



Supporting Infrastructure Development in Fragile and Conflict-Affected States: Learning from Experience

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August 2012



Oxford Policy Management



Mott MacDonald

Preface and Acknowledgements

This study was carried out by the ENGAGE consortium for DFID by a team drawn from Oxford Policy Management (OPM), Mott MacDonald, IT Transport and Practical Action Consulting in accordance with the framework agreement for engineering services (2007-2012). The Team Leader was Stephen Jones of OPM, and the project was managed on behalf of the ENGAGE consortium by Simon Howarth (Senior Infrastructure Specialist) of Mott MacDonald. The study was commissioned and managed by Leonard Tedd, Infrastructure Adviser, Policy and Research Division, DFID.

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Alastair McKechnie and PB Anand provided valuable insights and additional information for the study.

Thanks are due to the many DFID staff and others who have provided information and access to information particularly for the case studies, and detailed comments on earlier drafts.

Executive Summary

This study examines the available evidence on the experience of international support to improving infrastructure in fragile and conflict-affected contexts. It draws on a literature review and case studies (focusing on DFID supported infrastructure programmes in Afghanistan, Democratic Republic of Congo, Nepal and South Sudan). The study identifies the main causal relationships by which infrastructure programmes may contribute to economic growth, poverty reduction and improved access to services, as well as their relationship to processes of stabilisation, peace-building and state-building. Although the evidence base is in many areas weak, some clear conclusions emerge about the strengths and weaknesses of past engagement, and lessons for the design and implementation of more effective infrastructure programmes.

Infrastructure priorities and sectoral issues

Infrastructure needs in FCAS reflect in an intensified form the problems of underinvestment, lack of maintenance and weak institutional and policy framework that apply across most low income countries.

Economic returns to infrastructure investment in post-conflict environments are likely to be very high, and power and transport infrastructure are likely to present the highest immediate economic returns.

There is little evidence relating to the priorities for infrastructure with regard to location. One aspect of this is the relative priority of urban versus rural infrastructure. There are reasons to think that priorities will differ, though this will depend on the nature of conflict and its causes.

There are generally short-term options for improving access to power to which the private sector can respond, but restoring or establishing large scale networked electricity systems poses formidable problems that require careful long-term planning and institution building.

Road and other transport infrastructure construction and maintenance can provide significant short-term employment opportunities as well as boosting economic opportunities, but sustainability requires institutional strengthening. This is equally true for water infrastructure for agricultural development.

Private investment in mobile telecommunications has taken place successfully even in very challenging and conflict-affected environments, but the establishment of a basic legal and policy framework is still required.

Water and sanitation investment can provide important benefits in improved child health and saving in women's time (as well as providing employment opportunities) though it has little short-term impact on economic growth. Sustainable impact (through small-scale and local initiatives) requires appropriate funding mechanisms and effective community engagement.

Extractive industries are a focus of foreign investment interest even during violent conflict and provide potentially high economic returns – there may be opportunities to use infrastructure driven by the needs of extractive industries to serve broader development purposes.

Social infrastructure (schools and health facilities) is relatively easy to construct in fragile contexts, as is security-sector infrastructure, but the impact is highly dependent on adequate services provided in the new facility, for which institutional strengthening as well as access to the facilities are pre-requisites.

Infrastructure programme design and implementation

The intervention logic of many infrastructure programmes is not clearly articulated or is based on untested assumptions. Conflict and political economy analysis has not always been widely or systematically applied and in fragile and conflict-affected environments. While more attention is now being paid to both these issues, there is as yet little evidence available to establish whether this has improved performance.

An extremely weak institutional environment creates difficulties for the management of procurement processes using the normal procedures of international development agencies and this has contributed to delays in implementation because of fiduciary risk aversion. In some cases, however, by-passing normal procurement processes and management processes has fuelled corruption which may itself have been a driver of conflict and undermined peace-building and state-building efforts. Equally, bypassing government systems in order to reduce the risk of corruption can lead to a lack of local ownership and hence affect the sustainability and future maintenance arrangements. There are examples which may point to ways to more appropriate procedures for development agencies operating in fragile and conflict-affected situations.

Weaknesses in donor coordination and inflexible donor procedures can also constrain implementation and undermine coherence and government leadership, while donor coordination arrangements such as Multi Donor Trust Funds (MDTF) have sometimes proved slow.

There is little evidence on whether the needs of women and other vulnerable groups have been effectively considered and met in infrastructure programmes. The main consideration of these needs appears to have been in relation to employment opportunities. The specific interests of minority groups and women are most easily addressed in community-driven development, rather than in large-scale infrastructure.

Infrastructure and institutional and capacity development

Building institutional capacity in state institutions requires a long-term strategic perspective and there may be difficult choices to be made about how far it is worth supporting short-term investments that are carried out in ways that do not build (and may weaken) capacity given the need for institutional capacity if sustainable impact is to be achieved.

In the case study examples, there appears to have been little progress so far in sustainable capacity development in the public sector, and there has been perceived to be a tension between the approaches necessary to implement programmes of investment and rehabilitation, which have tended to by-pass government systems and processes, and the longer-term capacity development processes necessary for sustainability.

The private sector has a critical role to play as contractors for infrastructure creation and maintenance and the capacity of the local private sector will in part determine the employment and local economic impact of investment expenditures. However, this capacity is generally very weak or non-existent particularly in engineering consultancy and construction, especially in post-conflict environments. Appropriate supervision, management and capacity building arrangements are required for the local private sector to play an effective role. There is however little evidence on how best to support its development.

While the evidence base is weak, private participation in infrastructure (as an investor) on a significant scale (outside investments associated with extractive industries) is highly unlikely until effective stabilisation has been achieved and is dependent on appropriate risk management

approaches being available. Large scale private investments in networked utilities have generally happened only after years of stability and institutional development.

Technical assistance to help establish the basic elements of an adequate legal and regulatory framework) can encourage private investment in infrastructure once effective stabilisation has been achieved, particularly for the telecommunications sector.

Encouraging private investment requires finding ways of managing and sharing risk, including new instruments for development finance institutions, as well as management contracts and the provision of guaranteed markets.

Infrastructure and stabilisation and peace-building

There is little evidence to suggest that infrastructure investment necessarily plays a significant role in the process of stabilisation. If weak governance and insecurity are the main drivers of conflict, infrastructure investment may be of little relevance unless it is part of a stabilisation strategy to focus on the correct underlying causes.

“Quick Impact Projects” as implemented in Iraq and Afghanistan have a questionable record of achievement. The implementation of infrastructure projects during violent conflict and in the absence of effective stabilisation leading to conditions of continuing endemic insecurity (and contested government authority) is extremely difficult and the approaches necessary to carry out implementation (for instance through construction undertaken by the military) may undermine the scope for local ownership through community consultation and participation.

The case studies suggest that effective coordination of stabilisation and infrastructure programmes can be difficult to achieve, theories of change linking infrastructure and stabilisation were poorly grounded conceptually and empirically, and that failure to achieve stabilisation limited the extent to which infrastructure programmes can be implemented or a wider positive economic impact can be achieved.

It is possible for poorly designed or implemented infrastructure programmes to “do harm” in a fragile context in several ways including through encouraging corruption or raising expectations that are subsequently disappointed.

It is often considered axiomatic that job creation stabilises countries affected by insurgency. However, there is little evidence that this is necessarily the case and that it is necessary to understand the causes of conflict in designing such interventions.

The strongest positive evidence about effective stabilisation relates to the critical importance of community involvement, with local infrastructure implemented through local community structures having a generally good record in development, stabilisation and peace-building, though the Community-Driven Development (CDD) model underlying many of these initiatives is not unchallenged since existing local organisations may not be representative and may reinforce the inequalities that projects aim to tackle. CDD can be difficult to implement even in stable environments, and the constraints to effective consultation and participation during conflict mean that great care and attention to detail is essential.

Implications for infrastructure programmes and donor engagement

The findings of the review of evidence suggest several ways in which the design and implementation of infrastructure programmes in fragile and conflict-affected situations, and the quality of donor engagement could be strengthened:

- The weakness of the evidence base on key causal relationships needs to be addressed.
- Infrastructure programmes need a clearly articulated theory of change that can be adapted over time, the need for contextual analysis, and for programmes to be explicit about the way in which they are intended to contribute to tackling conflict and fragility, whether as primary or secondary objectives.
- This approach needs to be rooted in analysis of the political economy, the risks and potential causes of conflict and their implications for infrastructure programmes, and the relationship between these programmes and stabilisation and peace-building efforts.
- A clear strategic framework for intervention is required which recognises that different forms of programme and engagement may be required at different stages, particularly in the process of stabilisation and emergence from conflict, but that the long-term objectives of building capacity and ensuring sustainable and effective infrastructure provision are not compromised by short-term measures.
- To support this strategic perspective, long-term commitment is needed.
- A sustained focus on capacity development and institution-building is required, covering both the public and private sectors.
- Community engagement is of central importance for successful programmes, and this should be fully recognised in programme design and implementation.

Issues for further research

Three main aspects of an agenda for further research can be identified:

- First there is a general requirement for further primary research and evaluation (including impact evaluation) on experience with infrastructure programmes in fragile and post-conflict environments.
- Second, there are a number of issues where there is scope for systematic literature reviews including the following:
 - Sectoral reviews on (a) the most effective role for donor support and (b) the potential and conditions for the private sector both as an investor and for other forms of engagement such as management contracting.
 - Lessons from support to strengthening and using local contracting.
 - Experience with community-driven approaches, and in particular how the role of external support to such initiatives should vary from other contexts.
 - Experience with the use of political economy and conflict analysis, focused in particular on identifying whether and how this can in practice be used to improve the effectiveness of external engagement.
- Third, wider sharing of lessons and experience between international development agencies, particularly in relation to how procurement and management processes can most effectively be adapted to fragile and conflicted-affected situations.

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Abbreviations

AfDB	African Development Bank
AICD	Africa Infrastructure Country Diagnostic
AsDB	Asian Development Bank
BSF	Basic Services Fund (South Sudan)
CAP	Country Assistance Plan
CDD	Community Driven Development
CMV	Project-trained Community Workers
CPA	Comprehensive Peace Agreement
DABS	Da Afghanistan Breshna Sherkat (Afghan Utility Authority)
DAC	Development Assistance Committee
DFI	Development Finance Institution
DFID	Department for International Development
DRC	Democratic Republic of Congo
DVDA	Rural Roads Agency (DRC)
EAIF	Emerging Africa Infrastructure Fund
EPIs	Enhancing and Protecting Interventions
FATA	Federally Administered Tribal Area
FCAS	Fragile and Conflict Affected States
FMO	Entrepreneurial Development Bank (Netherlands)
FONER	National Road Maintenance Fund (DRC)
GDP	Gross Domestic Product
GESIP	Gereshk Electricity Services Improvement Project
GoIRA	Government of the Islamic Republic of Afghanistan
GoSS	Government of South Sudan
GSDRC	Governance and Social Development Resource Centre

GTZ	German Technical Cooperation Agency
HMEP	Helmand Monitoring and Evaluation Programme
I4S	UN Security and Stabilization Support Strategy (DRC)
ICT	Information and Communications Technology
IFI	International Financing Institution
ISAF	International Security Assistance Force
KfW	German Development Bank
MDTF	Multi Donor Trust Fund
MONUSCO	UN Stabilization Mission in DRC
MoU	Memorandum of Understanding
NATO	North Atlantic Treaty Organization
NEA	Nepal Electricity Authority
NGO	Non-Government Organisation
NSP	National Solidarity Programme
ODI	Overseas Development Institute
OdR	Office des Routes (DRC)
OECD	Organisation for Economic Cooperation and Development
PHCN	Power Holding Company of Nigeria
PIDG	Private Infrastructure Development Group
PIU	Project Implementation Unit
PPA	Power Purchase Agreement
PPIAF	Public-Private Infrastructure Advisory Facility
PRT	Provincial Reconstruction Team
QIP	Quick Impact Project
RAP	Rural Access Programme (Nepal)
RBG	Road Building Group
REGIDESO	DRC Water Utility (Régie de distribution d'eau)

RWSSI	Rural Water Supply and Sanitation Initiative
SDC	Swiss Agency for Development and Cooperation
SED	Social and Economic Development
SIGAR	Special Inspector General for Afghanistan Reconstruction
SIP	Sector Investment Programme
STRE	Specialist Team Royal Engineers
SWAp	Sector Wide Approach
TFH	Task Force Helmand
TFL	Task Force Leatherneck
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
USMC	United States Marine Corps
WASH	Water, Sanitation and Hygiene
WATSAN	Water and Sanitation
WDR	World Development Report
WFP	World Food Programme

1 Introduction

The most intractable international problems of poverty are increasingly concentrated in fragile and conflict affected states (FCAS) which are characterised by persistently weak institutions and endemic cycles of violence. There is an abundance of evidence (see e.g. McLoughlin, 2011, pp. 7-8) that the economic and social costs caused by long-running institutional weakness and endemic conflict, both directly on the country suffering from these problems and the spillover effects on its neighbours, are extremely high. Supporting such countries to end conflict and to emerge from fragility has been a primary objective of international intervention, whether through aid or other forms of support and involvement. International concern with the problems of fragile states is reflected in the increasing proportion of DFID's aid that is being allocated to such states, in a range of initiatives focused on how the international community can engage effectively in such contexts, and attempts to identify lessons from experience with this engagement such as in the 2011 World Development Report.

International evidence has shown that economic and social infrastructure is of central importance both to the generation of growth, and to enabling the benefits of economic growth to be spread, geographically and socially. Infrastructure is central to the process of development, through providing conditions for encouraging economic growth, boosting employment (both directly and indirectly), and facilitating access to services. For Sub-Saharan Africa, for example, Calderon and Serven (2010) show that infrastructure development—as measured by an increased volume of infrastructure stocks and an improved quality of infrastructure services—has a positive impact on long-run growth and a negative impact on income inequality (i.e. improved infrastructure is associated with reduced inequality).

The economics of infrastructure development poses challenges because of the need to mobilise large amounts of capital, the high sunk costs of long-lived assets that create incentive and financing problems for private investment and for governments to recover costs, the existence of network externalities, natural monopoly, and the need to establish regulatory structures that encourage efficiency and ensure access for the poor and disadvantaged. Benitez, Estache and Soreide (2010) have highlighted the pervasive nature of both market failure and governance failure in relation to infrastructure. Weak regulatory capacity and low financial returns have contributed to the low levels of private investment in developing country infrastructure (beyond a heavy concentration in a small number of countries, mainly in East Asia and Latin America) since the late 1990s.

Despite their high cost, the value of infrastructure services to users tends to be much higher, especially electricity which extends the day and makes modern life and enterprise possible, telecommunications which reduce the costs of information flow, and piped water which extends the productive time of women and children and improves health. Such high ratios of value to cost in a political system characterized by patron-client relationships provide incentives to politicians to allocate infrastructure services to their clients, and subsidize prices of utility services. Large financial flows in construction and operation attract rent-seeking and corruption. Public utilities, such as electricity and water suppliers, often rank little better than the police and judiciary in surveys of corruption perceptions in low income countries. Utilities can generate large amounts of money for illicit and semi-licit activities, including financing of elections.

Fragility therefore tends to exacerbate what may already be formidable obstacles to increasing infrastructure investment and improving efficiency and wider access in infrastructure service provision, including in the following ways:

- Conflict leads to the physical destruction of infrastructure assets either as a deliberate military strategy or because of the difficulties of continuing maintenance.
- Ongoing conflict also creates security problems for contractors, which together with a lack of local human and institutional capital (for instance a weak local private sector to undertake construction activities) raises costs and the difficulties of implementation.
- The environment for private sector investment (particularly large scale investments that involve substantial sunk costs) becomes prohibitively risky because of the weakness of the rule of law, limited ability to enforce contracts, and the risk of rent-seeking behaviour once sunk costs have been incurred.
- Weak governance arrangements, political competition to secure the benefits of infrastructure investment for particular client groups, and corruption are likely to undermine the effectiveness and efficiency of public investments and the prospects for sustaining maintenance expenditures.
- For local level infrastructure, the threat of violent conflict or tensions between and within communities can prevent effective collaboration in planning, construction or maintenance of infrastructure.

This study examines the available evidence on the experience of international support to improving infrastructure in fragile and conflict-affected contexts. One dimension of this relates to the particularly challenging nature of these environments and the extent to which achieving successful infrastructure investment may require approaches that are different from those that have been successful elsewhere. A second dimension is that infrastructure may (in addition to facilitating growth and service provision) have a direct role in enabling the causes of fragility and violence to be addressed. This study examines evidence on the critical causal relationships, and on emerging lessons for how international support can best be designed and implemented.

This report is structured as follows. Section 2 discusses the various concepts of fragility that are found in the literature and forms that this can take, and the processes of peace-building and state-building that may be involved in emerging from fragility. It then examines the implications of fragility and conflict for the prospects for improving infrastructure, as well as the potential role that infrastructure may play in peace- and state-building, and discusses the intervention logic for infrastructure development in fragile contexts. Section 3 provides an overview of the evidence base used for the study, including the main features of the case studies. Section 4 presents the evidence and lessons that emerge from the literature review and case studies. Section 5 summarises the overall conclusions of the study, and the implications for action particularly for donors.

2 Fragility and Infrastructure: Concepts and Causes

2.1 Fragility: capacity, accountability, and conflict

The GSDRC topic guide on Fragile States (McLoughlin, 2011) notes that increased international attention to the problems of state fragility reflects several linked concerns, including the need to promote human security and peace-building, the relationship between state effectiveness and development, and the relationship between underdevelopment and insecurity. This diversity of concerns has contributed to some conceptual confusion and contestation of the term “fragility”, particularly in relation to attempts to operationalise the concept empirically.

DFID’s 2006 White Paper defined fragile states as states that are not capable, accountable, or responsive to the needs and rights of citizens, while WDR 2011 defines fragility as

“Periods when states or institutions lack the capacity, accountability, or legitimacy to mediate relations between citizen groups and between citizens and the state, making them vulnerable to violence” (WDR 2011)

Besley and Persson (2010) identify fragility as a susceptibility to the two pathologies of “*state ineffectiveness* in enforcing contracts, protecting property, providing public goods and raising revenues, and *political violence* either in the form of repression or civil conflict.” The weakness of the state leaves it vulnerable to “challenges from rival institutional systems” (Putzel, 2006) including through informal systems of patronage as well as the threat of violence.

The concept of state fragility therefore relates to the interaction between the political and other processes by which competition between differing interests are resolved, and the wider formal and informal institutional framework within which this interaction takes place and which is influenced by the way this resolution occurs (Anten, Briscoe and Mezzera, 2012). Differences in interests may be structured by ethnic identity, geographical, class, religious or other ideological or economic divides and may be reflected in competition through political parties, tribal groups or patronage networks (for instance those controlled by local political leaders or warlords). This resolution may take place peacefully through formal or informal bargaining and political processes (depending in part on the perceived legitimacy of these processes), or it may involve violence.

“Fragility” therefore describes situations where the interaction between institutions and the process of resolving interest conflicts lead to persistent dysfunctional outcomes either in terms of violence (or its continued threat) or a failure of institutions effectively to perform their functions in relation to supplying public goods, the rule of law, or security. For example, some African states such as Zambia (OPM, 2008) have successfully over many decades avoided widespread violence through developing mechanisms for the sharing of revenues from mineral resources (and from international aid). However this has been at the cost of a failure to develop institutional arrangements that have been able to support sustained or widespread economic growth or diversification. Other countries, such as Somalia, have in contrast seen the complete collapse of state institutions and continuing and endemic violence.

The need for forms of external engagement in fragile and conflict affected situations that differ from what is appropriate in less fragile contexts has been recognised in a series of studies and initiatives, including the Principles for Good International Engagement in Fragile States and Situations developed by OECD-DAC in 2007 and endorsed by the Busan High Level Forum. DFID’s “Summary Note on Working Effectively in Conflict-Affected and Fragile Situations” and the associated Briefing Papers on each Principle outline the implications of, and possible approaches to implementing, the Principles which involve: (i) analysing conflict and fragility; (ii) doing no harm;

(iii) recognising the links between politics, security and development; (iv) promoting non-discrimination; (v) aligning with local priorities; (vi) developing practical coordination mechanisms; and (vii) Acting fast but staying engaged over the long-term.

The Principles imply substantial changes to normal patterns of donor behaviour in developing countries. Most assessments however suggest that progress towards this behaviour change has been difficult to achieve. The Clingendael Study notes (p.3) that “Donors have still to make good on their pledges to achieve greater co-ordination, local ownership and sustainability in their investments in fragile states” although there is a large normative literature on how processes of peace- and state-building should be implemented and supported. The OECD survey of experience in implementing the Principles, OECD (2011), concluded that their application was generally on track in only two of the thirteen countries reviewed (Sierra Leone and Timor-Leste) and was seriously off-track in five (Comoros, Central African Republic, Chad, Haiti and Somalia). In the remainder (Burundi, DR Congo, Guinea-Bissau, Liberia, South Sudan and Togo) some efforts had been made to implement the Principles but this was judged as yet to yield results.

2.2 Emerging from fragility: stabilisation, peace-building and state-building

Three processes can be identified as involved in the sustainable emergence from fragility, and their relative importance will vary between different contexts. Where violent conflict has broken out, a process of *stabilisation* and peace-keeping is required which is likely to involve military force but may also include the provision of positive incentives to end violence. Once stabilisation is achieved (i.e. violence has stopped or has been reduced to a manageable level, a process of *peace-building* can consolidate the ending of violence. The DFID Practice Paper on Building Peaceful States and Societies identifies three inter-related elements of peace-building:

- Supporting inclusive peace processes and agreements,
- Addressing causes and effects of conflict; and
- Building mechanisms to resolve conflict peacefully.

The process of *state-building* involves strengthening state-society relations through the interaction between the nature of the political settlement, the state’s ability to provide essential core functions; and the state’s ability to meet the expectations of the population. State-building involves strengthening state-society relations through the creation of structures and robust institutions that are responsive to citizens, the delivery of core functions in a way that involves consent, the state’s acceptance of the population’s expectations, growing public confidence, and enhanced legitimacy of the state and inclusiveness of politics. While there may be some role that external intervention can play, state-building is essentially a process of institutional development that is structured by history and pre-existing institutions.

State-building at one level involves strengthening the institutional framework and building state capacity (as well as its accountability and legitimacy). This can include addressing constraints on private sector investment so as to seek to encourage private participation in infrastructure, for instance through strengthening contract enforcement or providing instruments to address risk. This could involve contracting out service provision to the private sector, NGOs or UN agencies, with appropriate performance monitoring and incentives. Another would be to improve management, regulation and pricing for publicly provided infrastructure, or to seek to control corruption and rent-

seeking. The institutional arrangements of most importance for infrastructure include the ability to formulate and implement appropriate legal, policy and regulatory measures, contract management, management of donor support, establishing pricing and public finance arrangements to ensure resources are available for maintenance.

While a body of international experience exists on institutional arrangements for delivery of infrastructure services, each country will need to adopt institutions that fit with its historical and administrative traditions, and which it is politically feasible to implement. Institutional requirements differ significantly by type of infrastructure depending on the relative roles of the public and private sectors and the complexity of the technical and networking arrangements required. The challenges appear to be particularly severe for large-scale investments in the power sector, given the need for coordinating generation, transmission and distribution.

The 2011 World Development Report (WDR 2011) focuses on the challenge of breaking repeated cycles of violence in which many countries have become trapped, and which both impose a direct cost on societies in terms of lost life and insecurity and hamper their prospects for successful development. The core argument of WDR 2011 (p.8) is that “to break cycles of insecurity and reduce the risk of their recurrence, national reformers and their international partners need to build the legitimate institutions that can provide a sustained level of citizen security, justice, and jobs – offering a stake in society to groups that may otherwise receive more respect and recognition from engaging in armed violence than in lawful activities, and punishing infractions capably and fairly.”

While the challenge of institutional strengthening is central to development in all contexts, the WDR 2011 highlights four differences between undertaking this process in fragile and violent situations and in more stable environments. These are identified as:

- The need to restore confidence in collective action (to encourage collaboration at both the national and local level between stakeholder groups).
- The priority of transforming the institutions contributing to providing citizen security, justice and jobs.
- The role of regional and international action in containing external stresses.
- The specific type of external support that is required.

In general, a strategy for economic recovery in states emerging from fragility and conflict requires attention to the requirements for achieving economic growth and improving access to services, sensitivity to the risks and causes of violence, and recognition of the constraints on capacity and the features of the political economy context which limit the extent to which complex policy initiatives can be taken forward. De Vries and Specker (2009) distinguish three “tracks” of initiatives central to achieving economic recovery, whose priority will vary between different contexts:

- Track 1 involves promoting emergency employment for high-risk and high-need groups, particularly ex-combatants who may be a threat to peace as well as refugees and internally displaced people and others whose livelihoods have been directly affected by conflict. Infrastructure’s main role in this track is likely to be as a source of employment in its construction.
- Track 2 involves income-generating activities, private sector development and micro-finance for communities. De Vries and Specker note that infrastructure may play a significant role in this track. This may include in particular relatively small-scale forms of

infrastructure that address immediate economic bottlenecks such as bridge and road repairs, rehabilitation of agricultural infrastructure, enhancing electricity generation, and mobile telephony.

- Track 3 is the longer-term process of creating an enabling national environment for growth. The main focus of this track needs to be on institutional development to enable the private sector to undertake investments and for the public sector to provide services and macroeconomic stability.

Within the framework presented in WDR 2011, infrastructure may potentially play four main types of role in contributing to breaking a cycle of conflict through stabilisation and peace-building:

- First, the experience of collaboration over infrastructure planning and implementation (particularly as a non-zero sum game from which all may benefit) may play a role in the process of restoring confidence in collective action and fostering wider cooperation and the development of more peaceful and effective means to accommodate divergent interests. Hence community-based models for local infrastructure development, which build upon traditions for collective decision making at local level, may play a role in peace- and state-building strategies.
- Second, infrastructure investment may contribute to the process of employment creation, both through the labour employed in constructing and maintaining infrastructure assets, and through improving the environment for economic activity generally.
- Third, transport and communications infrastructure may improve internal connectivity, so as to strengthen public perceptions of the nation, and to integrate marginalised regions into mainstream social and economic activity. Such infrastructure can also enable the state to maintain internal stability and to defend its borders.
- Fourth, other infrastructure investment specifically related to the security and justice sectors (courts, police stations and military facilities) may be part of a strategy for human security improvement.

An example of possible causal routes by which infrastructure may contribute to reducing the threat of renewed conflict in Sierra Leone is provided in Table 2.1 below.

Table 2.1 Potential contribution of infrastructure to reducing conflict threats, Sierra Leone

	Infrastructure		
	Improved Power Supply	Improved Communications	Improved Transport Networks
Reduce Threats			
Employment for Youth	Indirect job creation	BPO= direct job creation; indirect job creation from ICT-enabled growth	Promising: construction & transport services
Thwart illicit activity	-	Via ECOWAN VPN & emergency comm. system	Improve access of Security apparatus
Reduce Inequality	If extend national grid	W/ terrestrial backbone	Core Road Network joins interior w/ capital
Tackle Corruption	-	Enables e-government and better transparency	-
Improve Food Security	Agro-processing / refrigeration preserves output; reduces post harvest losses	Transmit better information to enable markets to become more efficient	Feeder roads connect producers to markets

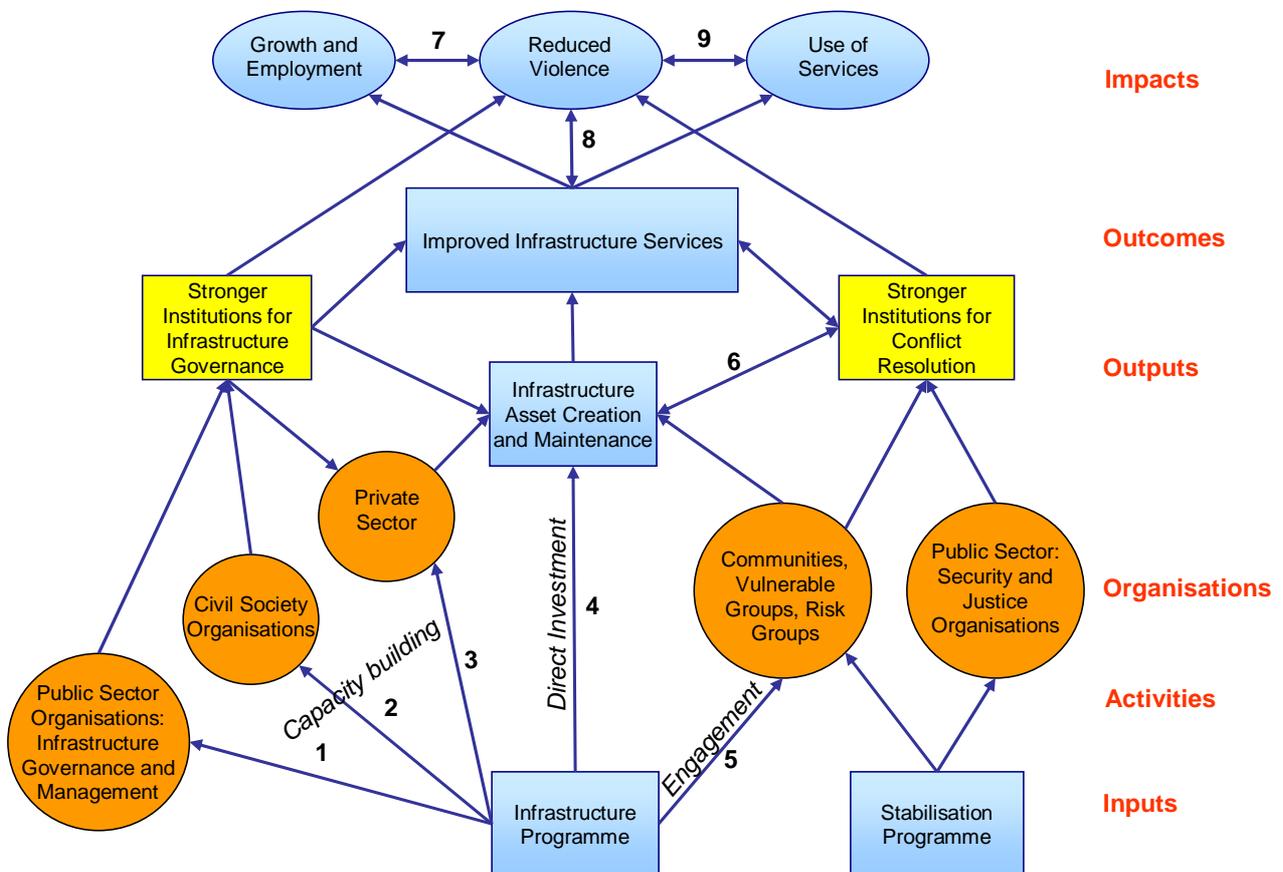
Source: Infrastructure and Growth in Sierra Leone: Summary Report (2011), AfDB.

More generally, infrastructure programmes in fragile contexts can:

- be an engine of economic recovery and improved service provision,
- form part of a process of strengthening institutions, and
- contribute to stabilisation and peace-building.

Figure 2.1 below identifies causal relationships that are of potential significance for understanding how an infrastructure programme might achieve impact in a fragile or conflict-affected context. The diagram highlights three main types of impact that may be objectives of programmes – economic impact in terms of growth and employment, improved access to and use of services (e.g. water and sanitation, health, education, transport and communications), and reduced incidence of violent conflict. The extent to which (a) it is possible in fact to implement investment in improved infrastructure and (b) the extent to which infrastructure assets once created and maintained generate improved services both depend on the institutional environment. Two aspects of the institutional environment are distinguished in the diagram – elements directly related to infrastructure (such as the specific legal and regulatory framework), and those related to more general conflict resolution (including the effectiveness of rule of law and the accountability and legitimacy of justice and security sector processes and organisations). The diagram also highlights the potential linkages between infrastructure and stabilisation programmes. Infrastructure may contribute to stabilisation particularly through its engagement with high risk groups and communities, while a successful stabilisation programme may help create the conditions under which infrastructure investment or capacity building can successfully take place.

Figure 2.1: Causal Relationships for infrastructure programmes in FCAS



Five main types of activity that may form part of an infrastructure programme are highlighted in the diagram:

1. Capacity building activity directed at the public sector (e.g. public infrastructure providers, regulatory agencies, the legislature, audit authority and other public accountability bodies).
2. Capacity building activity directed at civil society organisations.
3. Capacity building activity directed at the private sector (e.g. contractors, infrastructure providers).
4. Direct investment in infrastructure assets.
5. Engagement with communities, vulnerable and risk groups including through consultation processes, employment creation, and impact on expectations, including amplifying the voice of beneficiaries to strengthen influence in accountability processes.

Several other potentially significant causal links are also highlighted in the diagram:

6. The potential impact of the creation of infrastructure assets on conflict resolution processes and institutions (a direct link between infrastructure and stabilisation and peace-building).
7. The indirect effect of improved growth and employment resulting from strengthened infrastructure services on reducing violence (e.g. through increasing employment opportunities for young men).
8. The direct effect of improved infrastructure services on reducing violence (e.g. through improved connectivity reducing transactions costs).
9. The indirect effect of improved public services resulting from strengthened infrastructure services on reducing violence (e.g. through improving state-community relationships).

3 Evidence Base for the Study

3.1 Literature reviewed

The limitations on the time and resources available for the study, as well as the broad range of questions to be addressed meant that it was not possible to undertake a complete Systematic Literature Review (although some recent Systematic Literature Reviews that have previously been carried out for related topics are available and were drawn on). However, a literature search strategy was followed to identify relevant published and unpublished literature from academic databases and the websites of organisations active in research or the implementation of infrastructure programmes. This has been used to compile an Annotated Bibliography. This material has been combined with the findings from the case studies and is presented in Section 4 of this report.

A general finding from the Literature Review was that the available evidence to answer the study questions identified in the terms of reference and from subsequent discussion is in most cases fragmentary and incomplete. This finding echoes that of several earlier Systematic Reviews that have aimed to answer more narrowly defined questions on related topics. While there is a large normative literature on international engagement in fragile contexts, the empirical basis for many of the conclusions drawn in this literature appears to be weak. Much of the available literature (published and unpublished) on experience of infrastructure in fragile and conflict affected states relates to individual case studies (with a particular focus on “success stories”). There is a dearth of rigorous ex post evaluation experience, which may in part be explained by the difficulties of conducting research in these environments, particularly those where conflict has been continuing and in the “emergency” approach to post-conflict reconstruction. There are also few cross-country comparative studies that have focused on infrastructure in contexts of fragility. A further point is that the available literature mainly concentrates either on case studies of particular investment experience or econometric analysis of the economic impact of infrastructure. There is little empirical evidence bearing on the wider “social contract” dimensions of infrastructure investment, or on the possible role of infrastructure in preventing or reducing the risk of conflict – which in part reflects the empirical difficulties of measurement and isolation of this effect.

3.2 Case studies

3.2.1 Case study selection and characteristics

Four full case studies (as shown in Table 3.1) were selected to provide more detailed examples and illustrations than could be obtained from a review of literature alone. Each of the four case studies focused principally on one main infrastructure support initiative or programme (in which DFID has played a prominent role) but also where possible drew on other experience of infrastructure programmes in the same or related sectors. The case study countries were selected to provide a range of contexts that illustrate different dimensions of fragility particularly in relation to the degree of success achieved in stabilisation and the level of state capacity. The selection was also influenced by practical considerations of where it was anticipated that useful information could be obtained (including through the support of local DFID offices) with the timeframe of the study. The case studies involved around one week’s field work by the main case study researcher in each country. In addition to the four full case studies, three mini case studies were carried out based on a review of literature and telephone interviews with selected stakeholders but without a full country visit.

Table 3.2 Case Studies

Country	Main focus projects	Context
Full case studies		
DR Congo: Roads in Eastern DRC (Roads, employment)	Roads in the East; Pro-Routes; Ituri II Bridge	Stabilisation process in Eastern DRC, but continuing security concerns and risk of renewed conflict. Almost complete absence of effective state institutions.
Nepal: Rural Access (Roads, employment)	Rural Access Programme	Peace settlement and stabilisation achieved during implementation of RAP. Weak but functioning state institutions throughout period.
Afghanistan: Infrastructure and Stabilisation in Southern Afghanistan (Roads, Power)	Gereshk Electricity Services Improvement Project; South East Power System; Lashkar Gah to Gereshk road; Helmand Growth Programme: Canals and Irrigation	Ongoing conflict (with the UK involved as a participant) with stabilisation not generally achieved. Some state institutional capacity but with significant weaknesses.
South Sudan: Basic Services (Education, Health, Water infrastructure)	Basic Services Fund	Operating during process of establishment of new nation, emerging from violent conflict, but with continuing high risk of renewed conflict with Sudan and of internal conflict. Complete absence of state institutions.
Mini Case Studies		
Pakistan: Rehabilitation of bridges and schools (destroyed by the 2005 earthquake, Taliban insurgents, and subsequently the 2010 floods)	Pakistan Border Areas Vital Transport and Education Infrastructure; Post-earthquake bridge reconstruction	Significant state capacity but authority contested including through violent conflict, with differing levels of stabilisation achieved in different areas where the programme operated.
Nigeria: Investment in power to supply local industry	Tower Power Abeokuta Ltd	Weakness of institutional environment has limited power sector investment leading to severe underperformance of the power sector
Sierra Leone: Investment in sugarcane, ethanol distilling and power generation	Addax Bioenergy Project	Stable post-conflict environment (violent conflict ended 2001), with weak but strengthening state institutions.

3.2.2 Afghanistan: Infrastructure and Stabilisation

This case study examines the role of infrastructure programmes in the South of Afghanistan, primarily Helmand Province, focusing on power, roads and canals and irrigation. These have been implemented as part of a stabilisation programme in a context of the Taliban insurgency. DFID has been changing focus from Quick Impact Project (QIPs) to a longer term strategic approach to infrastructure for economic growth and peace-building. The programmes are managed almost entirely directly by DFID and foreign partners - including all aspects of planning, design, procurement and implementation (2008-2013). However, there is now a gradual transition to supporting the Afghan Government (GOIRA) to enable 'handover' in 2014. DFID has increasingly focused on public sector capacity building but is still engaged in implementing most works directly. The case study notes that implementation has been affected by several changes of objective and focus reflecting changing political objectives. This has involved a shift from an approach based on emphasising large scale infrastructure to demonstrate political will and commitment in 2008/9 but which encountered implementation problems, to an emphasis on rapid results, leading to a proliferation of small projects in 2010, and then in late 2011 a shift to operation and maintenance and capacity building in line ministries ahead of the planned withdrawal of coalition forces in 2014. Implementation has been negatively affected both by the security situation (with stabilisation not being achieved) and delays due to donor (Asian Development Bank) and GOIRA processes and capacity, as well as instances of poor quality construction, and high rates of staff turnover. While there is some evidence of positive economic impact and of improving levels of public satisfaction with infrastructure provision, there have also been frustrations caused by long delays.

3.2.3 Democratic Republic of Congo: Roads in the East

This case study focuses principally on the two phases of the "Roads in the East" project which involves the reconstruction of transport infrastructure destroyed by conflict and lack of maintenance, to improve access to markets and services, provide employment and support creation of a secure environment. The programme is funded by DFID within the framework of the Government of DRC and the UN mission's stabilisation plan for eastern DRC with implementation managed by the United Nations Office of Project Services (UNOPS), but with little DRC government involvement. The first phase began in mid-2009 and will end in September 2012, when the second phase starts.

In the first phase the project design focused on the objectives of road construction, but the second phase has elaborated a more complex intervention logic, aiming to boost economic activity and improving service provision within the context of a wider Stabilization Priority Plan (which seeks to address weaknesses in the earlier strategic framework for stabilisation). Implementation of the first phase was adversely affected by inadequate security and the failure to achieve stabilisation, faced problems with procurement, and did not fully achieve its social and employment objectives. It also lacked a comprehensive monitoring and evaluation approach. There is however some evidence of a boosting of economic activity as a result of the road construction. The design of the second phase seeks to address the weaknesses of the first phase, though it is recognised there is an inadequate evidence base to test some of the assumptions in the intervention logic. The evidence base will be built through a ten year monitoring and evaluation component. Although supporting activities are believed to be essential to achieve the full benefits of the roads, these have not been included in the project itself and will be addressed by attempting to influence others to undertake appropriate activities in the road catchment.

The project uses local contractors wherever possible. While this approach has encountered some implementation difficulties, it has achieved more rapid implementation than the World Bank co-

funded Pro-Routes programme which supports the government's national priority roads programme. The Pro-Routes programme has suffered from rigid and inappropriate procurement for those roads for which private contractors were engaged, and weak capacity in the road agency for those rehabilitated by the public sector.

3.2.4 Nepal: Rural Access Programme

This case study covers the Rural Access Programme (RAP) whose first phase took place from 2002-2007 (during the Maoist insurgency which ended with the Comprehensive Peace Agreement of November 2006) and whose second phase lasts from 2007 to 2013. RAP aims to provide road access to previously unserved areas in the West and East of Nepal, combined with measures aimed at promoting service delivery and peace-building through employment and community involvement with a strong emphasis on participation by the poor and socially excluded. The programme also seeks to build district level capacity and to strengthen national transport policies. RAP has been implemented in areas where there was little government control during the conflict. Phase I encountered severe implementation difficulties as a result of the conflict and was fundamentally reviewed in 2005. This led to a redesign to include a greater focus on road construction rather than on supporting activities, and direct management of the implementation fund by the technical assistance team (rather than working through government systems as had been done previously). Both phases have created a significant volume of employment, have had community involvement through Road Building Groups and there is evidence of positive economic impact, although the rationalisation of road building plans as part of the restructuring of Phase I has led to disappointed expectations in the affected areas. The change to direct foreign management was unavoidable at the time as local government bodies were in abeyance due to the political crisis, but has subsequently been strongly criticised and risks undermining the sustainability of the investments made in road improvement.

3.2.5 South Sudan: Basic Services

This case study focused on the infrastructure aspects of the Basic Services Fund (BSF) which was created in 2006 and provides grants to NGOs who are responsible for basic service provision, in a post-conflict situation of extreme institutional weakness. The programme includes infrastructure for education, health, sanitation and water supply as well as related service activities. The programme is implemented through non-state actors in an environment where both state structures and physical infrastructure have had to be rebuilt after twenty years of war. The logframe for the BSF programme has been changed several times by DFID. The programme achieved most of the physical targets set for construction by December 2011, and has involved local communities (though with little evidence of community ownership having been established) through NGOs who remain the preferred implementation partner. However sustainability (and the prospects for scaling up) depends on assumptions about future financing and improved public sector capacity whose prospects are problematic. Although intended to provide a "peace dividend" through basic service provision, the design did not include any analysis of conflict in the post-Comprehensive Peace Agreement (CPA) context, including of the risks and implications of local conflicts within South Sudan.

The BSF is one of several funding instruments available to the Government of South Sudan (GOSS) and the donor community for post-conflict South Sudan. The fund operates along the principle that they contract non-state actors (NGOs) to provide the required services. It has a Steering Committee, chaired by GOSS and is supported by a Secretariat (Service Provider) that

provides fund management and monitors and evaluates the services provided by the NGOs. In this case the BSF Secretariat is contracted out to a commercial consulting company. The initial design assumed that the BSF would be a short-term mechanism, with the activities, procedures and decision-making processes rolled into the Multi Donor Trust Fund (MDTF) - South Sudan as the major GOSS vehicle for funding service delivery. However, this has not materialized as the MDTF experienced delays with limited disbursements of the funds available. BSF is implemented through grants to NGOs, who apply for grants through “calls for proposals” of which the BSF has so far issued four (the first in 2005, the second in 2006, the third in 2008 and the fourth in 2010). Problems encountered during implementation have included the difficulties of construction during the rainy season, a lack of locally available construction materials, skilled labour and contractors, and an absence of resources or institutional provision for maintenance of the infrastructure assets constructed.

3.2.6 Pakistan Border Areas Programme

The Pakistan post-earthquake and border areas programmes aimed initially to rehabilitate infrastructure in North West Pakistan that had been destroyed by earthquake or in conflict with Taliban insurgents (who had targeted girls’ schools), but then following the devastating floods of 2010 the programme was expanded to the post-disaster reconstruction of key infrastructure, with the objectives of (i) strengthening confidence in government and (ii) improving resilience to future disaster, in a fragile and conflict-affected environment. The DFID component of a much larger reconstruction effort is a five year programme (2008-2013) implemented by international consultants, with offshore funding. Bridge reconstruction focused on the Swat valley where floods had had the greatest impact and the security situation was strongest, compared to the Federally Administered Tribal Areas (FATA) which were regarded as unsafe for external contractors, where damage to transport infrastructure was less, and where stabilisation was seen as a greater priority. While the programme has found strong local satisfaction with the bridge reconstruction, and a likely positive economic impact, there is as yet little evidence on whether this has helped to strengthen confidence in the government or to contribute to peace-building – in a context of continuing and unresolved political and governance issues at both national and regional level. DFID funds were managed externally which is likely to have reduced corruption opportunities but may have reduced opportunities for strengthening public sector capacity. This risk was reduced by the strong local government contribution to financing and managing construction of bridge abutments (about 30% of the total cost). In addition, the use of district-based contractors working under the supervision of international consultants may have contributed to building private sector capacity.

3.2.7 Nigeria and Sierra Leone: private sector power investments

Two private sector investments in fragile contexts in Africa were selected following a review of initiatives supported by the Private Infrastructure Development Group (PIDG). They were chosen from among the very small number of projects outside the telecommunications sector that had been successfully implemented in fragile or conflict-affected states. Both involved funding from the Emerging Africa Infrastructure Fund (EAIF).

The Tower Power project in Abeokuta in South West Nigeria involves building a 12MW gas-fired combined heat and power plant (using gas that is usually a waste product of oil extraction) to power steel factories. The power plant has a secure market through the factories it is intended to supply (since it can provide a cheaper and more secure service than alternative sources), and a secure source of gas through off-take agreements relating to pipelines transporting gas from

offshore oil fields. While progress in the reform of the power sector in Nigeria has been proceeding at best slowly, this project does not depend on the success of wider institutional reforms (such as would be required for large scale investments in generation aimed at supplying a wider range of customers), but only on the ability to secure appropriate licences and permits, which has been achieved through close consultation with the Government of Nigeria and the Power Holding Company of Nigeria (PHCN), in a context where the project supports government policy of reducing gas flaring.

The Addax Bioenergy Project in Sierra Leone contains three elements: the cultivation of approximately 10,100 ha of sugar cane plantation using overhead irrigation techniques, an ethanol distillery factory to produce 82,000 cubic meters of ethanol per annum, and a 32MW co-generation power plant. Associated investments will also be made in port facilities as it is anticipated that ethanol will be exported to Europe. Approximately 15MW of power is expected to be supplied to the national grid with the remainder being used for the factory and the irrigation of the plantation. Power production is envisaged as being complementary to that supplied by the Bumbuna dam which is Sierra Leone's main source of power but which is seasonally affected by changes in water levels. There has already been successful new investment in the power sector with the completion of the Bumbuna I hydro-power plant in 2011.

4 Overview of Evidence

4.1 Infrastructure priorities and sectoral issues

4.1.1 Infrastructure needs and priorities

Infrastructure needs in FCAS reflect in an intensified form the problems of underinvestment, lack of maintenance and weak institutional and policy framework that apply across most low income countries

The study by Calderon and Serven (2010) notes the high levels of investment (around 15% of GDP) required to close infrastructure gaps between Africa (where fragile and conflict-affected states are most heavily concentrated) and other developing regions, and the current dependence on the domestic public sector for infrastructure financing in Africa. The Africa Infrastructure Diagnostic Study (Foster and Briceño-Garmendia, 2010) found that infrastructure spending had accounted for over half of Africa's growth between 1990 and 2005. This positive effect was almost entirely accounted for by improved telecommunications, while the deterioration of the power sector had had a negative effect on growth over the period. Current infrastructure spending levels (capital and maintenance) were only around half of current needs.¹ The failure to carry through institutional and policy reforms meant that there are substantial unrealised potential efficiency gains (representing more than a third both of current infrastructure spending, and of the gap between current spending and needs), with almost all of these current inefficiencies being concentrated in the power sector.

The provision of telecommunications (particularly mobile telephony) has expanded rapidly even in difficult contexts, while road systems and other forms of transport infrastructure have tended to break down because of a failure of maintenance. Research by the World Bank has shown that the benefits of upgrading primary roads to connect the major urban areas of Africa would expand trade by \$250 billion over 15 years at an investment cost of \$20 billion and annual maintenance costs of \$1 billion (Buys, Deichmann and Wheeler, 2010). The combination of substantial investment and maintenance requirements, technical complexity, and the tendency to under-price electricity thereby failing to ensure adequate revenue flows, has contributed to the particular weaknesses observed in the electricity sector.

The challenges and the constraints are even deeper for fragile states in Africa which have either (such as DRC) seen the destruction of infrastructure as a result of conflict or neglect, or (like South Sudan) have never experienced any significant past infrastructure investment. Foster and Briceño-Garmendia (2010, p.8) estimate that:

“Such countries would, on average, need to devote 37% of their GDPs to infrastructure spending to build a solid infrastructure platform [more than double the African average]. With their difficult environments, they attract relatively little external financing, capturing only 10% of overseas development assistance and 6% of private capital flows allocated to infrastructure. In addition to their huge financing burden, the fragile states do not use their current resource envelope well; they underspend on maintenance and have inefficient service providers.”

¹ Farooki (2012) however queries the process by which priorities are determined for infrastructure in Africa suggesting there is an overemphasis on large scale physical infrastructure compared to institution building.

Economic returns to infrastructure investment in post-conflict environments are likely to be very high, and power and transport infrastructure are likely to present the highest immediate economic returns

The potential economic and social returns to infrastructure in a post-conflict environment are very high. Returns to infrastructure investment are likely to be higher in countries where infrastructure has been damaged - rehabilitation tends to have higher returns than green-field investment. In relation to sectoral infrastructure priorities, Collier (2007) argues that:

“The most evident infrastructure needs are power, ports and roads. Without reliable power the formal sector cannot develop. In Uganda in the early years of recovery survey evidence from firms showed this was the most important impediment on private investment.... Rural roads are critical to the reintegration of the rural economy into the urban market which is a fundamental aspect of post-conflict recovery. In the first phase of recovery the government of Uganda placed a high priority on rural roads. Subsequent evaluation by the World Bank estimated that the rate of return on this investment was an astonishing 40%.”

The WDR 2011 highlights the particular significance of inadequate electricity supply as a constraint on employment creation that may be addressed in the short term through relatively small scale generator investments. Calderón (2009) analyses the potential impacts on per capita GDP of raising the quality of infrastructure in individual African countries. This analysis suggested that the benefits of improved infrastructure tend to be higher in fragile than non-fragile states. Another study of the Republic of Congo shows that improving the level of infrastructure to the level of Mauritius would contribute three percentage points to per capita GDP growth (Pushak and Briceño-Garmendia, 2011). The potential of road rehabilitation investment can be seen from the analysis of 76 roads projects in Liberia (GTZ/GOPA, 2010). A third of these projects had rates of return in excess of 800% and two thirds above 100%. These ex ante economic benefits are probably an underestimate since they consist of the classic savings in road user costs and travel time and exclude indirect benefits such as the impact of better road access on trade and agricultural production.

Electricity generation in post-conflict situations may rely extensively on expensive diesel power generation. In a landlocked country like South Sudan, public power supply may simply be uneconomic compared to firms producing their own power, or unaffordable to households. Yet in such countries investment in hydropower and international power transfers can transform the economics of electricity supply. World Bank investment climate surveys in fragile states consistently point to infrastructure deficiencies and costs, particularly in the power sector, as one of the greatest barriers to productive private investment.

There may be a tension between the objective of rapid progress in the rehabilitation of infrastructure (which may require the use of external contractors and the by-passing of national systems) and the longer-term objective of building institutional capacity both in the management and regulatory role of the public sector, and for local private contractors. However, in some situations (as illustrated for example by successful road rehabilitation in Liberia) it may be possible to overcome these problems where there is a backlog of existing rehabilitation projects that have high returns but that do not require complicated design and feasibility studies and which can be implemented by government through local or regional contractors, or UN agencies under contract. If there is adequate ministerial leadership, it can be strengthened by advisors working for the minister to manage the contracting process and to deal with international partners. Temporary procurement, financial reporting and audit agents can be contracted while government systems are strengthened (McKechnie, 2011, discusses experience from Afghanistan). Meanwhile, permanent institutional arrangements that will take many years to reach a stage of effective functioning can be developed, such as the South Sudan roads authority and associated road fund.

There is little evidence relating to the priorities for infrastructure with regard to location. One aspect of this is the relative priority of urban versus rural infrastructure. There are reasons to think that priorities will differ, though this will depend on the nature of conflict and its causes.

There is little evidence specifically relating to urban infrastructure in fragile contexts, although there is some literature which suggests that focusing on urban areas in post-conflict reconstruction can exacerbate fragility and conflict (Höckel 2007 on Lebanon, Moxham 2008 on Timor Leste), though Dyer (nd) noted that while WDR 2011 argued that rapid urbanisation was associated with weakening social cohesion and increased violence there is little firm evidence to support this assertion, which may be balanced by other considerations such as the improved access to services and economic opportunities that cities can provide because of the greater population concentration in urban areas and the fact that in many cases insurgency is mainly focused in rural areas. Service delivery tends to be cheaper in urban areas and most incremental economic growth, including value addition to agricultural goods, takes place in urban areas. This might argue for a differentiated strategy of providing basic services that improve human wellbeing and raise rural productivity, e.g. clean water, transport connectivity through community based approaches in rural areas, and providing modern services that support growth in urban areas, including provincial towns. However, there is little firm evidence on which to base general conclusions.

4.1.2 Sectoral issues

There are generally short-term options for improving access to power to which the private sector can respond, but restoring or establishing large scale networked electricity systems poses formidable problems that require careful long-term planning and institution building

Access to power at a reasonable cost is generally the major infrastructure constraint on firms (particularly in urban areas) in a post-conflict period. Small-scale solutions are generally more feasible at least in the short-term unless opportunities exist for importing power from neighbouring countries. WDR 2011 noted that in Lebanon despite the civil war in 1975–90, most Lebanese people still benefited from some access to electricity during the war and in the initial stages of recovery - and continued to do so in subsequent periods of instability. This was attributed to a mix of individual and collectively owned electricity generators, run by a few formal and many informal private businesses that became an established part of the utility market. The ability of the private sector to fill the void left by a flawed public service owed much to an open and unregulated economy - and a strong culture of entrepreneurship. A contrast was drawn with the period after the overthrow of Saddam Hussein in Iraq where private sector investment in electricity was weak (owing to continued insecurity and a weaker tradition of private entrepreneurship).

WDR 2011 also cites the example of Liberia where the ability of the state to provide electricity to at least part of the capital, Monrovia, was seen by the government as an important step in demonstrating its credibility as well as to encourage economic recovery. In this case, none of the traditional donors, which included the United Nations, the World Bank, the African Development Bank, the European Union, and USAID, were able to provide the generators needed for this endeavour within the desired timeframe under their regular systems. Eventually Ghana provided two generators which helped restore electricity to some areas. Rehabilitation of the Mt Coffee hydroelectric power station which would substantially increase supply and lower costs is only now being funded, several years after the end of conflict.

Restoring or establishing large scale networked electricity systems poses formidable problems in terms not just of their capital requirements but also of the regulatory systems and management capacity required. The building of the energy infrastructure in a post conflict situation needs to be

thought through very carefully, particularly when there are multiple options and investment mistakes can have a high cost. Planners need to be very careful not to be creating future dependencies that could make fragile states very vulnerable to high energy prices. Once the decision on what to build has been made it is in principle fairly straightforward to contract out design, supervision and construction, but these decisions are often contentious and delayed due to competing interests and political rivalries in fragile situations. Good analysis of options can frame decision-making and simplify the range of options to be analysed, but this tends to be rare in fragile settings.

The private sector power projects in Sierra Leone and Nigeria examined as case studies were both undertaken in a way that substantially reduced the risks to investors – in the first case through operating as an adjunct to an ethanol production project, and in the second through making use of readily available gas and selling direct to industrial customers, rather than to the wider electricity distribution system. This approach helped to make the projects viable for private investment but limited the wider economic and social impact compared to what could have been possible in a stronger institutional environment.

Road and other transport infrastructure construction and maintenance can provide significant short-term employment opportunities as well as boosting economic opportunities, but sustainability requires institutional strengthening

Transport infrastructure provides the other main immediate priority in terms of relieving constraints on economic activity. This will include the repair of ports, bridges and damage to roads and other localised needs that create bottlenecks. In the longer term, the rehabilitation and extension of the road network is the main infrastructure investment by which the benefits of economic growth will be spread geographically (for instance to allow improved access to services and economic opportunities for rural areas). Roads and other transport infrastructure may provide important opportunities for labour intensive public works that can create immediate employment opportunities. However there may be trade-offs between the quality of infrastructure created and the proportion of work that can effectively be undertaken by low skilled labour, while the sustainability of investments in road infrastructure requires the building of institutional capacity particularly to manage and finance road maintenance.

The case study of RAP in Nepal found evidence of a significant local economic impact of improved transport in terms of household income growth, as well as a range of ways in which access to services had improved. Results of the impact assessment of RAP I indicated that the project helped increase average household income between pre and post RAP phases by 218%. The ratio of spending on household consumption versus asset creation was 90:10 in pre RAP, and 65:35 in post RAP phases. There was also a short term impact in the form of lower migration due to access to local employment opportunities. Most Road-Building Group (RBG) members who had previously undertaken seasonal migration to India chose not to migrate as they could earn more and save a higher proportion of their income working on road construction closer to their homes. Other changes identified before and after RAP2 included the following (with these being greatest near to the road but still providing some positive impact on more remote communities):

- Development of local markets including increased availability of improved seeds and fertilizer and increased production of vegetables for sale, and lower prices for household commodities as well as agricultural inputs.

² The lack of a randomised control test however means that it is unclear what proportion of these changes can be attributed to RAP rather than to other causes.

- Increase in health service utilisation, increase in full immunisation status of target groups, reductions in illiteracy and increased primary and secondary enrolment rates.
- Significant improvements in participation rate of local community members in different formal and informal institutions with marked increase in women's participation at higher level decision-making in community groups such as women's groups and savings and credit groups. The participation of marginalized communities in formal and informal institutions also increased.

For Phase 1 of the Roads in the East project in DRC, the economic impact was limited by the fact that the road had only been reopened for 4x4 vehicles and the increase in traffic so far was small (in part reflecting unresolved security problems), while the limited attention provided to monitoring and evaluation (which is being addressed in the second phase) also made results difficult to assess. There was evidence of a local economic impact from the employment created by the road building work, and of agricultural investment taking place in previously disused oil palm plantations in the expectation of improved road access, and of some improved access for NGOs, though this is still limited by security concerns.

Maintenance of roads and avoiding road damage due to axle overloading is a challenge in most low income countries and particularly acute in fragile situations. Output and Performance Based Road Contracts (OPRC) whereby the contractor takes responsibility for road maintenance under a performance based contract is being tried in Liberia, but such contracts take time to establish. Avoiding axle overloading is difficult in a weak governance environment where officials can be bribed, yet designing roads for higher axle loads is expensive and may restrict the expansion of the network. Solutions might include negotiating an agreement with road users or using the performance based maintenance contractor for enforcement of axle limits.

Private investment in mobile telecommunications has taken place successfully even in very challenging and conflict-affected environments, but establishing an appropriate legal and policy framework is still required to develop an optimal system

The expansion of access to telecommunications services has been one of the most dramatic economic and social developments in low income countries in the last decade, with extremely rapid rates of expansion in access to mobile phones even in fragile and conflict-affected countries. For instance among African countries, the number of mobile cellular subscriptions per 100 inhabitants increased between 2000 and 2010 from 0.02 to 67.21 in Nigeria, from 0.29 to 34.09 in Sierra Leone, from 0.03 to 17.21 in DRC, from 0.05 to 39.34 in Liberia, and from 2.13 to 59.66 in Zimbabwe. Even in Somalia in the absence of effective state institutions a rate of 6.95 was achieved by 2010.³

However, achieving an optimal system in terms of service provision and government revenue still requires the development of at least a basic legal and policy framework for the sector. PPIAF (2011) cites examples of successful technical assistance to help in the implementation of telecommunications policies and legislation in Liberia and Sierra Leone. This was also true in Afghanistan, where the World Bank also supported the preparation of new legislation, basic regulatory functions and bidding arrangements for mobile licenses. A regulatory framework that encouraged competition led to a substantial decline in call cost and an explosion in mobile phone ownership. The success of private investment in mobile telephony may reflect the fact that improving access to telecommunications is well aligned with elite interests (i.e. they want them and

³ Source: ITU World Telecommunications ICT Indicators Database.

require a reliable service), and is highly profitable to the first entrant, while investment is modest in relation to revenues, sufficiently complex technically to deter expropriation, and the option of requiring pre-payment lowers the risk of non-payment.

Water and sanitation investment can provide important benefits in improved child health and saving in women's time (as well as providing employment opportunities) though it has little short-term impact on economic growth. Sustainable impact (through small-scale and local initiatives) requires appropriate funding mechanisms and effective community engagement

An ODI systematic review (Welle, 2008) of service delivery in water and sanitation in FCAS notes that the water sector is a good entry point for state-building activities, since WASH delivery is generally regarded as not ideologically contentious and demand for access to water is generally high. It also confirms the established view that donor approaches for investment in FCAS that go beyond the typical 12-month funding window for emergency responses are needed to effectively manage transitions and support institutional development. Econometric evidence suggests that water and sanitation investment has little short-term impact on economic growth although it may be of central importance for improving health, particularly in relation to child health. Improved access to water, especially piped water, has been shown to have a significant saving in the time of women and children. This time can be used for income enhancing activities and may lead to better education outcomes. It also means that women are less exposed to predation while collecting water. Furthermore, along with investments in water management related to agricultural use and environmental conservation, this provides an opportunity both for employment creation and for active community participation which may form part of a peace-building strategy. This is discussed in more detail in the section on community engagement below.

Large and small-scale irrigation infrastructure can contribute significantly to food security, particularly when combined with improvements to transport. The greatest potential returns are often from rehabilitation of existing but damaged infrastructure, and from stimulating community-led small scale agricultural water management.

Small-scale irrigation has very large potential benefits particularly in sub-Saharan Africa (AICD, 2009, IWMI, 2012). This can be developed by individuals and communities, but some support is needed to improve local technology (water storage, drilling, pumps, etc), to stimulate value chains with access to finance, information and incentives, to create synergies between sectors, and to promote community water management at a catchment level. This can be done incrementally as the security environment improves and resources can be made available. The institutional requirements are relatively straightforward, making it possible to initiate activities even in fragile situations as has been achieved under the NSP in Afghanistan.

Although there are relatively high risks associated with new large-scale irrigation infrastructure, rehabilitation of irrigation which has been damaged by conflict or neglect, and completion of partially-built schemes can provide significant short term benefits (AICD, 2009). A large proportion of irrigation in FCAS is incomplete or damaged, and key constraints to water delivery can often be relieved at relatively low cost. However, institutional reforms are needed, with strong community engagement, to ensure that these are effectively implemented and managed. New projects, by contrast, risk creating conflict over land or water rights unless undertaken in the context of a comprehensive understanding and agreement over natural resources (Fishstein and Wilder, 2012).

Extractive industries are a focus of foreign investment interest even during violent conflict and provide potentially high economic returns – there may be opportunities to use infrastructure driven by the needs of extractive industries to serve broader development purposes

Despite the risks involved in large scale investment in extractive industries in fragile contexts, there is strong international investment interest (sometimes even in the context of ongoing violent conflict) given the possibility of sufficiently high returns and the ability to insulate investments from the problems of the wider context. Private investment in infrastructure in fragile contexts is therefore often closely linked to investment in extractive industries – notably investment in transport (road, rail, pipelines) and power supply to enable the exploitation of hydrocarbon and mining resources. The links between fragility and extractive industries have been widely studied and fall outside the scope of this review, although understanding these links must be central to the design of international engagement in countries where extractive industries are important.

Evidence on (specifically) the role of *infrastructure* development in extractive industries and its link to fragility, conflict and economic development is thin although interesting examples do exist, especially in the context of China's growing influence in Africa (see Farooki 2012, MMCP- Corkin, 2011, Safer World, 2012) and oil extraction in Nigeria (Patey, 2010). However the development of infrastructure in such cases may be extremely specific or localised, without contributing to the broader goals of regional development, employment generation, peace building and stability. The backward and forward linkages created in this process may contribute towards industrial development, although this process will take shape over a long period of time. There may be a potential donor role in supporting complementary measures to broaden the potential development, state- and peace-building impact of infrastructure for extractive industries, or in promoting scaling up of industrial infrastructure such as power generation and transport to serve the domestic market. There is some evidence (in other contexts) to suggest that the introduction of local procurement clauses in Corporate Social Responsibility Programmes may also help improve mining company-host community relationships (thus serving a peace-building role) and provide critically needed social and physical infrastructure which otherwise local and central governments may be unable to provide (MMCP-Morris et al, 2011).

China's increasingly significant influence in infrastructure in fragile contexts has been largely driven by an interest in resource extraction that may provide opportunities for scaling up to provide public services at relatively low incremental costs. Saferworld (2012) notes several features of China's engagement, including the complex mixture of motives underlying its engagement; its commitment (tempered by pragmatism) to the core principles of non-interference in political affairs and of mutual advantage on business principles; and its tendency to support a top-down model of stability. This increasing involvement, especially in the context of natural resource extraction has the potential to exacerbate local conflict or generate stability. A case in point is Sudan and South Sudan where China's engagement in oil extraction has had positive as well as negative impacts for local people, with a local perception that the investment has resulted in greater benefits for the North rather than the impoverished local communities in the South. However China's engagement in power generation and road construction in North Sri Lanka can be seen as supporting the Government of Sri Lanka's vision for national economic development which places great emphasis on infrastructure and is based on the belief that a return to growth in the North, spurred by large-scale infrastructure projects, will ultimately bring reconciliation and peace – provided that this vision is shared by the local population. Nevertheless, as Saferworld (2012) notes, there is little evidence of the impact of Chinese investment on ground, in terms of using local labour, non-transparent dealings and other local conflict drivers. In DRC, similarly, the Chinese have signed a \$6bn infrastructure-for-resources deal, though the government and donor community have little information on the roads that are being built or the methods that are used. Overall, China's policy of non-interference may present opportunities for real national ownership of development

assistance, as dictated by international agreements on good donor practice. How far this has in fact been the case is yet to be determined.

Social infrastructure (schools and health facilities) is relatively easy to construct in fragile contexts, as is security-sector infrastructure, but the impact is highly dependent on adequate services being provided in the new facility, for which institutional strengthening as well as access to the facilities are pre-requisites.

Undertaking the physical construction of facilities to provide social services (including for the security sector such as police stations and courts) can be relatively unproblematic compared to economic infrastructure since it does not involve complex, highly capital-intensive, or networked technologies, although the quality of construction may be difficult to monitor and control. However, issues about effectiveness of coordination with stabilisation programmes affected the usefulness of security infrastructure in DRC, and the ability to staff and finance the provision of services through facilities constructed through the BSF in South Sudan remains the key long-term challenge.

4.2 Infrastructure programme design and implementation

4.2.1 Contextual analysis and understanding

The intervention logic of many infrastructure programmes is not clearly articulated or is based on untested assumptions. Conflict and political economy analysis has not always been widely or systematically applied and in fragile and conflict-affected environments. While more attention is now being paid to both these issues, there is as yet little evidence available to establish whether this has improved performance.

No studies of the extent to which political economy or conflict analysis has been used in the design of infrastructure projects in fragile contexts have been identified. However, in none of the case study examples does it appear that the initial project design involved a fully articulated intervention logic that considered all of the potential causal mechanisms set out in Figure 2.1. The approach is however changing in the more recent design processes for follow up phases, for instance the Roads in the East programme in DRC. While in some cases, such as RAP in Nepal and in Southern Afghanistan, there was close attention to political and conflict analysis to inform implementation of the programmes, in DRC and South Sudan the lack of such analysis in the early phases of the projects was noted in the case studies.

In the case of RAP in Nepal, the initial design involved a one year design phase which started with an impact review of past transport projects in Nepal. It embedded the approaches adopted by Swiss Agency for Development and Cooperation (SDC), German Technical Co-operation Agency (GTZ) and Asian Development Bank (AsDB) with the prime focus being on the poor and socially disadvantaged who require additional support to enable them to benefit. Despite the careful design process and the focus on poverty the intensification of the Maoist conflict during the first phase of the project created implementation difficulties. Government authority in rural areas was largely restricted to the level of the district headquarters. The mid-term review (MTOPR) of 2005 warned that the project was seriously off target for delivery, both in terms of time frame and budget. This (as part of the wider review of DFID's strategy in Nepal) led to a refocus of the programme's objectives (reducing by 50% the length of road to be rehabilitated) and to the assumption of direct management of the implementation fund by the technical assistance team, rather than working through government systems, as a mechanism for the control of corruption and to allow more rapid implementation.

4.2.2 Donor procedures: procurement, management, coordination

An extremely weak institutional environment creates difficulties for the management of procurement processes using the normal procedures of international development agencies and this has contributed to delays in implementation because of fiduciary risk aversion. In some cases, however, by-passing normal procurement processes and management processes has fuelled corruption which may itself have been a driver of conflict and undermined peace-building and state-building efforts. There are examples which may point to ways to more appropriate procedures for development agencies operating in fragile and conflict-affected situations.

Development partners' engagement in fragile states has been characterised (though inconsistently) by extreme aversion to fiduciary risks (risk that money will be stolen, go astray, or lost through corruption). Much less attention has been given to programme risk, the risk that the partners' efforts will secure few results and the country could even return to violent conflict. OECD INCAF has argued for rebalancing the approach to risk in fragile environments (OECD, 2010; OECD 2012). These considerations are even more important in the infrastructure sector where there is a perception among donors of high fiduciary risk and difficulty in achieving results (Lövei and McKechnie, 2000). This has led to rigid procurement rules in some countries, e.g. South Sudan, Liberia, a reliance on NGOs and UN agencies to implement programmes.

In Southern Afghanistan, the design and procurement of the Gereshk Electricity Services Improvement Project (GESIP) has taken much longer than anticipated. The procurement of the contractor took longer because there was only one bidder interested and eligible. This required additional time due to single source selection and other Asian Development Bank (AsDB) requirements including completion of a wide range of safeguarding documentation. DFID were not in control of the AsDB approvals process, making it difficult to address the issues directly themselves. Some of the implementation delays can be attributed to the Government of Afghanistan and the large amount of support they required to push the project through the procurement process. This added time required careful management of the expectations and interests of the wide range of stakeholders in the project. The Lashkar Gah to Gereshk Road has suffered similar delays to GESIP. DFID took steps to address these by splitting the construction contract and agreeing to proceed with a 12km section ahead of AsDB approvals. This DFID funded section has progressed slowly through implementation due to security issues and contractor problems, however, it is now nearing completion when the second AsDB contract (31km) has yet to be tendered.

However, the generally cautious approach followed by multilateral development agencies has been bypassed by donors who have been prepared to take high levels of risk in countries of strategic importance such as Afghanistan and Iraq (Fishstein and Wilder, 2012; SGIAR, 2011, 2012). A strong case can be made from these examples that trying to do too much, too soon with funding beyond the absorptive capacity of the country, even when parallel channels are used, has undermined that stabilisation and peace-building effort. Such parallel implementation can actually set back state-building as government capacity is not built through learning by doing and the accountability for service delivery and as government agencies are hollowed out as their staff leave to work for NGOs and the UN (Ghani & Lockhart 2008).

Corruption issues have been difficult to address during implementation of the case study projects in Afghanistan.⁴ It is widely recognised that a security premium must be paid for infrastructure

⁴ OECD (2009) notes that there has been no systematic assessment of the impact of anti-corruption programmes on state building efforts in general and presents little clear evidence about the effectiveness of

delivery to succeed or at least progress. For smaller PRT and DFID implemented projects, a Helmand Monitoring and Evaluation Programme (HMEP) survey cited in the 2011 Annual Review for Infrastructure indicated that corruption is still a problem. Particular concerns related to corrupt flipping of contracts and projects being delivered for the benefit of government employees and local elites rather than the very poor. On the smaller projects run through the PRT, a well-established handover procedure is in place which is managed by the PRT Specialist Team Royal Engineers (STRE). The STRE seeks to address corruption issues through briefing contractors on moral conduct and urging them to report any instances of requests for illegal payments or misconduct. They are asked to sign an illegal payments declaration at the award of any contract. Contractors that are found guilty of accepting illegal payments are blacklisted. It is unclear however how much impact these measures have had, as they may be addressing the symptoms rather than the cause of the problem.

On smaller infrastructure projects in Southern Afghanistan, such as those implemented by the Provincial Reconstruction Team (PRT) (including rural roads, and buildings) progress has been hindered by the time taken to secure government approvals and the inability of contractors to stick to contracted programmes. This has led to long overruns in many cases. Contractor programmes are reviewed at contract award and the importance of them is outlined, however, many projects are lump sum with little incentive for the contractor to complete works quickly. This may be resolved through adjusting payment schedules to back-end them – producing a greater incentive to deliver quickly. Quality of construction in these projects has also been a major issue as supervision is very difficult, but is being addressed through using more Afghan engineers and providing more training to these supervisory staff.

There are examples of procurement and management reforms that may help address these problems, for example the use of special procurement agents and strengthened ex post evaluation of expenditure in Afghanistan (McKechnie, 2011), and the proposed dual signatory approach in the proposed Rapid Infrastructure Development Fund in South Sudan. Multilateral agencies such as the African Development Bank have sought to develop more appropriate management, financing and operational arrangements for fragile and conflict affected states (AfDB, 2011b) but there is as yet little evidence on how successful these have been.

Weaknesses in donor coordination and inflexible donor procedures can also constrain implementation and undermine coherence and government leadership, while donor coordination arrangements such as Multi Donor Trust Funds (MDTF) have sometimes proved slow

While the importance of coordination has been highlighted in the principles for engagement in fragile states and in studies on aid effectiveness for infrastructure (Garnett et al, 2009), there is little systematic evidence to evaluate the overall success of donors in coordination in FCAS as this has affected infrastructure. ODI's review of donor assistance to fragile contexts (ODI, 2011b) noted that inflexibility in delivery of donor assistance is a continuing problem, with one source of inflexibility being the demarcation between development and humanitarian funding. It cites the example of South Sudan where the government asked WFP to extend its (successful) programme of rehabilitation of roads to start the delivery of a national master plan for roads. However the delivery of this programme was delayed by a year because of protracted negotiations on how WFP could access the pooled fund managed by the World Bank. In addition, WFP was constrained by its own Board requirements, such that roads could only be built to a quality appropriate for short-term humanitarian access. Another example is that of Yemen where donor coordination in the

alternative approaches to controlling corruption in fragile contexts. It does however note the relative success of community-driven reconstruction approaches.

water sector generally has had a mixed record: although there has been overall improvement in recent years, there is still little project-related collaboration at the operational level (BMZ, 2006).

The proposed Rapid Infrastructure Development Fund in South Sudan (MOFEP, 2011) represents an attempt to move from an emergency response towards a more programmatic and coordinated approach to infrastructure development, addressing weaknesses of the MDTF including its lack of links to government, while recognising the severe institutional weaknesses that continue to exist. The proposed approach involves co-management with decisions involving pooled donor funds for infrastructure being made jointly between Government and a trustee arrangement representing donors (p.21):

“The South Sudan Rapid Infrastructure Development Fund represents a compromise between donor funds flowing directly to the government budget and other modalities with donor intrusion into decision making and fiduciary processes, such as execution through non-state actors in parallel to the government budget and the approach of the Multi-Donor Trust Fund. Over time, as government systems are deepened and are demonstrated to function fully, we would expect donor funding to shift towards direct budget support and joint signatory decisions to decrease correspondingly. Participation by South Sudanese nationals in the Joint Management Team would increase and this would become indistinguishable from the sector and investment management functions of the MoFEP. Procurement, accounting and audits, as well as environmental management and acquisition of land for project purposes under eminent domain would shift towards the national systems of South Sudan with oversight by South Sudanese legislative, accountability and civil society institutions. This transition would likely be in planned stages, e.g. through progressively raising the size of contracts that would utilize national systems outside the modalities of the Fund, in relation to the demonstrated capacity of the government and sector.”

4.2.3 Addressing the needs of vulnerable groups

There is little evidence on whether the needs of women and other vulnerable groups have been effectively considered and met in infrastructure programmes. The main consideration of these needs appears to have been in relation to employment opportunities.

The review of the literature found little evidence about how support for infrastructure development can be oriented to ensure the needs of particular vulnerable groups could be met. Greenberg and Zuckerman (2009) note that gender perspectives generally influence perceptions of infrastructure priorities and provide examples from Iraq and Colombia of where World Bank projects failed to take account of gendered needs related to insecurity for women travelling and the potential for promoting gender equality through the employment practices in construction projects. In general though there is little evidence of whether gender mainstreaming has been successfully achieved for infrastructure (Greenberg and Zuckerman 2009, OECD 2010, Conway 2005). On balance most evidence is from the WATSAN sector and the least from the power sector (for the former, see Welle, 2008). There are also programme level evaluations in WATSAN focusing on community driven development and gender mainstreaming.

The main route through which the needs of vulnerable groups appear to have been approached is in relation to the provision of employment opportunities. This issue emerges in the case studies:

- In the Eastern DRC roads case study, the Memorandum of Understanding for the programme had specified that most of the works would be undertaken using labour-based

methods, and that 30% of the work force would be women and 20% would be demobilised soldiers. In practice priority was given to getting the road opened as fast as possible using mechanised approaches, and UNOPS and UNOPS' sub-contractors did not actively manage delivery of the target or address the underlying reasons for which the number of women employed in the workforce was low. Employment of women and demobilised soldiers increased only slowly to reach, respectively, 15% and 11% by the end of Phase I of the project.

- RAP in Nepal had a strong focus on ensuring equity, employment and income opportunities for the poor and disadvantaged, including through a minimum of 33% employment of women and proportionate representation of minority communities.
- The GESIP project during its preparation and the Lashkar Gah to Gereshk Road project have both made attempts to consult women during the design phase, but it is noted that consultation with women and other vulnerable groups has not generally been used in projects in Helmand, and reaching women has been difficult, though this has been achieved in the National Solidarity Programme (NSP) through having separate male and female community groups. The first phase of the Roads in the East project in DRC apparently did not seek to address specific threats facing women. While contractors were required to have 30% of those that they employed being women, in practice this figure was never attained.
- The infrastructure component of the BSF in South Sudan did not specifically address these issues in the decisions about siting on in the construction process, though there was a strong focus on female education and involvement in human resource development.

Community-driven development of local infrastructure often includes formation of user groups who are responsible for some aspects of planning, construction and management. Quotas for women and other vulnerable groups are often stipulated, giving them a potential role in decision-making as well as simply employment. The impact of these is very variable, and greatest success has probably been achieved in the water sector.

4.3 Infrastructure and institutional and capacity development

4.3.1 Building public sector capacity

Building institutional capacity in state institutions requires a long-term strategic perspective and there may be difficult choices to be made about how far it is worth supporting short-term investments that are carried out in ways that do not build (and may weaken) capacity given the need for institutional capacity if sustainable impact is to be achieved

The essence of state-building is helping countries establish good enough institutions that are considered legitimate by the population (WDR, 2011; OECD 2011b). While a new government needs to signal a break from conflict, it may not need to do everything immediately and depending on the nature of the conflict, a rapid, short term improvement in infrastructure services may not be as important to the population as personal security, predictable justice and ending impunity. While it is always better to have development results sooner rather than later, early infrastructure services may not be worthwhile if they have to be implemented through arrangements that are parallel to the government and which can destroy, or at least retard, the development of permanent institutional capacity. As trained staff leave government for NGOs and donor agencies, the public

sector is denied opportunities to build capacity through accountability for service delivery and by learning by doing (OECD, 2010c). There are however some positive examples of strengthened public sector capacity. For instance, Liberia's road ministry has some strong departments and the management contract for Liberia power is working well. Afghanistan's ministry of rural development, responsible for small scale community infrastructure works well and other ministries responsible for irrigation and public works have built capacity. Successful Afghan ministries avoided the proliferation of donor-driven Project Implementation Units (PIUs), opting instead for a single Grant Management Unit with some contract staff, integrated into the Ministry and reporting to the Minister. In general, the main lessons appears to be the need for a long-term perspective aimed at building capacity while achieving some short-term results through buying-in external capacity into public organisations.

WSP/World Bank (2011) illustrates the process by which policy and investment developed in the post-conflict period in the water and sanitation sector in Uganda and Rwanda. In each case there has been a transition from a period based on donor-led projects focused on meeting urgent reconstruction needs towards a sector-wide approach to planning for decentralized service delivery capacity. In Uganda, the immediate post-conflict approach in the 1980s was the Emergency & Reconstruction programme, involving a series of donor supported emergency programmes to support hand pump replacement, spring protection, shallow well construction, borehole drilling and a community-based maintenance system for rural water and sanitation services. In the 1990s, service delivery in the sector focused on expansion through discrete donor driven project investments that were executed outside country systems with large technical assistance components. Since the late 1990s efforts to improve water supply and sanitation in Uganda have taken place in the context of broader economic reforms and debt relief. Water sector reforms included a shift in the role of government from service provider to policy-maker, a shift from projects to a sector wide approach to planning (SWAp) and the development of Strategic Investment Plans (SIPs). This shift was supported by a Civil Service Reform Program and a revised Water and Sanitation Policy. In addition, there have been parallel efforts to strengthen capacity for decentralised service delivery, particularly of rural water supplies and sanitation.

Similarly, in Rwanda following the genocide, the international community engaged in the relief and reconstruction process focusing on capacity building and physical reconstruction for water and sanitation. In the absence of functioning public institutions, much of the international aid was directed at NGOs. Public sector capacity to coordinate reconstruction and service delivery was weak. A sector strategy was however issued in 1998 to provide a basis to steer the transition from post crisis donor-executed emergency interventions to sector projects guided by a coherent set of policy principles including demand-based planning, community management and local cost recovery. The sector policy was regularly updated: in 2004 to support decentralization and in 2010 to formalize the policy of delegated management through local private sector participation. The policy provided the basis for a \$20 million World Bank funded rural water supply and sanitation project, Government-executed from 2000 to 2007. The project focused on development and rehabilitation of rural piped systems, developing an operational model driven by community planning, with a centralised design, procurement and contract management process, supported by district-level supervision and oversight.

In the case study examples, there appears to have been little progress so far in sustainable capacity development in the public sector, and there has been perceived to be a tension between the approaches necessary to implement programmes of investment and rehabilitation, which have tended to by-pass government systems and processes, and the longer-term capacity development processes necessary for sustainability

The case study programmes have each involved a component that has focused on building public sector capacity. However, in none of the case study examples does there appear to have been

significant progress made in building this capacity, and there appears to have been a sharp perceived (short-term) trade-off between the objectives of ensuring rapid implementation and preventing corruption, on the one hand, and that of working through and building national systems on the other. In Southern Afghanistan, the focus on building public sector capacity has shifted over time in response to the overall Coalition strategy for engagement and withdrawal, which may have undermined a consistent approach to engagement with the Afghan government and public sector. In DRC and Nepal, national public sector organisations had significant roles in the roads programmes but in both cases this led to problems in implementation.

In the Eastern DRC road programme, it was noted that under normal circumstances, DFID would have conducted the technical studies and established the budget in a design phase. However, the priority to achieve rapid stabilisation required a quick response based on the information at hand and technical expertise. Therefore a Memorandum of Understanding (MoU) was prepared and signed with UNOPS, a UN executing agency already involved in the other road projects that are part of the Government of DRC's and the UN mission's (MONUSCO's) stabilisation strategy for eastern DRC. Furthermore it was decided to reopen the road as quickly as possible over the whole length. In order to achieve the objective of durable maintenance the project worked with the newly created road maintenance fund (FONER), the road agency (OdR) and the rural roads agency (DVDA). Initially the project funded the maintenance works, but then an MoU was signed involving all partners, including the provincial government. The MoU stated that FONER would fund the maintenance with the project providing assistance, training and tools for the maintenance system but the capacity of FONER remains to be established.

In RAP in Nepal, the restructuring of the project involved the international consultants taking over direct control for functions that had previously been performed by government. In DRC, a programme supporting the government in the delivery of the national priority roads programme that relied on public sector organisations to undertake and manage road rehabilitation encountered greater implementation delays than a project run by UNOPS with less direct government involvement.

In South Sudan, the starting point for engagement was an almost complete absence of public sector capacity and structures, and dependence on NGOs for service delivery. Issues about long-term financing and management arrangements remain unresolved.

4.3.2 Private sector capacity as implementing partner

The private sector has a critical role to play as contractors for infrastructure creation and maintenance and the capacity of the local private sector will in part determine the employment and local economic impact of investment expenditures. However, this capacity is generally very weak or non-existent particularly in engineering consultancy and construction, especially in post-conflict environments. Appropriate supervision, management and capacity building arrangements are required for the local private sector to play an effective role. There is however little evidence on how best to support its development.

The local private sector as an implementing partner in fragile states tends to be especially weak and poorly resourced limiting their capacity to design, build or manage infrastructure. International contractors may be reluctant to work in insecure environments with high levels of corruption, but local firms lack the financial resources and thus care is needed over arrangements for advance financing whilst ensuring adequate quality (or even risk of contractors absconding). In South Sudan, regional contractors were willing to work there and might set up local subsidiaries, but most profits then return to their country of origin. The private sector in Nepal is relatively well developed for providing design and supervision services but international supervision and financial

management was believed to be essential to reduce the risk of corruption. In DRC, implementing partners have been asked to identify the barriers to local private sector engagement in the road construction and maintenance markets, and to deliver a private sector development strategy to ensure the effective delivery of the programme.

The case studies indicate some of the potential of, and the constraints on, private sector contractors in construction and maintenance. In each of the case study examples, private contractors played an important role in implementation. However capacity constraints limited this in several cases, suggesting a need for more attention to be provided to building the capacity of local construction and engineering industries. In Afghanistan, problems of inadequate supervision affected the quality of road construction, while the capacity of contractors was limited and there was a bias towards using contractors with English language skills, rather than their construction capability. Some steps have been taken to improve the vetting of contractors, while the intention to transfer functions to the Afghan government and other Afghan bodies means that there will be an increased focus on management, design and supervision capacity development in which limited progress has so far been made. In the DRC, the quality of contractors was variable, though it is anticipated they will be provided with more responsibility in the second phase of the Roads in the East project. In Nepal, private consulting firms played an important role in providing technical support such as the technical feasibility of the road alignment, detailed survey and designs, cost and quantity calculation including construction supervision for quality control in RAP programme activities. The performance of the consulting firms and goods suppliers both during Phase I and II of RAP was reported to have been satisfactory. South Sudan lacks an indigenous contracting industry, with contractors with a local presence being generally of regional origin, and with local contractors being extremely constrained by lack of working capital. The experience with BSF was that payment of advances invariably resulted in work not being done and the disappearance of the contractor. This has meant a switch to payment on delivery, which means only better-capitalised, foreign-owned contractors have access to opportunities under the programme.

4.3.3 Expanding private participation in infrastructure

While the evidence base is weak, private participation in infrastructure (as an investor) on a significant scale (outside investments associated with extractive industries) is highly unlikely until effective stabilisation and a predictable business environment has been achieved and is also dependent on instruments to manage non-commercial risks being available. Large scale private investments in networked utilities have generally happened only after years of stability and institutional development.

A Systematic Review of literature on private sector investment in infrastructure (Spratt and Collins, 2012) concluded that there is little evidence available to establish empirically the causal links by which private participation in infrastructure can be promoted, or the links between infrastructure investment, economic growth and poverty reduction. This lack of hard evidence even at the wider level of private sector investment in general suggests the difficulty in drawing firm empirical conclusions about experience in fragile contexts. However, several themes are emphasised in the literature which appear broadly to be backed by experience. Boudet, Jayasundera and Davis (2011) emphasise the role of conflict between stakeholders (whether through contract renegotiation, or popular protest or other forms of violence) in undermining incentives for private investment.

A study of the political economy of constraints to hydropower investment in Nepal (OPM, 2009) illustrates the particular challenges of improving sector performance in a politically unstable post-conflict environment, despite the major economic and political problems being caused by the

underperformance of the power sector and a broad consensus on the policy actions required.⁵ The main findings of the study were the following:

- There were vested interests within the Nepal Electricity Authority (NEA) and possibly from current holders of Power Purchase Agreements (PPAs) who can obtain rents from their resale whose interests were opposed to reforms to simplify the PPA process.
- Political engagement in the sector was focused principally on securing control over resources and opportunities for party supporters and cadres for instance within the NEA.
- The apparent political advantages that would accrue to government from addressing the high profile problems of load-shedding and power shortage had not been sufficient to prompt action.
- Individuals (and their political affiliations) were relatively more important than formal institutional relationships in determining influence.
- Uncertainty and insecurity within the civil service militated against effective decision-making or coherent implementation of any policy, particularly policies involving any complex institutional changes.
- Government showed a very weak capacity to play key roles such as ensuring effective implementation of the one-window policy, contract negotiation and management, or setting out a clear framework for dispute resolution and dealing with compensation claims in hydropower projects.
- The lack of a clear framework for the use of royalties (and monitoring of this use) and the provision of compensation and other benefits to communities affected by hydropower schemes had led to unrealistic expectations and opportunistic behaviour that generates conflict and project delays.
- Civil society had limited influence on policy-level decision-making in the sector despite the strong common interest of important groups such as industrialists in addressing the sector's problems.

The study concluded that:

“The overall situation was therefore one in which the political system was failing to deliver either an effective government response, or an environment of sufficient stability and predictability to encourage private investment, to ensure the implementation of investments and policies that are generally widely accepted as desirable. The analysis suggested that substantial progress in addressing constraints on hydropower development was dependent mainly on the achievement of a greater degree of political stability and the establishment of a government that is able to pursue coherent policies and institutional reforms and in particular to find a way of isolating priority areas of policy making from domination by short-term considerations of rent-seeking and political advantage. Political uncertainty and insecurity created an extremely problematic environment for investment activity.”

Schwartz et al. (2004) noted that there is a consistent pattern in investments that show that private sector telecommunications investments, particularly mobile telephony, can take place immediately after or even during conflict. Afghanistan was cited as a success story with the rapid employment of as many as 20,000 people directly or indirectly in the telecommunications sector. While private initiative drives telecommunications investment, donor support (for instance providing technical assistance to strengthen the government's role) can play an important role as was the case in

⁵ Nepal and Jamasb (2011) outline the wider reform agenda for the electricity sector in Nepal and also note how political uncertainty has constrained the prospects for reform.

Afghanistan. Private sector investment in electricity generation and distribution projects may start to emerge about three years after a conflict and then becomes more frequent from about five years after conflict ends. Private investment in transport and water tends to come much later if at all, except on a very small scale, with seaports being the main focus of private investment in transport infrastructure. Whilst power and telecom projects quickly generate revenue which can repay the financing costs, this is much more difficult to achieve for transport and water projects.

A further emerging lesson from PPIAF experience is that small-scale private investment tends to return to post conflict situations rapidly as small-scale providers tend to mobilize resources quickly, taking advantage of pent-up demand and the lack of regulations and licensing requirements that might otherwise stymie entrepreneurial activity. An example is that of Cambodia where small-scale providers have stepped into both electricity and water provision. Typically, outside small-scale investments and the telecommunications sector, a period of around five to ten years after the end of conflict is seen as the minimum feasible timescale for potentially attracting larger-scale private investment in infrastructure.

Schwartz et al. (2004) cited El Salvador and Mozambique as countries that were notably successful in attracting private investment in the aftermath of conflict. This was attributed to successful macroeconomic and sectoral policies, and in Mozambique to initiatives including the Maputo Corridor for which the MOZAL aluminium plant played an anchor role and which has improved the economic and financial viability of associated investments in power, roads and ports which have had positive spillover effects. By contrast, Bosnia was unsuccessful in attracting private investment or achieving efficiency in publicly managed infrastructure because the peace settlement imposed an overly complex system of ethnicity-based administrations at each level of government which led to duplication and redundancy in infrastructure and which militated against effective management.

Technical assistance to help the establish the basic elements of an adequate legal and regulatory framework can encourage private investment in infrastructure once effective stabilisation has been achieved, particularly for the telecommunications sector

PPIAF (2011) cites examples of where support (in the form of technical assistance) has been successfully provided in a post-conflict context to assist with the development of an institutional framework to encourage private investment in infrastructure. Specific examples cited were the following:

- Support for designing pilot projects for private participation in solid waste management systems in Kinshasa in DRC.
- Support for the design of a management contract for the national water utility of DRC (REGIDESO) which has responsibility for supplying water to eight million urban residents.
- Design (in 2007) of an institutional framework for infrastructure public-private partnerships in Guinea-Bissau.
- Support (in 2007-9) in Liberia for the development of a comprehensive fee and taxation policy for telecommunications and for development of a telecommunications licence. In 2009 significant reforms of telecommunications policy were undertaken following recommendations from a PPIAF study which included setting a cap on the number of national service providers and carriers and taking forward liberalisation of the sector.
- In Sierra Leone technical assistance was provided in 2002 to review options for private participation in the power sector, and to review the performance of the major power

operators, leading to subsequent legislation in 2005 to open the energy sector to more private participation.

- Support in 2007 to assist the government of Sierra Leone in the implementation of the new Telecommunications Act, including supporting a dialogue on sector policy issues.

Foreign partners often insist on elaborate new laws and regulatory arrangements to facilitate private investment in infrastructure. While these may be desirable eventually, it may still be able to attract private investment with the issues covered in these arrangements being included in a contract between government and investor. Furthermore, the political conditions may not exist for a regulatory agency to function in an independent manner. A country struggling to establish competent institutions is unlikely to be able to establish and staff regulatory agencies for each utility sector, or to avoid their politicisation. As a result, the establishment of regulatory agencies may not be an early priority in a post-conflict setting. Even when these institutions are needed, it may be possible to use the regulatory organisation in another country in the region. Private sector investors may thus negotiate favourable, one-sided deals – or at least be perceived to do so. The political risks associated with this may discourage further investment.

Encouraging private investment requires finding ways of managing and sharing risk, including new instruments for development of finance institutions, as well as management contracts and the provision of guaranteed markets

The central theme in the literature on the scope for private sector investment in infrastructure in the process of emergence from conflict is that of risk management (see for example AfDB 2011 on Zimbabwe and Sierra Leone). One approach to risk management relates to lowering payments risk through ensuring there is a guaranteed market for the infrastructure service produced at a viable price. For instance in the case of power this may involve avoiding reliance on sale into a national grid or to consumers or other users for whom pricing issues may be highly politicised. This may include using part of the output for own use (for instance for power in a mining enterprise) as well as the development of regional markets which may enable risks to be shared among several countries. Both of the private sector power investments covered as case studies used risk management approaches of this kind. In the Addax case the bulk of the output was in the form of ethanol for export to Europe.

The existence of a spectrum of options beyond a project financed by equity and private borrowing also provides ways of appropriately distributing risks. At one end are the various kinds of management contracts that can substantially improve operations, revenue collections and project management. An example of this is the contract with Manitoba Hydro to manage the Liberia Electricity Company. Other options might be to provide long term public debt financing, such as subordinate debt from the international financial institutions (IFIs) to complement private equity. This has another advantage in that debt maturity better matches the economic life of the project and avoids excessively front loaded tariffs. Political risk instruments are also available from the IFIs and IFI involvement can be useful in facilitating negotiations when disputes occur without invoking formal dispute resolution clauses of the agreement between government and investor.

There are other ways to manage risk such as allowing temporarily high profits and limiting the competition to the first entrant in early years. It may be difficult to phase out these rents later, but the Afghan mobile telecom provides a successful example (McKechnie, 2011). It may be possible to construct deals which interlink, formally or informally exports of, say, natural resources, with financial flows that finance infrastructure. Some of the Chinese deals in Africa are reportedly of this type where exports of minerals to China provide revenues that effectively guarantee Chinese loans for infrastructure implemented by Chinese companies. Another example is Indian-financed investment in very large scale hydro power in Bhutan. Nearly all of the power is exported to India

with revenue flows to Bhutan in one direction and debt service payments to Indian banks in the other. In the very unlikely event that India decided to cut off imports, Bhutan would be unable to service its debt to Indian state banks since hydro power is its main export, which mitigates the risk that exports of power would be curtailed.

A part of the literature explains and analyses the different types of private sector investment, including recommendations on what is suitable in different contexts in developing countries (see for example CABRI 2010, Mardirosian, 2010, Naudé, 2007). There is some evidence on whether this has worked in the past (MacSweeney 2008, Curtis et al. 2010, GTZ 2009, IA 2006). Mardirosian (2010) reviews available financial structures and political risk mitigation mechanisms available to private foreign investors in post-conflict situations and finds that structures are deficient and pricing is prohibitive. He argues based on an analysis of post-conflict investment trends that “better targeted, coordinated and comprehensive packages of financial products including multilateral loan guarantees and expanded political risk insurance can be utilised to attract private investment to post-conflict infrastructure projects” and argues that subsidies could be provided to encourage a greater appetite for risk from investors in these contexts.

One model under development⁶ is based on establishing partnership between a private developer, a development finance institution (DFI), a national government and bilateral donors to create ways of bringing in private sector expertise with DFI finance to create an infrastructure asset with the ultimate objective of sale of the asset to the private sector. This model would potentially work best in sectors such as power and roads where there is a turnkey capability in the private sector to produce the infrastructure asset. INFRACO is reported to be using this model in a power sector developing in Guinea (Conakry) with the ultimate objective of transfer of equity to the private sector. The main issue in implementation is to provide a mechanism by which the DFI can take on the risks involved (generally the risks are regarded as too high under normal procedures even for DFIs like FMO and KfW which have a relatively high appetite for risk), which could potentially be done using additional guarantee mechanisms or special windows and capital that is earmarked for this purpose, with bilateral donors potentially providing a role in underwriting these mechanisms. Such instruments may be applicable in a post-conflict environment (there is seen in general to be no scope for private investment in infrastructure during on-going conflict except where high returns may be made from enclave-type investments particularly in extractive industries).

4.4 Infrastructure and stabilisation and peace-building

4.4.1 Infrastructure, stabilisation and quick impact projects

There is little evidence to suggest that infrastructure investment necessarily plays a significant role in the process of stabilisation. If weak governance and insecurity are the main drivers of conflict, infrastructure investment may be of little relevance unless it is part of a stabilisation strategy to focus on the correct underlying causes.

There is little evidence that attributes a significant role to large-scale infrastructure investment in stabilisation and peace-building although there are several frameworks which emphasise the role of infrastructure development in post-conflict reconstruction either directly or indirectly (see Anand, 2005, Collier 2007, de Vries and Specker 2009). The potential causal mechanisms are numerous and ‘robust’ evidence on the causal relationships are weak. Comparative studies of the process of

⁶ Professor Keith Palmer, personal communication.

successful and unsuccessful transition from fragility (such as Timilsina, 2007, which compares the experience of Cambodia, Haiti and Mozambique) do not suggest that infrastructure development played a central strategic role in the early stages of the stabilisation and peace-building process, but that subsequent investment in infrastructure once security and stabilisation has been achieved has played an important role in generating sustained economic growth as well as potentially providing an indicator of the extent to which recovery has been achieved.

“Quick Impact Projects” as implemented in Iraq and Afghanistan have a questionable record of achievement. The implementation of infrastructure projects during violent conflict and in the absence of effective stabilisation leading to conditions of continuing endemic insecurity (and contested government authority) is extremely difficult and the approaches necessary to carry out implementation (for instance through construction undertaken by the military) may undermine the scope for local ownership through community consultation and participation.

“Quick Impact Projects” (QIPs) are defined in Stabilisation Unit (2011, p.19) as “short-term, small-scale initiatives that are designed to deliver an immediate impact” in support of a stabilisation process. A distinction is drawn between direct support QIPs (focused on security, political, and economic infrastructure) where “the primary effect of a project is likely to be direct and immediate by protecting people and/or critical institutions and/or creating the conditions necessary for sustainable development to begin”, and indirect support QIPs whose primary purpose (p.21) is to “influence ‘perceptions’ in support of the process of stabilisation. Their ‘indirect’ communications effect is their principal characteristic. They support the growth of popular confidence in the state and the political process that it represents and may be used:

- To communicate a positive message that provides incentives to populations to respond to political outreach by national, provincial and district authorities.
- As an instrument supporting the ‘strategic communications’ strategy.
- As an aspect of ‘consent winning’ on behalf of the host nation and its allies.

While this document sets out comprehensive guidance on the implementation of QIPs, it provides little firm evidence on the record of success of such approaches. There is some evidence from Iraq and Afghanistan where QIPs have been implemented and conflict sensitivity is taken into account by donors (Tarnoff 2009 on Iraq, Harvey 2010 on Afghanistan; Crane et al. 2011 on Iraq and Afghanistan, USGAO 2005 on Iraq). Conflict-sensitive community development initiatives would build on a strong platform of consultation with communities to identify their perceptions and ways to respond to the needs of the most vulnerable.

The US Special Inspector General for Afghanistan Reconstruction (SIGAR) has been critical of the results of US stabilisation efforts in Afghanistan (SIGAR, 2011, 2012). Projects implemented by the military, including infrastructure were also said by SIGAR to have “questionable outcomes and potential waste” (SIGAR, 2011). A review by the USAID Inspector General of stabilisation efforts in Southern Afghanistan found mixed results and questioned whether these projects were perceived as Afghan government efforts, as well as their sustainability (USAID OIG, 2011).

There are many risks with QIPs, including problems of project selection and design, risks of elite capture, unforeseen consequences because of weak planning processes, and uncertain sustainability. A group of eight NGOs working in Afghanistan is also highly critical of QIPs, especially those implemented by military Provincial Reconstruction Teams (ActionAid et al., 2011). Such projects are “often poorly executed, inappropriate and do not have sufficient community involvement to make them sustainable. There is little evidence this approach is generating

stability...". Fishstein and Wilder (2012) concluded that for stabilisation efforts in Helmand "The stabilization model used between 2006 and 2008 focused on the wrong drivers of conflict - on the lack of development and government presence rather than on poor governance and insecurity." They also found that aid could be destabilising through enabling corruption, competition over resources, reinforcing inequalities, creating perceived winners and losers and exacerbating regional disparities.

The case studies suggest that effective coordination of stabilisation and infrastructure programmes can be difficult to achieve, that theories of change linking infrastructure and stabilisation were poorly grounded conceptually and empirically, and that failure to achieve stabilisation limited the extent to which infrastructure programmes can be implemented or a wider positive economic impact can be achieved. In both Afghanistan and DRC there were significant problems with the wider stabilisation strategy, as well as with the relationship of the wider strategy to the specific infrastructure programmes. In Nepal the redesign of the RAP made its peace-building role more effective in a context where a significant degree of stabilisation was achieved as a result of the national peace process.

In Eastern DRC, the International Security and Stabilization Support Strategy (I4S) provided the overall framework within which the roads programme has been implemented but this has been criticised as being based on a series of untested assumptions and as involving a set of poorly prioritised projects (including the construction of government administrative buildings, police stations, prisons and tribunals) lacking an overall programmatic approach. It was assumed that improving roads would lead directly to stabilisation by increasing state presence, both in terms of security and governance. The potential negative impact of the roads in terms of opening up access to armed groups was not considered, nor the potential negative impacts of the presence and behaviour of state security forces. Moreover, the strategy itself was implemented as a series of standalone projects, rather than a programmatic whole. This meant that the reopening of roads was not necessarily followed up with the restoration of state authority or basic services.

The revised Stabilization Priority Plan for 2012-2014 aims to achieve greater programme coherence and establish funding priorities based on consultations with national and international partners at the provincial level. The first phase design of the roads programme did not include any conflict analysis or an articulated theory of change to show how the proposed activities could contribute to peace-building. This is also being addressed in the second phase. There were problems of tension and lack of communication between peace-keeping forces, development agencies and humanitarian organisations which are also being gradually addressed in Phase 2, although there is still little collaboration with the central government.

These tensions are even more evident in southern Afghanistan, where the conflict is still overt and military priorities remain dominant. However, 'development' is part of the military strategy to reinforce progress and thus there is an emphasis on quick-wins, which has both proved difficult to reconcile with longer-term development and institution-building, and appears to have achieved only limited success in its own terms given the at best partial progress with stabilisation. There is concern on the one hand of raising unrealistic expectations or building unsuitable or unsustainable projects and on the other hand of frustration over slow progress. As a classic work on counter-insurgency states, "if these projects are deemed useful a priori for the population, they may even be imposed on it; the accusation of paternalism will soon be forgotten when the results speak for themselves" (Galula 1964). However, this will fail to win the support of the population if they do not see the projects as useful or if they fail to deliver promised results, as the Afghanistan experience amply demonstrates.

For the case study projects in Southern Afghanistan, the principal problem at the strategic level has been the lack of consistency in stabilisation strategy and the lack of success in achieving

improved security. The fact that the UK and US are directly engaged militarily and are regarded as an illegitimate occupation force by sections of the population complicates engagement. There have also been weaknesses in implementation of infrastructure programmes, in large part because of the continued security problems. The peace-building and state-building approach (to overcome and undermine popular support for the Taliban insurgency) has moved in a short period from emphasising large infrastructure projects to demonstrate the commitment and capacity of the Afghan Government and the supporting coalition, to achieving rapid and visible results on the ground through direct action by coalition forces, to an emphasis on capacity building ahead of the planned coalition military withdrawal.

The implementation difficulties that have occurred have risked undermining the objectives of the stabilisation strategy. In some cases in Helmand, infrastructure has been provided following International Security Assistance Force (ISAF) military operations, in keeping with the “clear-hold-build” model. These have been delivered by Task Force Helmand (TFH), United States Marine Corps (USMC) - Task Force Leatherneck (TFL) themselves, or through the UK Government Conflict Pool. Co-ordination of these smaller projects can be difficult, particularly where they are undertaken by the military. These projects have often been delivered without adequate consultation with local authorities and communities and there have been problems of quality (including public buildings that have collapsed within months of construction). One such road project along the side of a canal is a good example. Security prevented adequate supervision and the road deteriorated within four months of completion (evident from photographs showing vegetation growing through the road pavement). These projects result in communities becoming angry at the contractors and those who are seen to deliver the project (international and Afghan governments). Indeed, this violates a basic rule of counter-insurgency: “the host nation doing something tolerably is normally better than us doing it well” (US Army, 2006).

By contrast, projects that have worked through state structures and the procurement processes of international development agencies have involved more consultation and effective planning, but weaknesses in Afghan government capacity and the difficulty of implementing standard procurement processes in a very difficult environment have led to long implementation delays. There is evidence from consultation with the Afghan utility agency (DABS) in Helmand in relation to the GESIP project that local communities were becoming restless and eager for progress on the ground. Communities and elders were questioning DABS’s ability to deliver and becoming frustrated with the lack of evident progress.

In the examples reviewed in the Afghanistan and DRC case studies, the infrastructure programmes reviewed formed part of a wider strategy for security and stabilisation. In Nepal, the initial design of RAP (which had taken place before the intensification of the Maoist insurgency) was not explicitly part of a broader stabilisation strategy, but the fundamental restructuring of RAP which took place in 2005 was in part a response to concerns that the way the project was being implemented was potentially exacerbating conflict as well as to the severe implementation problems encountered.

In Nepal, the 2004 Country Assistance Plan (CAP) reoriented DFID to respond to the causes of conflict. The new direction introduced peace building and social inclusion as strategic pillars. RAP initiated the Enhancing and Protecting Interventions (EPIs) as complementary activities in order to take advantage of the enhanced access. EPIs aimed at minimising the negative impacts of the project, enabling the poorest and excluded to benefit from enhanced access opportunities. While the major interventions comprised infrastructure investment, EPIs were complementary activities. EPIs were primarily concerned with providing knowledge oriented interventions to ensure that the affected stakeholders, particularly the poorest people, were informed about RAP, were aware of the opportunities and were able to participate in access-related decision-making processes that affect their lives. Primarily, partner NGOs facilitated EPIs with close support from the RAP technical assistance team. After a fundamental review on the EPIs, RAP reached the conclusion

that interventions were wide, complex and were not supportive of the livelihood component as envisaged by the programme. EPIs were transformed into the focused Social and Economic Development (SED) programme, combining social and economic dimensions in the programme to address the implications of the insurgency as it increased in intensity. The redefined programme envisaged the opportunities not only for short-term activities involving the Road Building Groups (RBGs) in the road construction but also after the road construction period, enabling other opportunities in the form of income generating activities. The refocused RAP was thus implemented from July 2006 onwards with a new component of SED covering (i) organisation/institutional development of RBGs; (ii) Income generation activities (IGA); and (iii) Institutional linkages.

As a result of these changes, a concerted effort was made through the redesign of RAP in 2005 to ensure that it included effective participation from the poor and socially excluded, particularly through access to the employment opportunities it created (for ethnic minorities and dalit communities). The Impact Assessment Report (January 2012) concluded that the engagement of community youth in the RBGs indirectly discouraged the normally unemployed youth from joining rebel groups, while the provision of equal pay for equal work assisted in improving the economic and social position of women.

4.4.2 Risks of doing harm

It is possible for poorly designed or implemented infrastructure programmes to “do harm” in a fragile context in several ways including through encouraging corruption or raising expectations that are subsequently disappointed.

The dangers of failing to meet expectations that are created emerged clearly as a danger to the peace- and state-building objectives of projects implemented as part of the stabilisation programme in Helmand, while, as discussed above, the fuelling of corruption in Afghanistan and Iraq is considered to have undermined support for the governments and for external intervention. There are few rigorous studies, but there is considerable anecdotal information from the literature on Nepal (Curtis et al., 2010), on Sudan (EAP & IA, 2006), and on Sri Lanka (Mashatt et al., 2008) as well as the Afghanistan case study which indicate the risks of doing harm in various ways :

- The use of violence in competing for government construction contracts in Nepal. In Nepal, increased donor funding channelled to local-level government for reconstruction efforts has meant that competition over these new resources has become fierce, and in some instances violent. Irregularities during local government tendering processes have for example included some district-level construction companies colluding with political party youth wings, armed groups or criminal gangs to physically prevent competitors from submitting their bidding documents. In some instances, this has led to violence between opposing groups around bidding processes (Curtis et al., 2010).
- The construction of the Merowe Dam in Sudan resulted in conflict with various actors (NGOs, local groups, local communities, contractors, and the government). This example highlights the reputational and operational challenges that can arise from investments that are based on little prior understanding of the likely impacts on different stakeholder groups. It also points to some common characteristics and variables that can shape the project/conflict interaction (EAP & IA, 2006).
- The Mahaweli water project in Sri Lanka is reported as having exacerbated pre-existing ethnic tensions, which were well-known by the donor community at the time the project was conceived. In hindsight, a simple conflict assessment would have highlighted the difficulties and the impact of the project on the conflict cycle, although the project faced other

difficulties such as falling world paddy prices that also undermined its impact. (Mashatt et al., 2008).

- Raising unrealistic expectations in Afghanistan where farmers anticipated that water supply would be improved in the short term as a result of some small-scale projects rather than simply protected against the risk of failure.

4.4.3 Employment and stabilisation

It is often considered axiomatic that job creation stabilises countries affected by insurgency. However, there is little evidence that this is necessarily the case and that it is necessary to understand the causes of conflict in designing such interventions.

A Systematic Literature Review by ODI (2011b) found very little evidence relating to the creation of employment as a peace-building strategy:

“Despite the centrality of employment creation as an instrument to promote stability in the fragile states policy discourse, little robust qualitative or quantitative evidence was found to illustrate this relationship in the literature, and only limited evidence was identified regarding impacts on poverty.”

The review also notes the dominance of literature on short-term direct job creation interventions (including public works programmes) in comparison with macro-policy interventions and self-employment in fragile states, and the focus of evaluation on output indicators (like the number of jobs created) rather than on understanding who is getting the jobs created and what their impact is (either in economic or broader social terms). Nevertheless, the belief that employment creation lowers the risk of conflict is pervasive among policy makers and features in the Peacebuilding and Statebuilding Goals set out in the New Deal for Engagement in Fragile States (G7+, 2011).

Berman et al. (2010) using data from Afghanistan, Iraq and Philippines shows that aid and development efforts that seek to enhance political stability through short-term job creation programmes may well be misguided. Instead, development funds are likely to be more effective when directed at small-scale projects that improve the quality of local government services. Another paper (Berman et al., 2011) using district level data from Iraq showed that small projects implemented by the military tended to reduce violence through encouraging the population to provide information on the insurgency, larger projects including infrastructure such as electricity and water had little effect on violence.

4.4.4 Community engagement, stabilisation and peace-building

The strongest positive evidence about effective stabilisation relates to the critical importance of community involvement, with local infrastructure implemented through local community structures having a generally good record in development, stabilisation and peace-building, though the Community-Driven Development model underlying many of these initiatives is not unchallenged since existing local organisations may not be representative and may reinforce the inequalities that projects aim to tackle.

There is good evidence from Afghanistan that well designed community development programmes can stabilise areas before they become affected by insurgency and lay the basis for sustainable development. The National Solidarity Programme (NSP) in Afghanistan has been evaluated by Beath et al. (2011) using a randomised field experiment. NSP, which funds, inter alia, community infrastructure implemented through elected village development councils, was found to improve economic well-being, attitudes towards government and security. However, the impact on attitudes

towards government and security were limited to regions with moderate levels of initial violence. Fishstein and Wilder (2012) showed that NSP was more effective than small development initiatives implemented by NATO military. There are other lessons from NSP, including advantages of community based implementation and the successful use of block grants to villages in an otherwise compromised fiduciary environment.

Another example of a community driven reconstruction programme contributing to peace-building is given by Fearon et al. (2009) for Liberia. While the paper is not clear about what was financed, it is likely that village infrastructure comprised a significant proportion. Villages participating in the programme achieved higher levels of social cooperation than those in the control group, and in a short space of time. Evaluation (USAID, 2008) of the Liberia Community Infrastructure Program Phase II (2006-8) which worked through government structures rather than through communities with a focus on ex-combatants and other war-affected populations and a strong focus on psychosocial healing and community sensitisation, as had happened in the first phase (2004-6), found that the second phase was much less successful in generating local ownership and did not lead to improved linkages between the state and communities. The experience from both Afghanistan and Liberia indicates that programmes that are driven by communities themselves can create conditions for peace and implement small scale infrastructure that is maintained by the community and which provides lasting benefits.

The most convincing evidence of a link between infrastructure and peace-building seems to arise out of the experience of Community Driven Development (CDD) and related approaches, especially in the water and sanitation sector where the community driven approach has been used explicitly to design and finance investments that prevent and resolve conflicts.⁷ The assumption behind most of the literature covering CDD is that this is a successful development strategy, at least in the context of small scale, mostly rural development.

A World Bank review of CDD (World Bank, 2006) states that CDD has demonstrated its effectiveness in addressing several key concerns in conflict affected contexts, specifically (i) the demand for rapid implementation through quick disbursement and delivery channels, in order to deliver cost-effective goods and services at the community level; (ii) the need to promote participatory models of local governance and service delivery based on principles of downward accountability, civic engagement, agency responsiveness, and information transparency; and (iii) the need to rebuild or strengthen social capital and foster peaceful, representative, and inclusive forms of planning and decision making at the local level. CDD has not been proven to resolve conflict, but recent research suggests that community-driven interventions have a positive impact on people's capacity to manage local disputes. CDD programmes have served to buttress local stability in volatile contexts by enhancing interpersonal trust and social cohesion through the process of collective action. There is some evidence that programmes which explicitly aim to build social capital as part of a programme for management of infrastructure, such as the water users' schools for management of large-scale irrigation in Nepal are more likely to boost stability than those that focus more narrowly on implementation and maintenance (Howarth et al., 2007).

⁷ Examples include water-basin co-management in Yemen (Ward et al., 2007, BMZ 2006, Lindemann, 2008); CFCI in Sudan (Moreno-Torres, 2005), the Water for Recovery and Peace Programme (WRAPP) in South Sudan (Welle et al. 2008); the DFID Community Support Programme (CSP) investment in Nepal (DFID-Cox & Thornton, 2009); Conflict sensitivity and community involvement in Uganda (Ruettinger et al., 2011, Banfield with Naujoks, 2009, Safer World, 2008); Community Led Total Sanitation (CLTS) in Sierra Leone (Pushak & Foster, 2011); community led road development in Liberia (USAID, 2008); Timor Leste (AusAid, 2011) and more case studies in Manor, J-World Bank (2006) and World Bank (2006). Examples in other sectors are found in RAND-Lawson, 2011 (regarding the National Solidarity Program in Afghanistan).

By contrast, some studies highlight the challenges facing the effective implementation of CDD. One paper identifies ways in which greater community participation may incite conflict (Boudet et al., 2011). In the end the design and implementation of CDD programmes also affect the success in achieving desired goals of peace and state building. For instance, evidence from the ReAct Program⁸ in Sierra Leone indicates that the formation of local committees alone is insufficient to guarantee conflict sensitive choices in infrastructure reconstruction. They must be supplemented by procedures, such as independent surveys and community reporting and accountability mechanisms, which confirm widespread support for programme interventions intended to promote peace and stability in PCR. Elite capture – e.g. selecting road alignments or water supply points to benefit privileged minority groups - is a real risk, but there are also strong traditional arrangements which can be built on. For example, the role of the *mirab* in Afghanistan or the *kulopani chaudhary* in Nepal can be important for management of irrigation systems. It is often difficult to build on these arrangements since new projects often cut across traditional boundaries, but it is easy to destroy them through ill-considered actions. There is also a risk of overloading the small number of local influential and respected leaders with many different activities and projects. Projects that fit well with these existing arrangements (such as the Rajapur Irrigation Project in Nepal – Howarth and Lal, 2002) are much easier than those which require change to established structures (such as Sunsari Morang Irrigation Project, also in Nepal – Howarth et al., 2007). It is important to remember that good CDD is extremely difficult even in stable environments, particularly for large-scale infrastructure. The pressure for quick results in FCAS, especially extreme situations such as Helmand, combined with difficult access to communities makes the risks of failure high. However, there are enough examples of successes in the case study countries and elsewhere to confirm that CDD is generally a sound approach, but that very great attention to detail is essential.

The relationship between community structures and sub-national governance (e.g. the role of local government in financing maintenance) can also be an important issue, but maintenance and replication should not be problematic if communities take genuine ownership of the infrastructure assets created, as has been the case with the NSP in Afghanistan. German aid has followed a multilevel service delivery assistance strategy in Yemen that combines “top down” and “bottom up” approaches to state building: German development agencies provided comprehensive support to sectoral reform at the macro and meso levels, and to the creation of decentralised and commercialised service utilities at the micro level. Within the Yemeni water sector, German assistance offers an innovative example of how to enhance dialogue with water users: project-trained community workers (CMVs) provide training in hygiene and waterborne diseases and also promote and explain the decentralisation and commercialisation of service utilities.

The case study examples have shown a generally positive experience with community engagement in Nepal, a mixed one in Southern Afghanistan and South Sudan, and insufficient focus on effective community engagement in DRC.

In Nepal, communities organised through Road Building Groups (RBGs) have played an important role in the implementation of RAP, although the absence of elected local government bodies (dissolved in 2002 and replaced by appointees from the main political parties) remains an obstacle to effective institutionalisation even in Phase II. However, at community level, the innovative delivery mechanisms such as community procurement, public auditing and information boards instilling transparency of resource use are assessed to have helped create a sense of ownership and confidence from local communities. Good progress was achieved through strong institution-

⁸ The ReAct programme involved reconstruction, rehabilitation and reintegration of demobilised combatants in devastated rural communities. It was based on an integrated multi-sectoral strategy and programme components included a) Community Services; b) Agriculture; c) Construction; d) Skills Development; and e) Income Generation.

building activities to ensure that the RBGs were inclusive, and involved disenfranchised youth, untouchables, and women in appropriate ways in planning, implementation and management. Innovative measures such as community procurement, public auditing and community information boards have encouraged local ownership.

Newly-established community and district development councils are valuable in Afghanistan and helped on the design of GESIP. They were particularly valuable for improving communications between line ministries and the public, even if they did not aim to influence planning or implementation. However, there is often a challenge in managing expectations: once consultation commences, people expect quick action that will meet all their objectives whereas there will often be a prolonged period before construction is complete and the outcome may also be smaller than expected. In Afghanistan, works to protect irrigation structures from imminent collapse were deemed unsatisfactory since farmers wanted an increase in water supply rather than just an assurance that they would continue to receive their existing water supply. Greater engagement with communities, even though mainly indirect via government agencies, as the programme was implemented gradually reduced this risk. New and innovative methods of engagement are needed in fragile environments where normal participatory techniques are often impractical.

Due to access difficulties and security concerns, much community engagement has been conducted by provincial officials and survey contractors as part of the early stages of project development, and it is not clear how accurately the results of these consultations genuinely reflect local views and priorities, particularly for excluded groups such as women. Consultation has been undertaken for large donor funded projects, such as GESIP and the Lashkar Gah to Gereshk Road projects. The GESIP project was presented at a community council meeting and subsequent community *shura* to obtain views, buy-in and ideas. This worked well and was welcomed by the attendees. However, it was recognised that the attendees were all from a certain area, rather than the entire area of influence of the project and very few women were present. The timescales for consultation also needs to be carefully considered. At the time of this consultation the project was moving forward and major delays were unforeseen. Subsequently, the project was delayed leading to frustration and disappointed expectations. Smaller projects implemented by the military quickly often did not have the same level of consultation and recording of that process through the development of safeguarding documents. Capacity building for local government organisations as well as for military stakeholders in participatory techniques is a valuable part of the process for improving community engagement in places where direct contact by NGOs or donor organisations is not possible.

In the South Sudan BSF, there is as yet little evidence of sustained ownership from local communities of the infrastructure that is constructed, although a very clear demand from South Sudanese stakeholders is for community development projects that more clearly target the very deeply marginalized and impoverished people of the country.

In the Eastern DRC roads programme, although there was regular contact and exchange of information with local authorities at a higher level, there was little systematic consultation or engagement of local communities except in cases where (in Shabunda) they were invited to provide staff for road rehabilitation gangs which were trained and then played a role in executing road rehabilitation contracts. It is recognised that limited attention was paid in Phase I to social and employment objectives compared with the over-riding priority given to taking forward the physical works. For instance the Environmental and Social Impact Assessment was delayed so that mitigating activities based on its findings only began in the second half of 2011. In general, the assessment of Phase I was that the project could have done better empowering women, protecting vulnerable population groups and providing needed services.

5 Conclusions and Implications

5.1 Infrastructure, state-building and peace-building

The problems of institutional weakness in fragile and conflict-affected states are not generally different in nature, but rather in degree, from those in other low income and developing contexts. It is the existence or risk of violent conflict that may imply the need for significantly different approaches that focus on conflict analysis and the links to peace-building processes. Failure to achieve stabilisation or adequately to integrate infrastructure programmes and stabilisation strategies accounts for many of the problems encountered in implementation (as in Southern Afghanistan and Eastern DRC).

Rapid provision of infrastructure may not necessarily be essential to stabilisation, although it is always better to deliver infrastructure benefits sooner rather than later. However, if early delivery comes with a cost in terms of institutional development, e.g. by creating parallel delivery channels, then it will be worthwhile only if there is evidence that early delivery is essential to stabilisation. It is unlikely that significant infrastructure investment can be achieved without substantial progress in stabilisation.

Employment generation and indirect employment in services opened up by new infrastructure can contribute to stabilisation and peace-building, particularly if this is targeted at high risk groups (such as disaffected, underemployed youths in Nepal), though the limited evidence available suggests that generally employment creation related to infrastructure has often not been very effectively or explicitly designed to achieve peace-building objectives.

Community-based approaches are likely to provide the greatest initial opportunities for the integration of infrastructure development and stabilisation and peace-building efforts. This will reduce the risks of further damage, but it does limit the scale of infrastructure issues that can be addressed. There are still risks such as of elite capture and local corruption in the selection of projects which can undermine the benefits or even exacerbate risks of conflict. Rural water supply and sanitation is the most common example of such development (as in the case of South Sudan), but rural roads in Nepal have been built on a community-led basis and community-based approaches can contribute significantly to maintenance of large-scale irrigation. However, there is a risk of being too ambitious, for example in seeking community management of river basins (in the Yemen) which is difficult even in much less fragile contexts. Community-based approaches may also be more difficult to implement in urban areas. The achievements of the Orangi Pilot Project in Karachi Pakistan highlight that they are possible in cities, but also the importance of a wider structure of service delivery which local community-led projects can fit into.

In general, infrastructure projects of all kinds (and particularly large scale infrastructure projects) will face a risk of delay or failure unless they can in some way be protected from the weaknesses of the wider environment or can be part of a process of institutional change that will create the conditions for their own sustainability. A fragile environment is particularly challenging for private investment without special attention to managing and mitigating political and security risk. There are however considerable differences between sub-sectors. The general picture is that private investment in telecommunications is possible even in the most difficult environments, whereas achieving progress with private investment in the power sector (and to a lesser extent, transport) is considerably more difficult. Nevertheless, there is some evidence that the private sector can be attracted to an operating role.

The power sub-sector poses particularly large institutional challenges if the potential benefits of scale economies from networked and internationally connected transmission systems and capital-

intensive forms of generation like hydropower are to be achieved. These critically influence both sustainability and financing of investment. The scale and technical and institutional complexity of projects results in long lead times and high capital requirements that test the government's decision making capacity and the fortitude of donors. Because of the large economic and environmental benefits from lowering the cost of power below small scale diesel generation, greater attention to the power sector by governments and donors is warranted in most fragile situations, as well as new approaches that recognize the political economy origins of the sector's problems. However, small-scale decentralised power can sometimes be successful and relatively easy to implement, such as the solar-powered street lighting in Garmsir in Afghanistan or the widespread adoption of solar power lighting in many parts of rural Nepal.

Transport is the second major infrastructure gap from a growth and nation-building perspective. Relieving key bottlenecks can have significant impacts at relatively low cost – the rationale behind bridge reconstruction in Pakistan. There are also opportunities for large scale employment of unskilled or semi-skilled labourers in road construction and maintenance but the risk of poor quality needs careful attention. Institutional weaknesses are also important to address in the transport sector, particularly to ensure sustainability of roads which can have very high maintenance requirements in some climates and environments (e.g. high rainfall, unstable slopes, earthquake-prone areas). This may account for the poor performance of earth rather than asphalt roads in Ethiopia, and will need careful attention in the case of RAP in Nepal where local 'ownership' of roads is already a recognised problem. Transport is key to improving national connectivity and human interaction, and in bringing marginalised regions into the national mainstream.

However, there is evidence of success with smaller scale and local infrastructure through community engagement. Rural water and sanitation, irrigation and water management, and local transport infrastructure may be particularly amenable to community based solutions that are less dependent (at least in the short-term) on the wider institutional environment. Similarly, practical steps to address communications and power generation are likely to depend on relatively small-scale private investments that are not dependent on complex networking or associated institutional arrangements – but rather have relatively straightforward institutional requirements related mainly to licensing. In the longer-term though, achieving economies of scale will depend on solving the institutional problems of investment incentives, pricing and maintenance and regulation which will enable larger scale and more complex systems of infrastructure to be developed and maintained. These longer term solutions will depend on successful capacity building, the establishment of tariff and financing structures that provide financial viability, and a stable institutional environment to encourage private investment.

The study found a mixed record of success in public sector capacity building at least in the short term though there were some exceptions, and great difficulties in achieving an improvement in the environment for the private sector. However, as countries (such as Mozambique, Uganda, Rwanda, and Sierra Leone) emerge from violence and achieve macroeconomic stability, there is a clear pattern of a move from a focus on emergency reconstruction (based often on community, NGO and small-scale private sector solutions) to the development of public sector capacity and an improving environment for larger scale private investment and an increased private sector role, for instance through management contracts.

Because the lead times for large infrastructure investment are long, planning and other preparatory work needs to start soon after the crisis ends. Typically, large projects needed to underpin the economic foundations of the country are neglected during the first years after a conflict. Governments then become frustrated when there are no projects ready for financing. Lack of attention by the international community (except China) to all but the smallest infrastructure projects has been a consistent complaint of governments of fragile states. Except in particular circumstances where risks can be managed or returns can be particularly high (for instance

investments related to extractive industries), large scale private investment (outside the telecommunications sector) can only realistically be expected to be attracted when peace and security has been achieved, and there has been significant progress in building an appropriate institutional framework.

As countries successfully emerge from conflict even while remaining poor and suffering from endemic institutional weaknesses (an example may be Sierra Leone), the problems that they face and the appropriate solutions for strengthening infrastructure will converge on those of other developing countries, where building capacity at the institutional, organisational and individual level is central to the challenge of creating environments to encourage infrastructure investment and the effective, efficient, and equitable provision of infrastructure services.

Corruption is a consequence of the political economy of the fragile state and is likely to be eliminated only as the institutional transformation underlying the transition from fragility to resilience plays out. Ring-fencing donor projects may work only partially to prevent corruption. Reforms that establish transparency, accountability, a strong civil society and popular demand for better governance are fundamental to reducing corruption. These are fundamentally political processes that outsiders can influence and strengthen through their own anti-bribery laws, restrictions on money laundering and recovery of stolen assets, but which need to be owned and implemented by the country itself.

5.2 Lessons on design and implementation

The review of evidence has identified several common (indeed endemic) problems in the design and implementation of support to infrastructure in fragile and conflict affected situations:

- Infrastructure support programmes have (at least until very recently) lacked a clearly articulated intervention logic that specifies the key assumptions and risks underlying the programme and sets out the relationship between infrastructure and growth, service delivery, and state- and peace-building objectives.
- There has also been a tendency to neglect conflict analysis (again something that appears to be improving in the most recent practice). In the case study examples, systematic conflict analyses were not undertaken as part of the original project preparation in South Sudan which was emerging from twenty years of civil war, in Nepal where the Maoist insurgency was evidently growing in strength during project design (although conflict analysis was used during implementation), or in DRC where ongoing conflict was still a major factor affecting project implementation.
- Programmes have often not been effectively integrated into a satisfactory and effective wider stabilisation strategy, and there is little evidence to suggest that infrastructure investment can contribute to stabilisation rather than as part of a peace-building process once stabilisation has been achieved. In Afghanistan, policies and approaches to infrastructure programmes have shifted in response to major and abrupt changes to overall political and military strategy, while the broader stabilisation policy framework in DRC (IAS) was criticised for its lack of strategic focus. In both cases, implementation of infrastructure programmes has been negatively affected by failure to reduce violent conflict. Although in principle it is possible in some circumstances that significant infrastructure investment could precede and contribute to stabilisation, and that private investment might contribute to this, in practice the sequence of stabilisation needing to precede infrastructure investment, with

prospects of substantial private investment only some years later, seems difficult to circumvent.

- Significant delays in major projects have tended to result from excessively complex implementation arrangements. These have related in particular to the difficulties of meeting the stringent procurement process requirements of multilateral development and humanitarian agencies in a situation of institutional weaknesses, the management arrangements for multidonor trust funds, and dependence on elaborate partnership arrangements typically involving bilateral and multilateral development agencies, international NGOs, international contractors, and in some cases the military, as well as weak national and local government organisations and local communities. Part of the problem lies in how international partners implement their policies and part in that the policies are inappropriate for fragile settings. International partners can exploit the flexibility in their rules if the geopolitical stakes are high, as in the case of Afghanistan. Special arrangements can be put in place to manage fiduciary risk. Yet these will be only partially successful if the special conditions of the country are not recognized, e.g. logistical constraints, lack of markets for inputs, and lack of contractor interest, as happened in South Sudan, and more appropriate procedures are used.
- There can be a tension between peace- and state-building oriented approaches which are likely to put a premium on supporting processes with the potential to foster sustainable institutional change, and approaches which seek to obtain quick and visible results (which may require dependence on external agents such as foreign private contractors, NGOs, UN agencies or the military, and may reduce the scope for effective and genuine local level consultation and decision-making processes). The issue of “how” and “where” infrastructure development is supported and taken forward may be as important as “what” is done, if infrastructure does have a role in particular in strengthening confidence and local institutional arrangements.
- As a result, there has been a tendency in the design and implementation of infrastructure programmes in a post-conflict environment to focus on the immediate short-term solution to the practical problem of achieving implementation (physical construction) in very difficult circumstances. Implementation in fragile states is much more difficult than in other countries and there is always the temptation to shortcut normal best practice in order to achieve more rapid progress. This can take many forms, such as project selection by external partners with little local participation, to avoid local controversy; financial management by external partners bypassing local systems, to reduce corruption; and direct implementation, by international NGOs or possibly by military organisations. While these approaches may be necessary in order to achieve rapid results (though some of the experience in Afghanistan is that such approaches led to poor quality and inappropriate construction) they carry substantial risks, and are likely to undermine rather than strengthen broader peace-building and institutional strengthening objectives. Typically, in such situations the assumption has been made that rapid progress in implementation (however achieved) will have a stabilising effect, but this seems highly questionable, at least as a general conclusion. The record of Quick Impact Projects is generally poor and their intervention logic is questionable.
- Nevertheless, there is a possibility for some quick results after a crisis through repair of assets damaged through conflict or lack of maintenance. Such investments do not require elaborate design, complex decision making, land acquisition and the other factors that delay green field investment in infrastructure and are within the capability of most post-conflict governments to execute. In addition, because rehabilitation often requires going

back to the original consultants and suppliers, procurement needs to be on a sole source basis and thus can sometimes avoid the usual procurement delays. After a conflict it is therefore possible to achieve early results from a balanced portfolio of infrastructure investment consisting of rehabilitation of existing infrastructure, launching community based infrastructure, and at the same time starting the preparation of more complex infrastructure projects that underpin economic development and the transition out of fragility. This was essentially the approach adopted at the national level in Afghanistan in 2002 (McKechnie 2011).

5.3 Implications for infrastructure programmes and donor engagement

The findings of the review of evidence suggest several ways in which the design and implementation of infrastructure programmes in fragile and conflict-affected situations and the quality of donor engagement could be strengthened.

First, the weakness of the evidence base on key causal relationships needs to be addressed. To some extent this could be done through a series of more intensive and narrowly focused systematic literature reviews on specific questions. However, the underlying problem of lack of available evidence requires that more attention is paid to evaluation and primary research. In particular, it would seem worthwhile to give greater attention to in depth evaluations of some country level infrastructure investment programmes.

Second, a general picture has emerged of infrastructure programmes that lack a strong intervention logic and are not sufficiently informed by understanding of the political economy context or the nature and risks of conflict. The findings of the study strongly endorse the approach set out in DFID's "How To Note" on "Results in FCAS" (December 2011) in terms in particular of the need for a clearly articulated theory of change that can be adapted over time, the need for contextual analysis, and for programmes to be explicit about the way in which they are intended to contribute to tackling conflict and fragility, whether as primary or secondary objectives. The relationship to stabilisation and peace-building activities must be addressed explicitly.

This approach needs to be rooted in analysis of the political economy of specific infrastructure sectors and investments, in terms of the interests and influence of different stakeholders over key decisions and processes, as well as a detailed understanding of the institutional arrangements governing how decisions are made and resources are allocated. At the same time, programme design and implementation needs to be informed by conflict analysis that focuses on the risks and potential causes of conflict and their implications for infrastructure programmes, and the relationship between these programmes and stabilisation and peace-building efforts.

Third, a clear strategic framework for intervention is required which recognises that different forms of programme and engagement may be required at different stages particularly in the process of stabilisation and emergence from conflict, but that the long-term objectives of building capacity and ensuring sustainable and effective infrastructure provision are not compromised by short-term measures. An infrastructure strategy, agreed with the government, is needed at an early stage. This can be a simple document, but it should guide planning and be updated as needed. Both short- and long-term projects should fit into the strategy. Too much time in preparing a strategy, however, can result in ad hoc interventions whilst the strategy is being prepared. The Helmand River Basin Master Plan took three years to set up and infrastructure works were started in advance, inevitably without reference to any strategy – however, the risks were explicitly recognised and interim coordination arrangements were set up to minimise them. A quick and

simple plan, which can be updated as needed, is better than taking time to create a slow and perfect plan. However, with hindsight the time needed to get government agreement to the approach was underestimated and the multi-stakeholder approach means that there can be difficulties in reconciling different objectives – which ranged from short-term local stabilisation (by the military) and longer development of new large-scale infrastructure (by the Afghan Government) with ADB and DFID variously attempting to reconcile them. A clear strategy from the outset, and good communication of the strategy, helps local buy-in, manages expectations and helps coordinate between activities/donors.

Fourth, to support this strategic perspective, long-term commitment is needed. While the nature of involvement may change reflecting circumstances, any infrastructure programme and associated capacity-building, institutional strengthening and related activities will take time – most likely decades. Problems should be identified and resolved rather than programmes abandoned. For example, RAP Nepal was nearly discontinued after four years because of poor performance and needed to adapt fundamentally to changing circumstances (including some simplification of objectives), but after a further eight years it is evidently a very successful programme.

Fifth, maintaining a focus on capacity development and institution-building is required. Weak capacity – in all senses – is a common feature in all fragile and conflict affected states. Whilst there may be an expectation that services will be rapidly restored following the end of a conflict, this is only possible if there is an emphasis on capacity-building at the outset. Attempts to build infrastructure without this are likely to falter, as outsiders can never take over all of the local roles and delaying the start of capacity-building merely delays the implementation process. Transparent procedures will help to minimise corruption – in particular, procurement systems need to be strengthened. Community auditing can be a valuable concept and approach. Supporting government processes is possible even if control of finances is kept offshore. Working entirely independently of government in the belief that it will be quicker/of higher quality is a short term approach which has often proved ineffective. The proposed South Sudan Rapid Infrastructure Fund provides a possible example of how a strategic framework for infrastructure and a funding mechanism to support it may be developed even in a situation of extremely weak government capacity.

Sixth, the local private sector is generally very weak and needs support - vocational training and training to local consultants and contractors is valuable and can help increase local employment significantly, while improved access to finance may also be necessary. As a result, international consultants and contractors may be needed, but there is a limited pool of people with the skills (technical, country and linguistic) and willingness to work in many fragile states. Their focus should be on building local capacity, but they may be needed in many roles in the short-term. The private-sector supply chain for materials and goods needed for maintenance of infrastructure is weak in most cases. This is partly because donors continue to provide materials free of charge, and partly because maintenance is neglected. A middle way is needed, whereby a maintenance culture is fostered, capacity is developed and an appropriate supply chain set up. This requires a more nuanced approach by donors, to build capacity for maintenance and possibly to subsidise it but certainly not to undermine.

Seventh, one of best empirically supported conclusions of the study is the central importance of community engagement in successful programmes, and this should be fully recognised in programme design and implementation. Working during conflict is only possible by and with the full collaboration of local communities – for instance by fostering local ownership and socially inclusive employment - which means priority should be given to local infrastructure (rather than main highways) but this is not easy and may not be possible in extreme situations such as Helmand or countries with extremely limited infrastructure such as DRC. While local organisations generally face fewest risks and are best able to manage them, in some cases they may be targets. In any

case, these risks should be analysed and not passed on to the local private sector by default. It is very easy to raise unrealistic expectations which can create disillusionment with government (or external partners) and even reignite conflict. It is also important only to do things which are really needed, rather than tasks which happen to be possible.

Finally, numerous examples were found of where donor procedures (particularly for multilateral development banks, and multi-donor trust fund arrangements) had proved slow and cumbersome. In a complex environment, simple arrangements work best and multi-stakeholder programmes with multiple procedures are problematic. While reforms to the procedures and capacity in fragile settings of multilateral organizations involved in finance, trust fund administration and aid coordination are long overdue, specifying these is outside the scope of this report. There can be parallel, related and carefully coordinated initiatives alongside multi-donor and multi-stakeholder involvement, but arrangements on individual programmes should be simple and clearly defined. Corruption is a key challenge in many FCAS. Moving decision-making and financial management offshore can achieve this, but usually at an unacceptable price in terms of local ownership and capacity building. Even without corruption, large donor cash flows into fragile and weakly governed economies can lead to leakage and wastage of funds as well as having adverse macroeconomic effects. Procurement and management processes need to be appropriately designed for the context in which they are being applied, and based on managing rather than evading risks. Hence they will need to be adapted from generic procedures: transitional arrangements will be needed to ensure sound financial management combined with local ownership. There are a number of emerging models and examples of how this can be done. Bilateral donors may have a particular role to play in supporting the implementation of these approaches.

5.4 Issues for further research

As noted in section 3 above, the review of literature undertaken for this study found that the evidence base on which to draw firmly empirically grounded conclusions on many aspects of infrastructure and fragility was generally weak. Three main aspects of an agenda for further research can be identified:

- First there is a general requirement for further primary research and evaluation (including impact evaluation) on experience with infrastructure programmes in fragile and post-conflict environments, including as part of a more general research agenda to identify effective forms of external engagement in such contexts. In addition to systematic evaluations of donor-supported programmes, comparative research studies of particular forms of programme or types of sectoral engagement would widen the evidence base for drawing policy conclusions. A particular focus for evaluation should be the testing of the key assumptions of the intervention logic of donor programmes.
- Second, there are a number of issues on which it appears that a relatively rich evidence base already exists, where there would be benefits from undertaking more focused and detailed systematic literature reviews. Potential topics in this category include the following:
 - Sectoral reviews (for power, transport, telecommunications, and water and sanitation, and also on how to exploit the wider development potential of infrastructure investment for extractive industries) on (a) the most effective role for donor support in fragile and conflict-affected situations and (b) the potential and conditions for the private sector in fragile and conflict-affected situations both as an investor and for other forms of engagement such as management contracting.

- Lessons from support to strengthening and using local contracting capacity in fragile and conflict-affected situations.
- Experience with community-driven approaches in fragile and conflict-affected situations, and in particular how the role of external support to such initiatives should vary from other contexts.
- Experience with the use of political economy and conflict analysis, focused in particular on identifying whether and how this can in practice be used to improve the effectiveness of external engagement.
- Third, there would appear to be scope for a wider sharing of lessons and experience between international development agencies, particularly in relation to how procurement and management processes can most effectively be adapted to fragile and conflicted-affected situations to achieve the best balance between fiduciary risk management and the control of corruption, and timely and effective mobilisation of resources and project implementation.

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