to too many 'emergency' rehabilitation projects and too few larger, longer and more strategic capital investment projects. Every report on Freetown water mentions at some point the poor sustainability of previous interventions. The frequent donor-supported drives to install meters on connections result in high reported numbers at the conclusion of the project, only for the number of functioning meters to have fallen precipitously by the time the next donor project starts.

On completion of their early water supply project in 2003 – the project which spanned the civil war – the World Bank's internal evaluation group noted:

> "Despite some improvement in the financial performance of GVWC, … **sustainability of project benefits is unlikely because the infrastructure is not maintained adequately** and some facilities are already falling into disuse".

The WB project team attributed poor sustainability mainly to the effects of the civil war. However, at the end of its following project[101] with GVWC (also involving 'emergency' infrastructure works and capacity building support) in 2011, the Bank found exactly the same problem in the absence of a civil war:

> "**Sustaining even these partial improvements will be difficult** … [GVWC] needs to enhance its operational and financial performance by increasing its customer base and collection rate, recovering operational and maintenance costs, and reducing commercial and technical losses. Several factors, within and beyond the scope of the utility, need to be resolved, such as delays in the connection of new customers, large numbers of unmetered connections and meters have been stolen, the slow pace in billing and collection, the debt rate, and the insufficient tariffs."

It is clear that more sustained, higher value capital investment is required to enable GVWC to break out of the vicious circle of being unable to invest to improve and expand services because it is unable to collect sufficient revenue from services delivered at current levels.[102] Emergency rehabilitation works will lead to temporary improvements but unless GVWC is able to take advantage of these to raise additional revenue sufficient to maintain the rehabilitated infrastructure, it will not be able to build up momentum to improve by itself.

Donor reluctance to commit to significant expansion and improvement beyond repeated emergency rehabilitation is not obviously explained in public documents and interviewees did not venture extensive reasons. The suspicion is that corruption, poor engagement from central government and a history of difficult projects have discouraged donors from committing themselves fully.

6.3.2 Donor impact summary

Without donor funding, the WASH situation in Freetown would be far worse than it is today. However, the majority of donor support has been provided in the form of humanitarian assistance through NGOs. Donors missed opportunities to tackle longstanding problems and prevent deterioration in WASH practice in Freetown in the decade following the civil war. Repeated short-lived attempts both to upgrade infrastructure and improve governance have been insufficient. This has allowed problems such as maintenance issues, public behaviour and corrupt incentives to entrench themselves over time, making the sector even less conducive to short term solutions. There have been no serious attempts to tackle the challenges of liquid waste. Solid waste management is reactive, unsustainable, hugely damaging to the environment and yet still only minimally effective in keeping waste out of the environment.

The latest cycle of development attention to WASH in Freetown has so far shared the characteristics of past interventions. In water, the DFID infrastructure rehabilitation project is focused on only 'rehabilitation of the key elements' of water supply infrastructure, not on upgrading the system.[103] The MCC project supporting GVWC has short timelines and might be exceeding the speed at which the institution can change. Meanwhile, there has been very little progress on regulatory enforcement and integrated urban planning and the space for future development of new water sources is diminishing.

In solid and liquid waste, DFID and other development partners are starting a process of engagement with the city authorities to put in place a new public-private system, but there remain large open questions about the long-term plan for waste treatment and disposal.

Upcoming programmes – particularly by the African Development Bank and World Bank – are intending to change this situation. These should be long-term commitments in order to succeed, strongly supported by donor partners such as DFID. Commitments to coordinate with other projects need to be implemented and, if necessary, project plans should be shifted to ensure continued alignment and complementarity. Past failures in making governance reforms 'stick' are attributable to poor coordination

[101] The Power and Water Project, 2004-2011, the Freetown water supply components of which were mainly funded by DFID and were allocated less funding than in the previous project.
[102] This is recognised in a number of different donor reports, including by the World Bank in March 2011 (Pushak & Foster): "In order to meet the demand in Freetown, GVWC will need more vigorous actions in terms of water network rehabilitation including **extension of its water facilities production/distribution** and much more improvement in the utility management."
[103] AfDB, 2019, Project Summary page for 'Sierra Leone - Freetown Wash and Aquatic Environment Revamping Project'. Link.

between teams, gaps in time between one initiative and the next, and the lack of a single coordinated donor strategy over time.

6.4 *Lessons*

Plan for sharp population growth in major cities during and after conflict. The World Bank projects spanning the civil war based their water infrastructure designs on substantially underestimated population projections, even though the developing trends were evident to the project designers.[104] Many of Freetown's problems with water supply and sanitation stem from uncontrolled urbanisation that started immediately in the aftermath of the war. While the situation was not conducive to any easy solutions and the roots of problems pre-dated the conflict, donor and government inaction following the war led to a rapid deterioration in WASH services with a disproportionate effect on the poorest. These effects are still being felt today.

Works programmes that create employment after conflict should be carefully supervised by technical experts to guard against harm. The rapid expansion of water points in low lying areas of Freetown after the war was actively supported by government funding. The lack of safe sanitation facilities or disposal routes led to an escalating health risk from these well-intentioned post-war projects.

Weak governance and poor ability to enforce environmental regulations or control urban expansion can lead to irreversible harm. In the case of Freetown, government and donors could and should have guarded against encroachment on the Orugu catchment which is destroying the future inclusive development prospects of Freetown by choking off the most efficient future water source. Schemes apparently favoured by government to bring in water from much further outside Freetown will be more expensive to build and operate and therefore subject to longer delays and higher risks. The complexities of urban planning have been exacerbated by political tensions and poorly integrated governance in Sierra Leone, which characterises many post-conflict states. This lack of integrated planning and alignment of institutional interests and priorities across many separate agencies has been responsible for poor development outcomes in WASH and urban encroachment (leading to cholera epidemics, landslides and pollution of critical water catchments).

Invest early in diagnostic and planning studies, but do not delay following up to implement. DFID took an early lead in this area in Freetown, picking up from the World Bank after the civil war. While it was several years after the end of the war by the time the first major study was conducted and this could have been achieved earlier, the information from this study greatly improved the understanding of both donors and SL authorities and it has been a comparatively small investment with long-term impact. Studies assisted by the World Bank have also been influential, both in assisting NGOs to plan more effective WASH activities and for GVWC to make significant improvements to its commercial standing. However, it has also been clear that diagnostic and planning studies need sustained long-term effort to implement. As with any development context, there is justified local scepticism about technical assistance teams who deliver plans and then do not stick around to implement them. A donor team arriving at GVWC today would find the ghosts of old plans on shelves and in drawers – still mostly valid, but sitting unimplemented for lack of motivation and funding.

Repeated cycles of 'emergency' rehabilitation works and unsuccessful institutional capacity development must be broken in order to make progress. No interviewees or reports suggested solutions to this cyclic problem with the donor response. It was apparent from interviews that donors are wary of investing a large amount of capital in a weakly governed state with apparent corruption issues, and will hold back from support if the recipient agencies are not showing indications of serious motivation to reform. The World Bank (see Box 1 in section 2.2 of this report) advocates an approach that tackles high level policy, regulatory and jurisdictional problems in order to create momentum for reform of service provision.

[104] Staff Appraisal Report, Freetown Infrastructure Rehabilitation Project, May 1993: "the population of Freetown … is growing at a rate in excess of the national [urban population growth] figure of 4.5 percent. This is partly due to the failure of the agricultural policy and inability to sustain development in the provinces. The situation has been made worse by the war in Liberia and incessant attacks by rebels on Sierra Leonean territory. In view of the high densities in central Freetown, most of the new immigrants have settled in selected sections of the west, notably Brookfields and Congo Market, and to a larger extent in the eastern areas of Kissy and Wellington."

ODI: political economy challenges should not discourage building public capacity

A 2012 ODI report commissioned by DFID, referenced above in this report, noted in its conclusions that the political economy presents severe challenges to water systems development in Freetown, but emphasised that "this should not be taken as a call for the universal adoption of purely community-based approaches to the delivery of water services."

"Indeed, a combination of actors from communities, utilities, relevant GoSL departments and, potentially, the private sector are likely to play various roles in the service delivery chain, particularly in urban contexts where infrastructure demands are more complex and initial capital expenditure is likely to be greater. Additionally, community-level action is unlikely to address some forms of systemic rule-breaking by major actors, such as the persistence of arrears from large public actors, which may require intervention from sympathetic high-level actors in GoSL if they can be identified and/or development partners working on complementary issues (e.g. public financial management and the development of realistic budgets)."

Ensure the right expertise is available in country and support a long-term strategic focus on problematic sectors. A lack of continuity of focus and expertise can allow chronic issues to inflict substantial damage on both infrastructure and positive public behaviour. DFID and the World Bank have been the major donor agencies funding and working on WASH issues in Freetown, but both have had inconsistent focus. The DFID infrastructure adviser from 2005-8 was not followed into post by a replacement, resulting in a loss of initiative during the period immediately following significant DFID water systems planning work in 2007. The World Bank WSP also acknowledges a similar lack of consistent focus. In their 2017 report on progress in supporting water systems in FCAS, they compared their work in Sierra Leone with Liberia, noting greater progress in Libera and attributing this to a lack of a WSP in-country team in Sierra Leone, noting "earlier engagement may have headed off the possibility of alternative providers becoming a barrier to future utility service provision."[105]

[105] WSP 2017. Water Supply: the transition from emergency to Development Support: Evidence from Country Case Studies in Africa. Pages 37 and 21.

7 Short case studies – Liberia, Syria, Yemen

In the process of researching the three main case studies in this report, the research team became aware of additional published and unpublished work on the same topic by other researchers which was complementary to the themes and contexts being explored in the above sections. We have included short case studies on three further cities – based more heavily on previous source material – to illustrate some of the kinds of context not studied above. Due to their shorter length, findings and lessons have been consolidated into single sections rather than organised according to case study topic areas.

7.1 *Yemen: Ibb – how urban WASH services can weather conflict*

Information in this case study is summarised from 'Trust and Necessity' an unpublished case study on Ibb's water supply for the World Bank by Meta Meta Research (June 2018), with some additional information and observations from prior ICED research for DFID Yemen.

Yemen has a long history and reputation as a water stressed country. It is currently subject to a complex and protracted conflict which escalated sharply in 2015 and which has led to widespread famine, disease and death. Displacement and poor access to water and sanitation systems have led to 'the worst cholera outbreak in the world' UNICEF/WHO with over 1.3m cases and 2,500 deaths.

The conflict has significantly disrupted urban and rural water supplies. Infrastructure has been actively damaged as a war tactic, increased fuel prices and disruption to supply chains for equipment and spare parts has left utilities unable to handle O&M, and the inability of consumers to pay for water has led to the decline of facilities and management.[106]

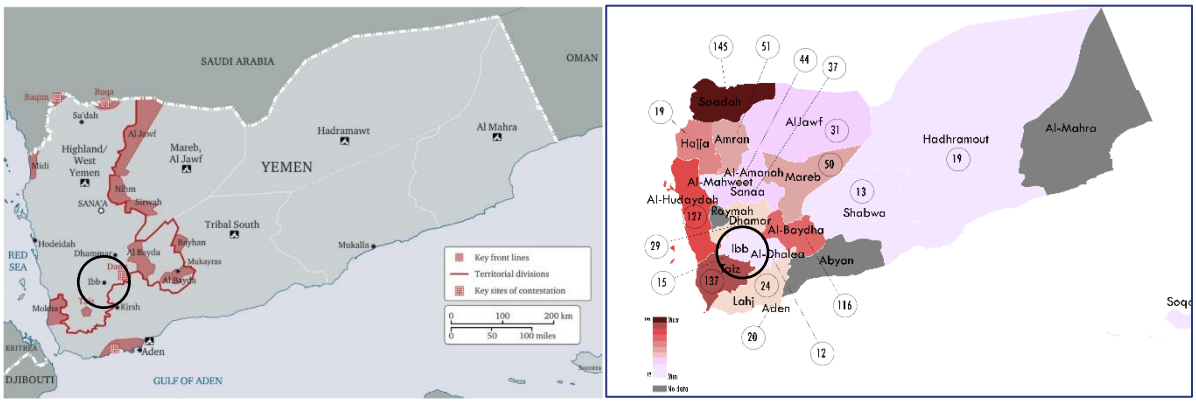


Figure 12: Maps of Yemen showing contested areas (Chatham House) and WASH infrastructure damage concentration (ICED)

Ibb city has a population of around 380,000, making it the 5th largest city in Yemen. It was captured by Houthi rebel forces without significant fighting in October 2014 and has been uncontested since then. The left map above[107] shows Ibb (circled) and the relative distance from major contested zones.[108] The border of control between the two largest conflicting groups is shown in red. The right map[109] shows the concentration of destruction of WASH facilities by the conflict as of November 2016. Both illustrate Ibb's relative good fortune in being less affected by direct fighting than some other major cities.

[106] ICED: 'Effects of war on water security in Yemen: Stocktaking study', June 2019
[107] Peter Salisbury/Chatham House: 'Yemen: National Chaos, Local Order', December 2017
[108] This was produced in December 2017 immediately prior to a major offensive which resulted in fighting not marked on this map, in areas along the west coast between Mocha and Hudeidah.
[109] ICED, based on Sana'a University data

Ibb's water supply and sanitation services are primarily[110] managed by the Ibb Water Supply and Sanitation Local Company (IWSLC), a type of parastatal organisation known as a 'local water corporation' overseen by a joint board of government officials and representatives from local residents, customers and businesses. IWSLC and its peer utilities in other Yemeni cities operate with considerable autonomy and are intended to be self-funding through tariff collection.

The onset of war has negatively affected the IWSLC. Although it was fortunate to have suffered very little physical damage to infrastructure as a direct result of fighting (unlike other cities in Yemen),[111] the war eroded customers' ability to pay, severed supply chains for spare parts, suspended national power supplies, caused severe increases and fluctuations in the price of diesel and drove a heavy influx of internally displaced persons to the city. The IWSLC has fared far better than many other local water corporations in Yemen during the war – with for example the utilities in Aden and Sana'a described by the World Bank as 'almost collapsed'.[112]

The IWSLC's performance on water supply management during the war period has been strong. The population connected to piped water supply has risen from 70% in 2014 to 80% today (24,775 to 29,961 connections) and water production capacity has increased by 12% since 2015. The collection ratio for customer bills has averaged 87% and is only less than 100% due to the customary low collection rate for government bills. All connections are metered and meters are functional. NRW has remained low at around 28%. Operating expenses have consistently been covered by revenues.

IWSLC's tariffs rose by between 55% and 80% depending on user category between 2014 and 2017, but remain considerably cheaper than alternatives (20% of the price of tankered water and 74% of the cost of private sector piped supply). The utility also continues to provide life-line services (the first $5m^3$) at a price that is kept at affordable levels for the poor (YER 220 in 2017; about 40% of the maximum domestic tariff).

Performance on sanitation has not been as strong. This has been attributed to the low capacity of the infrastructure prior to the war. The only wastewater treatment plant was operating beyond capacity and has been overwhelmed by increased demand from the rising population of IDPs. IWSLC – without the capital to invest in a major expansion of the infrastructure – could decide to refuse new connections, resulting in uncontrolled disposal of sewage in the environment, or allow them and overwhelm the treatment plant. It chose to make the new connections, which has caused a build-up of untreated waste in the environs of the treatment plant. The cholera epidemic which has swept through Yemen has resulted in 9000 cases in Ibb (which at approximately 2.4% is about half the morbidity rate of the rest of the country), although the causes in Ibb are unclear and may not be related to problems at the treatment plant.

Some of the reasons for the high level of performance in water supply are:

- **The infrastructure that existed prior to the war was sufficiently robust** and in a good enough condition to cope with increased service demands in the absence of investment for significant rehabilitation or upgrading.
- **IWSCL had put in place crisis plans** following the 2011 political upheaval which eventually led to the present conflict. They retained stock of essential spare parts and had fuel reserves ready to respond to economic shocks and supply problems.
- **Decentralisation implemented prior to the war left IWSLC in a strong position to self-manage** and meant it could survive on a commercial basis entirely independently from external funding or expertise. The extent to which this has worked out with other water companies in Yemeni cities varies, suggesting legal autonomy may be necessary but not sufficient to ensure independence and resilience.
- **Critically, decentralisation of powers preceding the war enabled IWSLC to set its own tariffs**, which enabled it to weather input price increases – particularly fuel.
- **IWSLC had strong management performance and organisational efficiency going into the conflict and managed to retain both its staff and the confidence of its customers.** Transparency and customer trust have been essential in order to implement sharp tariff

[110] Water is also provided by private tankers and there is a small private piped network

[111] Most reports of war damage (for example, the World Bank's 'Dire Straits' report) draw on a GIZ study from 2016 which is not available online. Reference: GIZ Sana'a/Eschborn 'Damage Assessment Study 2016. The Republic of Yemen Water Sector: A Managerial, Financial, Human Resource, Operational Structures Assessment of Twelve Water Corporations, and their Affiliated Utilities', 2016.

[112] Mohammed et al. / World Bank 'Water Supply in a War Zone', July 2018.

increases necessitated by fuel price rises. The collection ratio has remained high. It is believed that customers have broadly remained supportive because they realise they have a strong vested interest in the survival of the water utility, which will always be the cheapest source of clean water.

- **Morale has remained strong during the conflict**, as staff are proud of the utility's strong performance and are aware they have few alternative employment avenues during a period of substantial economic decline and upheaval in Yemen. As IWSLC is not part of the civil service, it is able to pay salaries on time and with discretion over performance and retention incentives. By contrast, 10 or more months of delay is not unusual for civil servants to receive their salaries in Yemen during the current situation.
- **IWSLC's board has been unusually successful in protecting the organisation from political interference that has plagued other utilities in Yemen.** The board composition of all local water corporations includes representation from the relevant ministries (Water, Finance, Planning), augmented by members representing the local private sector, community and customers. Ibb's board has been able to take decisions that are politically unpopular (e.g. allowing tariffs to be raised) and has given IWSLC management a free hand to do whatever is necessary to sustain supply and a positive cashflow.

IWSLC has received some external support which has contributed to its resilience, although this has not needed to be very large in cost, comprising an effective value of 5% of the utility's budget. GIZ, UNICEF and ICRC have assisted with fuel supplies in order to reduce exposure to large shifts in market prices and have provided some spares and equipment to help resolve system bottlenecks. There has been some accompanying training. The needs have been modest but important. Providing support to a viable and well operated utility has been far more efficient than the alternatives – i.e. allowing it to fail and then stepping in with humanitarian assistance, or treating the problems after the utility has entered a crisis situation. It has also enabled the expansion of services to cover IDP populations, which are a particular donor concern.

Broader lessons to learn from this are:

- **Customer dependence on water from utilities should not be undermined by provision of free water for humanitarian concerns**. A great deal of care is required when designing humanitarian support to ensure that utility customers who are able to pay will not be given free water if they already have access to a safe supply from the local utility. Buying water from the utility and then giving it away for free, instead of developing independent sources such as trucking in water from elsewhere or drilling boreholes, will continue to pump revenue into the utility in the short term. But in the longer term the provision of free water to those who could afford to pay will erode the utility's reliable customer base.
- **Donor planning should seek to understand the value of relationships of trust between utilities and customers** and the effects of donor intervention in these sectors where service delivery is substituted by unaccountable international organisations.
- **Stabilisation of *existing* utilities and service providers during conflict is at least as important as filling gaps in service delivery with humanitarian aid.** In some circumstances, humanitarian organisations can accomplish both at once, using utilities and existing distribution networks as tools for humanitarian effect.
- **Wars result in the substantial movement of people, generally from the countryside into cities**. Knowing this trend in advance, donors, utilities and governments should anticipate large capacity increases being required in the conflict and post-conflict stages at all urban utilities and take action to predict and mitigate the associated harms.
- **Building resilient infrastructure in chronically fragile states involves design considerations which take the risks associated with conflict into account.** In Ibb, the ability of the liquid waste treatment plant to receive considerably more than its design levels of waste and continue to function, albeit at degraded efficiency, was better than uncontrolled dispersal of waste into the environment across a much wider area. **Crisis planning** also resulted in a good stock of spare parts being kept ready and in the development of the ability to change energy source to generators during a protracted crisis affecting the national grid supply.

On a wider scale, there is an opportunity – indeed, an imperative – in Yemen to start work on rehabilitation and technical support packages and national water policies prior to the end of the war. GIZ has put together and intends to implement a comprehensive plan for technical support and

rehabilitation in Yemen's urban water sector, and intends to begin implementation in spite of the ongoing conflict.[113] It remains to be seen if donors including DFID can build up sufficient momentum to rapidly substitute emergency support with longer term development programming, and if wider sector governance issues can be tackled or even effectively analysed before a political solution is reached.

7.2 *Liberia – donor emergency actions undermined water institutions*

The World Bank Water Services Program (WSP) published a case study[114] in July 2015 examining the history of donor WASH interventions in Liberia following the end of the civil war in 2003, which we have reviewed and included quoted extracts from here.

The report reflects on the missteps made by donors in the immediate post-war period of 2003-2007 which made progress on WASH services (both urban and rural) much harder when emergency support started to wind down in 2006/7 and attention turned to the unsustainable state of the Liberian utilities. Emphasis has been added to the extracts below.

"The choice made early in the post-conflict transition by the international community to directly fund WASH service delivery through non-state actors rather than through the Liberian government **undermined both sector policy dialogue and the formation of robust government institutions** able to lead and orchestrate service delivery by non-state actors.

The lack of a substantive [higher level] policy dialogue – particularly in the 2003 to 2007 period – meant that a fragmented institutional setup emerged across a number of ministries with no clear locus of policy authority. An earlier move to funding WASH service delivery through country systems … would have been a point of leverage to influence institutional reforms and build a nucleus of capacity in the Government of Liberia institutions responsible for WASH on which future capacity building could have capitalized. […]

The focus in the early years was on meeting the short-term needs of people following the war. However, these initiatives did not provide a working service delivery model that could be sustainably scaled up ... **Projects focused on quick impact and did not seek to establish longer-term goals of cost recovery**. Similarly, sanitation interventions focused on building simple pit latrines but did not promote hygiene. As a result, up to a quarter of water points failed within the first year, with barely half still fully functional after five years due to poor management practices and a lack of supply chains for spare-parts (World Bank 2011).

In urban areas, where at least half of Liberia's population is concentrated, the hand-pump driven model of service delivery deployed in the first few years of the post-conflict period has simply been inadequate both in technology and scale … **Yet, even the larger UN agencies and NGOs were unwilling to build the desperately needed piped water and sanitation infrastructure in urban areas and develop the related capacity.** At the same time, the national utility … remained mired in crisis, operating at a fraction of pre-war capacity and unable to absorb its first significant investment project (MWSSRP) which had disbursed barely 50 percent two years after its expected closure date. […]

Attracting at-scale WASH investment to fragile states emerging from crisis requires breaking the dead-lock that the capacity conundrum poses. **The capacity conundrum holds national institutions in their low-capacity post-war state as they are bypassed during the emergency response**. As emergency responders withdraw, however, enfeebled state institutions struggle to replace their implementation capacity, and are often incapable of providing the leadership in planning, monitoring and implementation required for a scale-up of support. […]

Providing intensive technical assistance can resolve the capacity conundrum but is more difficult the later it starts. Starting in 2011, WSP and other development partners supported evidence-based national planning, monitoring and review processes, which played a key role in transitioning the

[113] This plan is not publicly available at time of writing, but was provided to ICED for review.

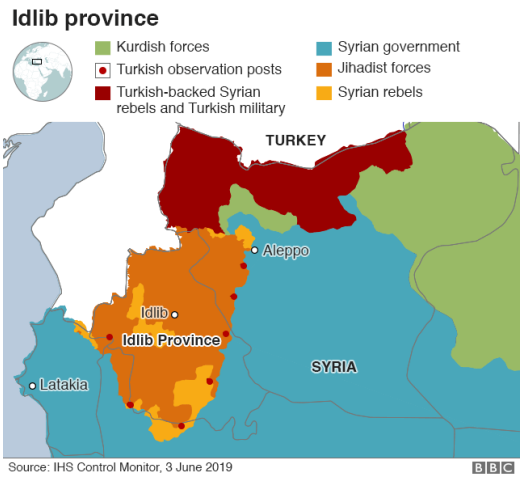
[114] Dominick de Waal and Max Hirn / World Bank: 'The Intricacies of Attracting and Sustaining Investment in WASH in Fragile States: Lessons from Liberia', July 2015. http://hdl.handle.net/10986/24787

sector from one dominated by a humanitarian response approach to one based on longer-term development."

7.3 *Syria: Idlib – attempts to build water utilities during active conflict*

7.3.1 Background and context

The war in Syria has now lasted 8 years at the cost of at least 370,000 lives (1.6% of the pre-war population) and extensive destruction of social and economic assets including the devastation of infrastructure in the most contested areas.[115]



Idlib province has been contested between forces siding with the Syrian regime and various rebel groups including the Western-aligned Free Syrian Army (FSA) and salafist jihadi groups including Hayat Tahrir al-Sham (HTS) which are hostile to Western interests.[116] Idlib City (the provincial capital) fell to a loose alliance of rebel groups in early 2015 and settled into an uneasy arrangement whereby governance was provided by civilian councils and the ideologically more extreme armed groups professed a policy of non-interference in civilian government. In reality, these groups did exert influence over civilian rebel authorities, which varied with time and the issues at stake. The situation destabilised from early 2016 with clashes between 'moderate' and 'extremist'[117] rebel factions. HTS announced the formation of a 'Salvation Government' in November 2017 and began to interfere more directly in governance in Idlib city and elsewhere in the province in 2018, causing escalating issues with aid and development actors operating with US and European funding, which were strictly prohibited by donors from interacting with or doing anything that might benefit extremist groups. The military fortunes of HTS in Idlib surged from January 2019, culminating in a broad capture of the province by HTS and associated forces from moderate rebel groups. An offensive by Syrian regime aligned forces is currently in progress and the future control of the province is unclear.

Throughout the period above, within this complex context, the Irish NGO GOAL has been implementing humanitarian projects in Idlib province with DFID, USAID and other funding. **This short section describes and draws lessons from the urban water supply initiatives that GOAL has implemented in Idlib**. These have involved water supplies in Idlib city as well as three nearby towns – Harim, Salqin and Darkosh – and commenced in late 2013.

The following text includes quoted sections from an earlier, in-depth case study by Boot et al.[118] published in July 2015. Additional information to update the state of knowledge has been drawn from ICED interviews with the GOAL implementing team in early 2019.

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[115] The best available information on war damage is not complete. The World Bank has conducted remote studies based largely on satellite imagery and humanitarian and other actors have some data gathered from the ground level within Syria.

[116] The context here is compiled from multiple news reports and the authors' own familiarity with the history. The conflict is complex and some simplifications have been made to convey a general picture.

[117] These are labels applied from the perspective of Western aligned countries which had been attempting to support the most moderate militant factions and civilian governance bodies. The Syrian regime and allied factions in the war have always referred to all rebel groups as 'terrorists' without publicly recognising ideological distinctions.

[118] Boot, Chen, Cohen, Khayat & Steele: 'Delivering sustainable water supply in fragile and conflict affected states: experiences from Syria', July 2015. From proceedings of 38th WEDC International Conference, Loughborough University.

7.3.2 GOAL water supply projects

According to Boot et al.: "Pre-conflict water management structures in Idlib province were controlled by central government with strategic oversight from the Water Establishment, located in Idlib City. The Water Units were technical organisations, responsible for daily operation. … **The key impact of the conflict on water supply in Idlib province was the interruption of central support and control.** The Water Units rapidly became independent entities without a revenue source or electricity supply necessary to operate, which led to a collapse of supply and a shift to reliance on private tankering operations. … [The disruption to] central control structures interrupted funding and terminated power supply essential for operating the abstraction and booster pumps."

Various humanitarian actors responded to the problem by providing assistance to the Water Units, primarily with generators and fuel to allow the operation of pumps to draw and distribute water through existing pipe networks. GOAL's programming was more ambitious, providing technical and financial support to the Water Units in addition to equipment and fuel. The GOAL programmes also rehabilitated networks suffering from war damage and theft, covering all aspects of the water distribution network other than household connections, which were largely in their pre-conflict state.

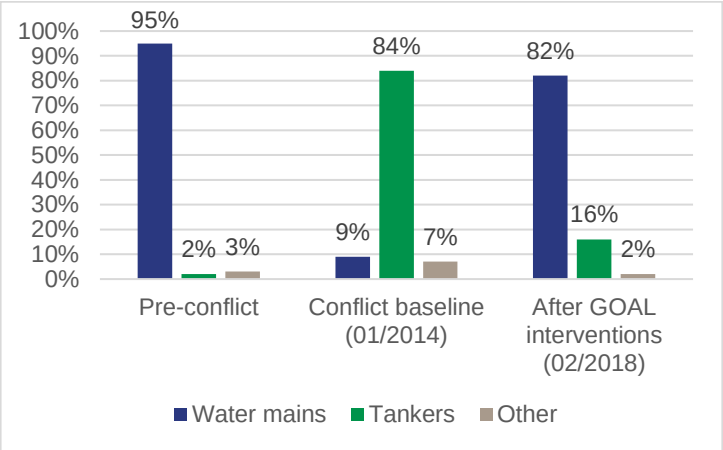

Figure 13: Primary water source indicated by HHs (GOAL data, adjusted)

Figure 13 – adapted from Boot et al – shows the impact the work had. There was a significant shift back to supply from water mains and away from trucked water. The financial impact was not stated, but GOAL noted that prior to the interventions the average cost of water per household in the supported service areas was SYP 5,016 per month, around 34% of household income, and 76% of these households reported outstanding debt. As water from the reactivated water mains was being provided for free at this stage, a significant positive effect on household economic resilience can be assumed.

7.3.3 Cost recovery strategy

While the immediate impact was positive and interventions had a high level of efficiency due to their lower cost compared to substitute water supply options, the programmes "**placed GOAL and external donors in the critical position of being responsible for ongoing support**".[119] Water was provided for free and would keep flowing only as long as GOAL could supply fuel to run the pumps and financial support to the Water Units to pay for salaries and other operating costs. This was not a sustainable situation for GOAL and its donors – particularly as the conflict continued with no end in sight and operational problems with operating in an unsecured war zone were numerous.

Prior to the war, water supply in Idlib was heavily subsidised by central government. Households were charged around $0.05 per cubic metre of piped water. Albeit operating less efficiently, in 2015 water networks in Idlib were costing $0.35 to $0.72 per cubic metre delivered to customers, and these costs fluctuated severely with the price and availability of diesel. Private tanker operations charged $1.5 to $5 per cubic metre.

[119] Boot et al, op. cit.

Encouraged by DFID to investigate more sustainable solutions, GOAL commissioned an international engineering consultancy to put together a plan for establishing a cost recovery system, with the goal of covering at least partly (50%) the O&M costs of the supported water networks.[120]

Some of the difficulties that would need to be tackled included:

- Security and uncertainty in developments in the conflict,
- Legitimisation of Local Councils and Armed Groups;
- Population size and the large scale of a cost-recovery operation;
- Weak economic environment;
- Behaviour change and consumer perception of value of water;
- Non-functioning household meters, illegal connections and identifying and registering consumers;
- Water Units may not have authority to demand fees and enforce punitive measures;
- Irregular and un-equal water supply distribution;
- Accountability for service provision obligations to consumers;
- Remote management and transparency in operation;
- Water Unit staff salaries are maintained at much higher than market rates;
- Cash management risks;
- Longer term planning for period after humanitarian withdrawal;
- Climate change and water resource scarcity.

The cost recovery plan is intended overall to "establish an efficient water supply service that is accountable to its consumers and where the cost for operation and maintenance are sustainable and can be recovered by the Water Service Providers from the consumer population". Importantly, **the plan acknowledges that full recovery of costs is not possible prior to the end of the war**, for many reasons including the fact that while humanitarian support is still needed and many households are struggling to cope with costs, introducing water charges will both absorb money that will need to be substituted through some other mechanism and very likely lead to an increase in health risks as less water is used for sanitation functions by families unable to meet the costs any other way.

The plan has the following main elements, each laid out in step-by-step detail in the full planning documents:

1. Improving the efficiency and management of the water networks:
   - 1.1. Develop an asset management system
   - 1.2. Optimise water supply by enhancing operational management and capital works to improve efficiency
   - 1.3. Develop standard operating plans (SOPs) enabling forecasting of CAPEX and OPEX
2. Developing a financial management system for the cost-recovery system
   - 2.1. Develop a tariff structure based on real operational costs and consumer affordability, differentiated between domestic and commercial consumers and proportional to consumption
   - 2.2. Develop a billing and fee collection management system
   - 2.3. Create a consumer database linking consumption, billing and payment, ensuring fair and equitable fee collection based on ability to pay and maintaining consumer protection
3. Capacity building of Water Unit and GOAL Syria staff
   - 3.1. Train Water Service Provider staff in technical and managerial skills required to operate the optimised water supply networks
   - 3.2. Train Water Service Provider staff in skills required to operate, manage and plan for works associated with the cost-recovery system
   - 3.3. Train GOAL project staff in Turkey and Syria in skills required to support and backstop the Water Service Provider staff

Significantly, the plan cautioned: "It should be noted that the process of achieving cost-recovery for service provision within the Syrian conflict environment is highly complex and relies on a fragile state

[120] Elements of plan listed below are quoted or paraphrased from two reports headed 'Cost Recovery and Water Network Analysis Consultancy': a 'Cost-Recovery Narrative Report' and a 'Cost Recovery Strategy Matrix'. Dated April 2015, provided by GOAL. As ICED was unable to seek views from the consultancy which developed the plan, it has not been identified by name.

of stability. There remains a significant amount of preparation work that needs to be undertaken for GOAL to be in a position to introduce cost-recovery."

7.3.4 Roadblocks in implementation

As of March 2019 there has not been a single user fee collected by Water Units supported by GOAL, following the delivery of the plan in April 2015 to the GOAL team in Turkey (the closure of the border prevented the consulting team from presenting their plans to staff of the Water Units).

GOAL found the cost recovery plan extremely challenging to implement. It was a highly ambitious document which assumed a level of influence, access and capacity much greater than existed in practice. The plan was effectively to create a basic but functionally complete water utility out of the Water Units, substituting for the functions that used to be handled by central government authorities. This seems highly optimistic in the circumstances, particularly as GOAL lacks the expertise to implement a technical capacity building project in urban utility reform. The external and time-limited nature of the support also led to many unanswered questions which the GOAL team needed to solve. For example, the plan mentioned that the activities would be likely to attract the attention of armed groups, but did not provide advice on how to resolve this problem. It also noted problems with the requirement for cash handling procedures in an unpoliced environment where unaccountable armed groups are in control. Reviewing these and other difficulties which were listed unsolved in the plan, it is clear that it would have been unrealistic to expect them to be solved in a single prior planning step and the plan will require substantial creativity and flexibility in implementation.[121]

In the first months of implementation in 2015-16, rapid conflict developments led to stop-start engagement with the Water Units and limited progress. In April 2016, GOAL's Syria funding was mostly frozen by donors after USAID discovered irregularities in GOAL's procurement practices in Turkey relating to Syria programmes. Although the irregularities did not involve the Idlib programming, all funding was affected, including the DFID funding for the cost recovery programme. Only essential funding for ongoing operation of the water supply was permitted to continue. The freeze lasted until the end of 2017.

At around that time, HTS (a formerly Al Qaeda linked extremist group; see above context section) began to exert more influence over governance in Idlib. The 'Salvation Government' announced by HTS in late 2017 had a 'water ministry' and ambitions to control water management across its areas of influence. GOAL restarted the cost recovery preparations in late 2018, preparing to conduct surveys to build a customer database for revenue collection. First contact with HTS on these issues was a demand to be included in the data collection exercise, which GOAL initially fended off with the support of the partner Local Councils and WUs. However, ultimately HTS declared that they planned to take a copy of the customer database once it was built, to support their revenue raising activities, and DFID and GOAL halted the work in early 2019 pending an improvement in the conflict situation.

So although some progress has been made on the preparatory stages of cost recovery, 2018 and 2019 have been characterised by a steadily worsening security and political climate. There is currently a broad offensive being mounted by Syrian regime forces with the apparent intention of retaking the province and progress on the cost recovery work remains highly uncertain.

7.3.5 Lessons

There are some practical lessons from the experience of working in water supply in Idlib. These are around the difficulties of developing a sustainable approach to water supply when significant parts of the pre-war management system are missing and consumer behaviour has been shaped by many years of heavy subsidies, as well as the necessary infrastructure to improve measurement and management not existing.

However, difficulties are not the whole story. **It is clear that as an emergency intervention the water supply work has been highly successful and far more efficient than any of the alternatives**. This has depended on the reasonably good condition of the infrastructure prior to the war and the low amount of war damage to the network. Idlib's proximity to the Turkish border for supply of fuel and spare parts has also been essential. This factor has been due to good fortune in this case, but in other forms of conflict and post-conflict environments it is potentially manipulable by the prioritisation of key import routes by military forces. It is not a factor that humanitarian and development actors can reasonably

[121] Views from discussions between GOAL and the research team, including review of the cost recovery plan documents.

manipulate without compromising themselves (e.g. by striking protection deals in exchange for fund transfers to militant groups).

There is a purpose to supporting water supply through the Water Units (and – by extension – their institutional equivalents in other active conflicts) above and beyond the economic case. This is that working through existing water management bodies, giving them the resources required to continue to work on technical solutions will retain expertise in these agencies and keep the water supply networks in a better condition, prepared for whatever future management structures are put in place after the conflict ends. This presumed outcome has not yet taken place and evidence will not be available until after a transition to peace in Syria. The test of this will depend on whether donors are able to continue to provide open-ended support until this time.

It is as yet unclear whether the attempts to pursue revenue generation capabilities will generate any sustainable improvements in the viability of water supply in Idlib. It is highly unlikely that donors will have an 'exit strategy' in the foreseeable future, allowing them to withdraw funding without negative impact on the supply of water to consumers in Idlib. The goal of collecting revenue to cover O&M and investment costs is not impossible in theory, but the circumstances in Idlib have not been conducive to making progress on such a plan. Security problems, the freezing of project activities due to irregularities elsewhere in Syria and cessations in activity that have been necessary to resist the influence of and legitimisation of hostile militant groups have delayed implementation of cost recovery plans, and such interruptions may continue indefinitely until there is a major shift in the conflict and political situation.

There are significant differences between the situation in Syria and that in other countries in a state of civil war. The main contextual factors that exist in Syria that may differ in other conflicts are:

- There was a very well developed urban water supply system, with the large majority of households served by piped water prior to the conflict.
- Centralised billing and management prior to the conflict has resulted in a major gap in the management framework in parts of the country not under government control, with the effect of cutting off all operating budget to the infrastructure management units.
- Heavy subsidies on water prior to the war have affected consumer behaviour and expectations around what is a reasonable fee level for a water supply.

These do not imply that experiences in Syria are irrelevant elsewhere, rather that understanding the implications of the above contextual factors will assist in diagnosing other situations and designing better programmes.

Finally, there has been very little consideration in Idlib province of the sustainable management of the basic water resource. As with many other concerns, the war has pushed it to one side for consideration some other time. It is observed by GOAL and others that water is drawn from aquifers which are likely to be non-renewable. It is unclear what effect the war has had on the exploitation of non-renewable groundwater. The GOAL projects utilise existing boreholes and – due to the reliance on generators and fuel scarcity – pump considerably less water than before the conflict when grid electricity was available. Worryingly, however, the war has seen an acceleration in drilling of private boreholes in the absence of regulatory oversight by people and organisations trying to safeguard their supply. As no groundwater monitoring is done, it is impossible to say what impact the war is having on the longer-term sustainability of water resources in this part of Syria. If there is an impact, it seems likely that private drilling will be the larger factor, but NGOs have also drilled new boreholes, for example to supply IDP camps.

8 Annexes

8.1 *World Bank (2017) outcome framework for post-emergency transition*

Table 5.2 from pages 23-24 in *Water Supply: the transition from emergency to Development Support Evidence from Country Case Studies in Africa*, de Waal et al. / World Bank, 2017.

Legend:	No WSP intervention	No progress	Slight progress	Moderate progress	Good progress	Substantial progress

Intermediate Outcomes	1. Reestablish country leadership in sector coordination and policy development	2. Institutionalize rigorous sector monitoring and joint sector review processes	3. Restore cost recovery in urban utilities, small-towns, and large rural piped water schemes	4. Establish an inclusive sector investment plan (SIP) and process that mobilizes infrastructure investment	5. Increase domestic investment in the sector	6. Increase use of country systems by development partners
DRC	Water law ratified and promulgated by the President in early 2016	Survey and evaluation of autonomous piped water schemes initiated dialogue on management and regulation	REGIDESO is testing delegated management of standposts but no conclusive results on impact on cost recovery	Investment plan for autonomous piped water schemes developed but not for sector as a whole	Funding to WASH has not been prioritized by the government	No sector budget support mechanism. WB investment managed by PIU led by Secretary General for REGIDESO
Liberia	WASH Compact signed by the President in 2011, established and a series of guiding documents and events	A regular JSR process supported by an SPR in place led by NWSHPC	Updating of the billing system and customer databases helped increase revenue collection at LWSC	Detailed SIP exists for 2012–17 mobilized (circa US$30 million as of 2016) with greater attention since the EVD epidemic	Raised level of domestic funding thwarted in FY14 by lack of absorption capacity of ministry responsible for rural water supply	WB investment ($10 million) in Monrovia's urban water supply will be managed by PIU embedded in LWSC
Nigeria (Rivers State)	Dynamic Commissioner responsible for water in Rivers State drove reform agenda (2011–2015)	Water quality monitoring institutionalized at PHWC	Assessment of systems led to installation of basic accounting and billing system	Urban water supply investment attracted for Port Harcourt from AfDB ($170 million) and WB ($80 million)	Domestic investment as counterpart funds to WB and AfDB investment	AfDB and WB investment for PHWC to be managed by external PIU
ROC	GoC has initiated sectorwide dialogue on a new policy	Water point mapping initiated policy dialogue but monitoring not institutionalized and no JSRs	No progress on delegated management of standposts in urban areas	No SIP established	GoC has reduced investment in the sector due to lower than expected oil revenues in 2015	GoC financing 80% of WB project managed through a PIU in the Ministry of Equipment and Public Works

Continued…

Intermediate Outcomes	1. Reestablish country leadership in sector coordination and policy development	2. Institutionalize rigorous sector monitoring and joint sector review processes	3. Restore cost recovery in urban utilities, small-towns, and large rural piped water schemes	4. Establish an inclusive sector investment plan (SIP) and process that mobilizes infrastructure investment	5. Increase domestic investment in the sector	6. Increase use of country systems by development partners
Sierra Leone	A sector policy was approved in 2010 but provides weak guidance on cost recovery or tariff setting and review	Ministry of Water created civil service posts for sector monitoring but did not retain staff recruited	Replacing billing system and updating customer databases has increased billing and stabilized utility revenues	No SIP has been developed	No increase in GoSL investment in WASH infrastructure	WB Decentralized Service Delivery Program used country systems but link with sector institutions not made
Somalia	Where it exists, sector leadership from regional state level but implementation by non-state actors very fragmented	Multiple data sources integrated into *wadi* evaluation tool used by regional governments to guide investment	Strengthened corporate governance improved cost recovery at HWA	No SIP but analysis of potential scope for, and impacts of, rural water supply used to design WB-financed project	HWA reinvesting surplus utility revenues in strategic improvements to its infrastructure such as additional pumps	WB investment using embedded PIUs led by civil servants complemented by WB support to MoF for PFM systems strengthening
South Sudan	Leadership from ministry responsible for water has not translated into country-led program as external response fragmented	JSRs with representation from states in 2011/12 have not been repeated due both to capacity and security issues	Main utility SSUWC agreed on a corporate plan which enshrined a commitment to cost recovery but restoring only a low level achieved	Juba sanitation SIP included investment planning processes but neither have mobilized infrastructure investment	Significant drop in GoSS investment due to dispute over revenue sharing from oil pipeline followed by escalation in conflict since 2014	A decrease in donor appetite for use of country systems compounded with sanctions against GoSS by some donors
Zimbabwe	GoZ led dialogue and approved National Water Policy (2013). Coordination strengthened	Service-level benchmarking (SLB) process in place for 32 urban municipalities with peer to peer review process and JSRs	SLB process has led to gains in efficiency across some of the 32 municipalities	SIP established and detailed small town investment planning led to $20 million ZIMREF investment administered by the WB	Some municipalities using water revenues for system improvements	WB investments in Beitbridge ($2.6 million) and ZINWA ($20 million) use(d) embedded PIU led by civil servants or utility staff