



DRAFT FINAL

SOMALI JOINT NEEDS ASSESSMENT

INFRASTRUCTURE CLUSTER REPORT

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GLOSSARY OF ACRONYMS

CACAS	Civil Aviation Caretaker Authority for Somalia
CDD	Community Driven Development
COMESA	Common Market for Eastern and Southern Africa
DOH	Department of Highways
EC	European Community
EIIP	Employment Intensive Infrastructure Program
ENEE	Ente Nazionale Energia Elettrica (ENEE)
ESI	Electricity Supply Industry
EU	European Union
GDP	Gross Domestic Product
GOS	Government of Somalia
GUMCO	Golden Utilities Management Company)
HR	Horn Relief
IC	Infrastructure Cluster
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
ISAP	Institutional Strengthening Action Plan
JNA	Joint Needs Assessment
MDG	Millennium Development Goals
MFMT	Ministry of Fishing and Maritime Transport
MGSTA	Mumin Global Service and Trading Agency
MLAT	Ministry of Land and Air Transport
MNP	Ministry of National Planning
MPWH	Ministry of Public Works and Housing
NEPAD	New Partnership for Africa's Development
NESHA	North Eastern Somalia Highways Authority
NGO	Non-Government Organization
PCNA	Post Conflict Needs Assessment
PHA	Puntland Highway Authority
PMAC	Puntland Mine Action Center
PSAWEN	Puntland State Agency for Water, Energy and Natural Resources
RDP	Reconstruction and Development Program
RMF	Road Maintenance Fund
RMI	Road Management Initiative
SC	South-Central
SMAC	Somaliland Mine Action Center
SRA	Somaliland Roads Authority
SSAL	Somalia Shipping Agency and Line
SSATP	Sub-Saharan Africa Transport Policy Program
TFG	Transitional Federal Government
UNDP	United Nations Development Program
WB	World Bank
WBE	Women Owned Enterprises
WFP	World Food Program
WTO	World Trade Organization
WUA	Water Users Association

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This Infrastructure Cluster Report was prepared by a team led by Fabio Galli, Sr. Transport Specialist and John Riverson, Sr. Consultant – Transport and Infrastructure (World Bank), with contributions from a team of Somali and sectoral experts. The core team consisted of Abdulkadir Ali (Water Supply and Sanitation), Filep de Cortes (UN HABITAT – Urban) and Paula Pennanen (UN HABITAT – Urban), Rashed Gulaid (Transport), and Sajjad Versi (Power and Energy), Musse Cabdullahi (Renewable Energy). The team visited Kenya and Somalia between January 2006 and May 2006, with short missions in April and May. Anil Bhandari, Lead Transport Specialist, (WB) joined in selected field visits and provided advice as needed. Mohamood Abdi Noor (WB – Productive Sectors and Environment), Yohan Svensson (Peace building), Ayoo Odicoh (Gender), Oumar Kane (Human Rights) provided comments on the draft paper applicable to other cross-cutting cluster themes. In addition, the report has benefited from feedback from the proceedings of various Somali regional/zonal validation workshops. The Peer Reviewer was Philippe Dongier, Manager Afghanistan Reconstruction Program (World Bank) provided comments on the draft report. Lloyd McKay provided advice and guidance on this cluster. The Team would like to thank all its counterparts for their excellent cooperation during the course of various missions. Technical information and documents from the European Commission (including comments on the Draft Cluster Report from EC and DFID) in Nairobi, Gerry McCarthy, Joe Connolly and Henry of the ILO office in Nairobi, Kenya are also gratefully acknowledged.

FOREWARD

This draft cluster report is part of the technical work of the Somali Joint Needs Assessment and is being circulated in draft to seek comments and suggestions as part of a quality assurance review process. It is stressed that at this stage all six draft cluster reports are technical assessments and should not be thought of as a final output of the Somali Joint Needs assessment. Prioritization is a two-part consultative process, first technical and second political, and this draft cluster report is primarily concerned with technical prioritization. Political prioritization will come in finalization of the integrated Reconstruction and Development Program (RDP).

To ensure the highest possible quality of this cluster report we look forward to your comments and suggestions, with specific reference to the accuracy of information, the within-cluster prioritization of needs, and the suitability and feasibility of proposed actions to address these needs. To generate the best possible Reconstruction and Development Program it is important that Somali authorities and people, and developing partners, contribute to this review process. Guidelines for this quality assurance review have been issued separately.

This draft cluster reports is the outcome of an exhaustive technical exercise involving extensive consultations with Somali stakeholders, ranging from civil society groups to national and local authorities and parliamentarians. It has been produced by an integrated team of Somali and other technical experts drawing on information from (a) existing sources, (b) consultation workshops, (c) selected field visits and meetings with a wide array of Somali groups and individuals, and (d) questionnaire-based fieldwork undertaken by Somali experts in all regions, to review priority needs and develop reconstruction and development proposals to address those needs. It responds to specific local needs by providing differentiated suggestions for South Central Somalia, Puntland and Somaliland. Moreover, it reflects the importance of three key cross-cutting issues – peace-building and conflict prevention, capacity building and institution development, and human rights and gender – by addressing them as an integral part of the proposed initiatives to achieve desired reconstruction and development objectives.

The team has now reviewed the full array of priority needs and proposed suggestions from all six cluster reports to prepare an integrated Reconstruction and Development Program (RDP). This RDP will present a proposed set of initiatives to address priority needs from among the wider set of needs. Clearly, not all needs can be addressed immediately or within the five year period of this RDP. Implementation capacity and likely resource availability will both be considered in developing RDP initiatives. However, behind all this is the fundamental objective of supporting Somalis in deepening peace and reducing poverty as quickly as possible in a sustainable way.

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EXECUTIVE SUMMARY

Objectives and Scope

1. The objective of this Infrastructure Cluster (IC) report is to present an assessment of the current state of infrastructure, the priority needs for reconstruction and improvement, and the practical requirements for achieving priority improvements to infrastructure and to support its sustainable functioning. The primary objective is to contribute to restoring the livelihoods of the people affected by years of conflict and to support the peace building efforts. This, in turn, will contribute to the overall objectives of poverty reduction, and the progress towards achieving the Millennium Development Goals and peace building for Somalia.
2. Prospects for infrastructure rehabilitation and development during the re-construction period will greatly depend on maintaining a peaceful political environment, law and order, sound economic and social policies, and the proper functioning of the facilities and services later. Rehabilitation of infrastructure also provides opportunities for enhancing the dialogue and cooperation between communities, around improving common infrastructure assets, as part of peace building efforts.
3. The Somali JNA Infrastructure Cluster report covers transport (roads, airports and seaports), electricity and energy, urban infrastructure including water supply, liquid and solid waste management and urban roads. The report presents the current state of infrastructure in all parts of Somalia.
4. Assessing the state of infrastructure in Somalia presented many challenges, including lack of up-to-date information, logistical constraints and insecurity especially in large parts of South Central (SC) Somalia. Selected field visits by international members of the cluster team, interviews with regional officials, and consultation with civil society, extensive questionnaire-based field assessment work by Somali experts, and existing written reports yielded adequate information on the general state of infrastructure in Somalia. The team obtained information on inter-urban and rural transport infrastructure, and urban infrastructure and services including water supply and sanitation and power/energy. Local experts provided an indication of the priorities in SC Somalia but further refinements will naturally be required after more information during implementation. This report presents the draft two-year and five-year infrastructure reconstruction and development plans.

Key Cluster Issues

5. All Infrastructure has suffered from lack of maintenance and rehabilitation, war damage and vandalism, and years of neglect. ***It will therefore be a priority during the first two years of the reconstruction and development program to obtain more comprehensive data on the true state of the infrastructure, its institutional functions, as well as needs, design and costs together with implementation modalities.***
6. While the civil war has had a devastating effect on infrastructure in all regions, Somaliland and Puntland have seen some recovery because of the relative peace and stability. They have also both made some progress in putting in place legislation and institutions to manage some of their infrastructure. Their road sector institutions have benefited in the past from implementing road works as well as institutional building support financed by the EU and other development partners. The institutional building has drawn on the lessons and experience gained from policy actions involving establishment of road authorities and road funds in different countries like Ghana, Ethiopia, Kenya, Zambia, etc., promoted by the Sub-Saharan Africa Transport Program (SSATP). Both regions, however, are still seeking to establish full institutional capacities for planning, implementing and maintaining a viable infrastructure

reconstruction and development program. Also important to Somalia for the proper functioning of its infrastructure, especially transport, and to some extent, power generation, is the need to link policies and regulations to those of recognized international and Africa regional associations.

7. In assessing the needs and recommending a way forward, account has been taken of the strong capabilities of the private sector, which during the times of conflict and lack of functioning government institutions, has partially filled the gap. For example, the private sector has been involved in: (a) management of various infrastructure facilities such as roads, airports/airstrips, urban infrastructure including water supply and sanitation, power generation and supply; and (b) services related to infrastructure sectors such as road and air transport, shipping, fishing, power and water distribution and provision of sanitation services in towns.

8. The infrastructure related issues facing Somaliland and Puntland, clearly differ from those of SC Somalia. In the case of Somaliland and Puntland, they are in a better position to consolidate peace, development and growth. In contrast, in SC Somalia, the priority concerns of local representatives are for the re-establishment of peace through increased security and law and order. The different priorities were confirmed by the completed questionnaires from the SC regions, which show the following critical constraints that need attention: (a) Security and Law and Order; (b) lack of proper institutions; (c) lack of technical and professional expertise; (d) poor road condition, coupled with insufficient transport services and facilities; and (v) very high levels of unemployment or under-employment.

9. All infrastructure sectors covered in this report have specific linkages to some or all of the other JNA clusters, and between the various infrastructure sub clusters. The report discusses and takes into account crosscutting themes that apply to this cluster. Relevant crosscutting themes include, but are not limited to the following topics:

- Implementation of infrastructure projects, vis-à-vis other cluster interventions. This relates to: (a) how to sequence cluster priority actions such as ensuring improved governance and expedited actions towards maintaining peace, law and order; and (b) arrangements for overall program management, coordination and monitoring within Somalia, and coordination between national and international partners engaged in the JNA program financing and implementation, etc..
- Environment and social safeguards framework and monitoring arrangements established. These in turn relate to natural resources management and other aspects covered under the productive services sector.
- Select priorities to enhance the overall objectives of the productive sectors and contribute to economic growth and poverty reduction in Somalia.
- Gender mainstreaming in infrastructure and its relationship to gender issues overall;
- Major risks mitigation such as mine risk management that need to precede infrastructure program implementation.
- Addressing external inter-regional linkages and trade that may go beyond specific individual Somali regional needs, such as the Berbera – Addis Ababa Corridor development.

10. ***Infrastructure related de-mining activities.*** One critical issue of concern to infrastructure sector in a post-conflict environment relates to landmines. The landmine is a critical human rights issue that needs to be addressed, as it threatens the lives of people and impedes the freedom of movement of civilians. In road, airport, port and major power rehabilitation work, careful assessment of the need for initial mine clearing operations will probably be required. In this context, with due reference to past and ongoing landmine surveys, it would be necessary to establish, in consultation with the various local stakeholders, the location of landmines and unexploded ordinances (Axis), and develop a clear strategy and plan for minimizing the potential dangers posed by them for the infrastructure works and field activities. Actions in this regard will also require coordination with United Nations Development Program

(UNDP) mine action staff members, as well as collaboration of organizations such as the Halo Trust and DDG who have established some presence in the region.

Key Reconstruction and Development Objectives

11. Short-Term (Years 1-2). Short term infrastructure reconstruction and development priority actions aim at addressing the most urgent post-conflict needs of Somalia. At the same time, it will put in place practical and cost effective reconstruction programs for the different infrastructure sub sectors that consider poverty reduction goals, regional and gender equity and available implementation capacity. The selected projects and actions would link to existing and ongoing projects, implemented so as to complement them, and apply any lessons learned within the Somali environment. More specifically, the proposals will include a short term plan to: (a) establish a strong initial institutional capacity for policy development and for investment program planning, preparation, and implementation, (b) reconstruct essential infrastructure including feeder roads, power generating and distribution systems; (c) renewable energy development and promotion; (d) urban infrastructure and services including water supply and sanitation (waste management), housing and support to Internally Displaced Peoples (IDPs), roads and bridges; (e) carry out studies and participatory workshops to determine the institutional requirements for various infrastructure and initiate actions to increase absorptive capacity, as well as the regulatory requirements for the functioning of various infrastructure; and (f) create employment for the population through labor-based works using approaches such as **community contracting**. These activities should bring much needed cash to impoverished communities, increase economic activity, improve absorptive capacities and contribute to peace building.

12. Medium term (Years 3-5). The objective would be to build on the community level interventions that have been implemented to date and consolidate gains, complete feasibility and engineering designs and contract documentation and implement major infrastructure rehabilitation and reconstruction work, along with institutional development and capacity building for longer-term program planning, preparation, and implementation. The following sequencing of activities could follow in the medium term reconstruction phase:

- Continue community level interventions to improve feeder roads and other infrastructure;
- Select projects for implementation based on techno-economic feasibility studies, regional equity, funding, as well as address issues important for security and peace building.
- Carry out feasibility studies, engineering designs, and procurement procedures, and plan and implement de-mining activities for road and other large infrastructure investments.
- Start or continue implementation of works on major national and inter-regional roads and other infrastructure, which are awarded for implementation.
- Carry out and complete studies to identify key regulations and institutional framework needed for the proper functioning of infrastructure and related services and take actions to ensure effective enforcement of regulations alongside balanced development.
- Implement training and capacity building for staff in public sector institutions identified for training.
- Identify and categorize capabilities of nationally owned private consulting firms and contracting companies and implement program of training and capacity building.
- Prepare and implement a national strategy for development, maintenance and financing of critical infrastructure.

Institutional Strengthening Action Plan (ISAP)

13. Leaving aside security, limited institutional and human capacity will be a major constraint to prepare and implement the infrastructure recovery and development program. This has implications for all sub-clusters to varying degrees, and for the public and private sector institutions and workers. The Governance, Security and Rule of Law Cluster report discusses the principles of public sector management and accountability, the important role that NGOs and the

private sector will be required to play in service delivery, as well as that of public private partnerships in development. The ability to address the capacity constraints depends in part on how firmly the public sector institutional arrangements/framework have been set in place, and how clearly the expected public sector objectives and institutional responsibilities have been laid out. For transport infrastructure, for example, the experience to date has been outlined in paragraph 6 above, and other sections of the cluster report, along with similar provisions for capacity building for the other sub-clusters. Program budget provisions have been made in the costing for capacity building and training. For each regional sector ministry or agency/authority, the RDP should seek to establish a strong fundamental institutional capacity for policy development and for investment program planning, preparation, and implementation (i.e., economics and planning, environmental and social assessment and impact mitigation, engineering design and works implementation, monitoring and supervision). In addition, it is essential to establish program management capacity for fiduciary functions of procurement and financial management. One option could be to hire a financial management agent firm to support the ministry of finance in each Region or TFG, as well as a procurement agent firm to support the procurement function of the major investing ministries/agencies or authorities. In this context, four major areas of focus are also proposed for implementation as part of the ISAP for Infrastructure:

- Extensive consultation process with key stakeholder participation to define a lean and viable institutional framework, setting out and firming up the public/private sector institutional objectives, functions, structures and roles, as well as human resource needs;
- For each of the proposed areas of investment (e.g., community contracting, labor-based EIIP, cash for work, etc.) carry out an in-built program and process of capacity building and training (on-the-job or specialist training for public sector staff/work-force and local private contractors, consulting firms and selected individuals) for the persons involved and managed through a framework agreement with international agencies or consulting firms;
- Recruit/mobilize interested qualified and experienced Somali expatriates of appropriate professional and technical skills to help restore some of the institutional capacity to manage infrastructure development, train others and support management and implementation of the program. The selected candidates can be required to have professional qualification and technical skills to work in the functional areas cited in the main paragraph above: to support policy formulation, planning, preparation and program implementation.
- Recruit/hire private International consultants – individuals and firms/NGOs as independent TA to carry out various assignments, or as in-line staff of public institutions charged with responsibility for managing and implementing the programs. This arrangement could also involve twinning arrangements involving interested infrastructure agencies from countries abroad, in areas similar to above, and particularly if confirmed, for the fiduciary functions related to financial management and procurement.

14. The first set of actions involving a consultative process to develop institutional frameworks could be implemented during the preparation period and before the start of the 2-year short-term program, depending on the availability of preparatory funds. The aim will be to establish the framework and capacity building needs for implementation, and finalize the same during the short-term program implementation period as needed.

Proposed Sub-Cluster Programs

15. In line with the broad objectives and principles set above, the infrastructure cluster interventions have been prepared, as summarized in the attached Results Matrix, showing the intended outcomes, baseline situation, constraints to achieving the outcomes by the end of the 5-year medium-term period now set for 2011, as well as the key actions and intermediate outcomes. In addition, the arrangements for monitoring the results are also attached to this report in a

separate Monitoring Matrix (Chapter VII of the main report). The next section presents the status and context, institutional framework and expected outcomes for each sub cluster as well as estimated base costs for the proposed activities, viz., Transport – Roads, Airports and Ports; Electricity and Energy, and Urban Infrastructure. The summary of the estimated cluster activity costs (including contingencies) are presented in Table 1, at the end of this Executive Summary of the Cluster report.

TRANSPORT INFRASTRUCTURE

Status and context

16. **Roads and bridges.** The total road network is approximately 22000 km. Only about 10-15% of the 2600 km of primary roads can be considered to be in good condition. The rest of the network is in poor to very poor condition. In addition, less than 10% of 19200 km of secondary and rural/feeder road network are in good condition. The balance is in poor to very poor condition. Road transport continues to be the principal mode of internal transport due to a lack of railway infrastructure and limited coastal shipping. However, the provision of transport services has declined steadily due to limited investment, aging equipment and prevailing insecurity. Animal transport - camels and donkeys - continue to be the most important means of transport for many people.

18. **Air transport/civil aviation.** There is one fully functioning international airport (Hargeisa in Somaliland). In addition, there are three existing but not fully functioning international airports (Mogadishu, Kismayo in SC-Somalia and Berbera in Puntland). Recent news reports from SC Somalia indicate that the Mogadishu international airport has been partly re-opened in July 2006. However, its operational status and reconstruction needs have not yet been fully assessed and reported. There also three functioning major domestic and regional airports (Bosasso, Galkaio, Baidoa, Jowhar), and about 50 domestic airstrips providing limited passenger and freight services.

19. **Ports and shipping.** Somalia has a coast line of about 3300 km which is one of the longest in Africa. For many years, it had only two functioning major ports (Bosasso in Puntland, and Berbera in Somaliland), two non-functioning major ports (Mogadishu, Kismayo), and two functioning minor ports (Merca, Las Qorey). Recent BBC and Associated Press news reports indicate that the Mogadishu seaport has been re-opened as recently as August 2006. The first ship is reported to have docked at the main port on August 25, 2006, for the first time in 10 years. There are also over ten minor ports operating on an informal basis.

Institutional and Legal framework

20. Up until 1991, the Ministry of Public Works and Housing (MPWH), through its Directorate of Highways (formerly Civil Engineering Department), was responsible for planning, constructing and maintaining roads throughout Somalia. The Ministry of Land and Air Transport (MLAT) was responsible for vehicle registration and Ministry of National Planning (MNP) responsible for general planning of the sector and for monitoring project implementation. By 1988, Government of Somalia (GOS) introduced major innovations in the management of road maintenance. MPWH also established a Road Maintenance Fund (RMF), which generated revenues through a motor fuel tax. It is noteworthy that Somaliland and Puntland, with support from the European Union (EU), have more recently adopted the institutional models promoted under the Road Maintenance Initiative (RMI) of the SSATP.

21. At present, the Transitional Federal Government (TFG) has established a Ministry of Transport (MOT) that has limited capacity. Furthermore, the institutional and legal framework under which it functions is still not fully defined. ***This critical issue will require work and fine-tuning to arrive at an effective and efficient institutional model(s) to manage the road transport***

sector. This will require consultations with the various stakeholders participating in the proposed program.

Summary of Planned Outputs, Outcomes and Costs.

22. The following are the planned outputs for transport infrastructure:

Short-Term (Years 1-2)

- Develop ISAP and start its implementation (\$40 million).
- Improve the primary roads connecting major urban centers (Kismayo, Mogadishu, Garowe, Hargeisa, Bosasso, Berbera) (\$111 million).
- Improve basic accessibility to major productive centers such as farming communities, livestock hubs and fish processing centers (\$33 million).
- Improve basic airport and air navigation infrastructure throughout country (\$23 million).
- Improve basic port infrastructure and shipping services throughout country (\$31million).

Medium-Term (Years 3-5).

- Continue implementation of ISAP (\$50 million).
- Continue to improve primary roads connecting major urban centers (Kismayo, Mogadishu, Garowe, Hargeisa, Bosasso and Berbera) (\$223 million).
- Continue to improve basic accessibility to major productive centers e.g., farming communities, livestock hubs and fish processing centers (\$37 million).
- Continue to improve basic airport and air navigation infrastructure throughout country (\$ 85 million).
- Continue to improve basic port infrastructure and shipping services throughout country (\$ 59 million).

ELECTRICITY AND ENERGY

Status and context

23. Somalia primarily uses charcoal and firewood as the primary source of domestic energy. It is estimated that 87% of the country's energy consumption comes from biomass type fuels. Petroleum products account for about 11% of the total energy use, while electric power generation using diesel fuel, account for about 2% of the total energy use. Electric power is probably the next highest source of energy and is used mainly for the residential, commercial and industrial sectors. Electric power, using diesel generators, is used to run most of the borehole pumps in the rural areas and supplies up to 40% of the urban areas. Firewood and charcoal provide the rest of energy needs in the urban areas too.

24. Most of the electric generation plants in urban and rural areas are owned and run by private enterprises or NGOs. In most instances, privately owned and operated generators supply electricity on a commercial basis. For some private generators, the primary objective is to supply their own premises (telephone companies, hotels, small industry, etc.) and the spare capacity is sold over a very rudimentary fragmented network to supply the consumers in the locality.

25. Other potential sources of energy in Somalia are solar, wind, coal and hydroelectricity. However, these are mostly untapped and will continue to be so for the foreseeable future. Work was about to start on a major hydroelectric scheme at Bardhere, and its construction came to a halt in 1989. The former government had a special ministry set up for the development of the Juba River, and any future action would need to consider the body of knowledge available. *The development of renewable energies, and to lessen charcoal consumed, will be critical to ensure a sustainable energy mix for Somalia. However, its development will take time and will be capital intensive.*

Institutional and Legal framework

26. The TFG, Somaliland and Puntland have Energy directorates/authorities. They form the focal point for data collection and policy setting and need empowerment to implement the policies. Government Electricity Supply agencies/authorities operate in regional centers of Somaliland and Puntland. These agencies, in most instances, operate existing publicly owned power plants and/or distribution networks. Table 3.1 is the list of known public companies in various zones with a description of its status in the zonal government. Puntland Electric Energy Authority, which owns the Bosasso, Ghardo and Garowe power stations, has recently signed up a private enterprise to manage the power stations and distribution network. The terms of the agreement are yet to be finalized and implemented.

27. While private companies can provide electricity at the local level, there is no legal framework, and even the authority of the local government Agencies is weak to enforce basic standards or safety criteria. The electricity supply business is usually managed in consultation with the local community leaders. In this context, Somali authorities should ensure that the privatization of basic social services such as power does not compromise general access to all segments of society, availability and quality.

Summary of Planned Outputs, Outcomes and Costs.

28. The following are the planned outputs, outcomes and base costs for Electricity and Energy infrastructure and services:

Short-Term (Years 1-2)

Electricity:

- Development of Transmission and Distribution Network **(\$9 million)**
- Install additional generation capacity throughout country (**119MW**) **(\$70 million);**
- Capacity Building (ISAP) **(\$9 million)**
 - Training and skills development **(\$6.3 million);** Establishment of the Planning Team **(about \$1.6 million);** Establishment of Regulatory Body for Public Private Partnership **(\$0.4 million);** Establishment of Electrical Installation Inspectorate (EII) **(\$0.8 million); and**
- Realignment of Regulatory Body and reinforcement of the Inspectorate **(\$1.0 million).**

Energy:

- Introduction of LPG Gas and Kerosene (details on cost Linked to Productive Sector for Costs); **(\$10 million)**

Medium-Term (Years 3-5).

Electricity:

- Development of Transmission and Distribution Network **(\$4 million)**
- Development of additional generation capacity (Power Stations) **(\$49 million)**
- Interconnect power grids of Mogadishu, Jowhar and Fenola **(\$11million)**
- Implement broad rural electrification program
 - in areas of high agricultural, pastoral and fishing potential **(\$10 million)**
- Re-commission the Fenola Power Plant **(\$2 million)**
- Commence the construction of Bardhere Hydroelectric Scheme **(\$3 million)**
- Reinforcement of the Regulatory Body and Inspectorate **(\$1 million)**

Energy:

- Development of Renewable Energy Sources **(\$10 million)**

URBAN INFRASTRUCTURE

Status and context

29. *Urban infrastructure* in all Somali towns requires major investment due to more than 15 years of neglect and rapid urbanization. Urban infrastructure has deteriorated the most in the urban areas of SC Somalia, where the continuing conflict, lack of maintenance and looting of urban infrastructure have hindered reconstruction initiatives. In contrast, basic rehabilitation and development of infrastructure have taken place in relatively stable Somaliland and Puntland. Improvements in urban service sector (water, energy, waste management, roads and housing) have been carried out through small-scale community or private sector led local initiatives or international aid programs. Somaliland and Puntland are therefore at the stage for infrastructure development, whilst South/Central Somalia is in an early stage of rehabilitation.

30. As direct result of the civil war, the rate of urbanization has increased dramatically over the last 15 years. Prior to the civil war, Somalia was predominantly a country of nomads with very small urban centers. Apart from Mogadishu and Kismayo, towns generally had populations of tens of thousands or less. Driven by the continuing internal strife in large parts of the country as well as natural disasters, the urban population in major Somali towns has increased 300-500%, on average, during the last 15 years.

31. The rapid urbanization has put enormous pressure on a very limited urban infrastructure stock. The urbanization process has been haphazard, with little spatial planning and urban management. While the centers of the main settlements and some of the new villages are relatively structured in terms of lay-out from pre-civil war planning efforts, much of the urban space, including vacant space within the formal urban fabric, holds pockets of ‘nomadic’ tents (‘buuls’) belonging to displaced communities or recent arrivals. For example, in Bosasso one out of six structures is now informal. In some areas, land has mostly been grabbed by individuals belonging to (sub-) clans that control specific areas. An active but unregulated land market conflicts with old and recent draft laws, whereby an individual can be granted a plot for his personal use only.

32. Partly destroyed, inadequate and poorly maintained urban infrastructure has contributed to a sharp deterioration of living standards in urban areas. An estimated 43% of the urban population lives in extreme poverty with 61% living on less than US\$2 a day¹. Unemployment and under-employment, which is estimated over 80% in some cities, is a major problem. This may reflect seasonal and serious under-employment while urban unemployment, in general, is estimated at around 60%².

33. Clean water is one of the most critical and scarce resources in all urban areas in Somaliland, Puntland and SC Somalia, especially for vulnerable groups (IDPs, urban poor, women headed households, etc.). The latest estimates suggest that less than 30% of the total population in Somalia has access to a clean, sustainable water source, and even fewer has access to basic sanitation facilities. Besides causing serious health risks, the shortage of clean water can delay general economic recovery, if not adequately addressed. Indeed, the right to water requires that everyone has access to “*sufficient and safe water for personal and domestic use*” to prevent disease. (WHO recommends 50 liters per person and per day). In this context, regulatory mechanisms and assistance measures should be put in place for the state to fulfill its obligations.

34. Urban water infrastructure is one of the worst affected, with majority of water supply systems in need of urgent rehabilitation and expansion since they only serve a small minority of the urban population. Most water supply infrastructure either is damaged or has been poorly

¹ UNDP/World Bank Somalia Watchbrief (2002)

² *ibid*

maintained during and after the conflict. The continuing conflicts in various locations and lack of a functional central government have resulted in chronic under-investment in urban water infrastructure, institutions and policies. Only in the relatively more stable areas, such as Somaliland and Puntland, basic investments has been made to improve the water supply, mainly by the international community. These investments have not even come close to being able to provide the rapidly growing urban population with piped or other adequate water supply.

Institutional and legal framework

35. Municipal institutions and management systems have inadequate capacity in Somaliland and Puntland and are largely absent in SC Somalia. However, in the absence of clear governmental structures, central and local authorities, the private sector and community groups have taken up responsibilities on *ad hoc* basis. After the collapse of the central government, privatization of municipal services occurred mostly without governmental regulation, resulting in inequitable pricing and spatial monopolies in the provision of urban services. Private entrepreneurs without a regulatory framework dominate most basic services with negative effects on urban poor. In order to engage the private sector as a key partner in the redevelopment process, private entrepreneurs will require a more stable environment for long-term business development and regulative framework from public bodies.

36. Somaliland and Puntland, now regulate the basis for local taxation, the roles and responsibilities of local government and the management of land (e.g., Regions and Districts Law 23/2002 and Land Management Law 74/2003 in Somaliland). The city Charters for Hargeisa and Garowe are currently in the respective Parliaments of Somaliland and Puntland for approval. They may lead to basis for long-term urban management systems. *JNA Governance Cluster report discusses urban legal framework in more detail.*

37. Another institutional constraint in the urban sector is the inability by local governments to raise adequate tax revenues to fund even a small part of the investments required to rehabilitate and develop urban infrastructure. The weak tax base together with need for transparent municipal finance systems add to the challenge of reconstruction and development of critical urban infrastructure. Budgetary or any other support from the central administration to local authorities hardly exists.

Strong role of non-governmental entities in urban sector development

38. Emerging state and municipal level authorities, especially in Somaliland and Puntland, provide the basis for development of urban infrastructure management and for a more effective environment for infrastructure investments. However, the institutional set-up process is slow. For fast delivery of priority infrastructure projects (within 2-5 years) and durable, self-sustained infrastructure systems, the role of the private sector has to be enhanced and harnessed. In the same time, public authorities should design policies aiming to fulfill the right to housing for disadvantaged groups in putting in place housing credit accessible especially to women, returnees, etc.

39. Somali urban communities possess a relatively strong private sector and civil society. However, the line between the private sector and key decisions makers is sometimes blurred and often functions along 'clan' divisions. Active role and interest of the private sector, CSOs and local communities in participating in urban development is critical in securing the sustainability of external investments. Private water companies have, for instance, performed relatively well in several cities with limited public involvement and funding. The private sector has also initiated housing projects for the Diaspora in Puntland and Somaliland. Local community and citizen groups support several urban infrastructure services, such as markets, sanitation and crosscutting sectors (income generation, women's empowerment). These represent a resource for urban development planning that can mobilize through participatory urban planning processes.

40. The five-year development target in the urban sector is thus to establish varying models for PPPs' and non-governmental actors' involvement in different levels of infrastructure development and basic service delivery (water supply, energy, transport, housing, solid waste management, urban planning). The municipal authorities take lead in the development of solid policy framework, service quality control and service development planning. Policies set, inter alia, would aim to fulfill the right to housing for disadvantaged groups as well instituting housing credit accessible especially to women, returnees, etc.

Summary of Planned Outputs, Outcomes and Costs

41. The following are the planned outputs, outcomes and costs for urban infrastructure and services including water supply and sanitation services:

Short-Term (Years 1-2)

- Sustainable access to clean water for at least 30 % urban population in selected major cities through improved water sector management, private sector participation and infrastructure rehabilitation/development **(\$6.0 million)**
- Development of safe and environmentally sound solid & liquid waste collection & disposal systems for 50 % of urban population in selected cities **(\$24 million);**
- Accessibility to all parts of urban areas and travel times within urban areas improved to enhance local economic potentials **(23 million);**
- Standard of living and reintegration of IDPs to the local communities improved in existing and new settlements in selected cities, with 7000 permanent shelters constructed for IDPs and the urban poor **(\$35 million);**
- Urban local environment improved in selected cities resulting in improved quality of life and governance in cities (improved livelihoods and basic services, especially health and sanitation) **(\$10 million);**
- Development of cross-sector urban planning system in major urban centers to guide long-term development of Somali cities **(\$4 million)**

Medium-Term (Years 3-5)

- Sustainable access to clean water for at least 30 % urban population in selected major cities through improved water sector management, private sector participation and infrastructure rehabilitation/development **(\$8.0 million)**
- Development of safe and environmentally sound solid & liquid waste collection & disposal systems for 50 % of urban population in selected cities **(\$79 million)**
- Accessibility to all parts of urban areas and travel times within urban areas improved to enhance local economic potentials **(20million)**
- Standard of living and reintegration of IDPs to the local communities improved in existing and new settlements in selected cities, with 7000 permanent shelters constructed for IDPs and the urban poor **(\$38 million);**
- Implementation of cross-sector urban planning system in major urban centers to guide long-term development of Somali cities **(\$4 million)**

**Table 1. Infrastructure Cluster
Summary Cost Estimates
(Including Contingencies)**

	Short-Term (US\$ million)			Medium-Term (US\$ million)
	Sub-Total	2007	2008	2009-2011
TRANSPORT				
ISAP	47	19	28	56
Trunk + Sec Roads & Bridges	117	23	93	256
Feeder Roads	35	14	21	43
CS Design and Supervision	26	11	16	49
Airport Infrastructure	25	7	17	98
Ports	33	10	23	68
SubTotal	282	84	198	570
ELECTRICITY				
Transmission & Distribution	10	4	6	5
Power Stations	81	32	48	56
Interconnection	0	0	0	13
Rural Electrification	0	0	0	12
Re-commissioning of Power Plant	0	0	0	2
Bardhere Hydro Scheme	0	0	0	3
Regulatory Body	0	0	0	1
Capacity Building	10	4	6	0
SubTotal	101	40	61	92
ENERGY				
LPG development	10	4	6	
Renewable Energy Development			2	10
SubTotal	10	4	8	10
URBAN				
Sustainable Access to Clean water	7	3	3	10
Liquid and Solid Waste Management	28	11	17	90
Accessibility in Urban Areas	27	8	19	23
IDPs	40	20	20	43
Improved Governance/ISAP	11	4	7	0
Urban Planning	4	2	2	5
SubTotal	117	49	68	171
Cluster Total	500	173	327	833

Somali Joint Needs Assessment (JNA)

INFRASTRUCTURE CLUSTER

I. INTRODUCTION

The Role of Infrastructure and Services

1. Infrastructure rehabilitation and development should contribute to restoring the livelihoods of the people affected by years of conflict, and to support the peace building efforts. Good infrastructure will also contribute to the proper functioning of: (a) the productive sectors in restoring economic growth; (b) the social services towards improving social well-being and livelihoods of the people, (c) contribute to peace building and reconciliation as stated in the Post Conflict Needs Assessment (PCNA) guidelines. These factors, in turn, will contribute to the overall objectives of poverty reduction, progress towards the Millennium Development Goals and peace building for Somalia.
2. Prospects for infrastructure restoration and development will greatly depend on maintaining a peaceful political environment, law and order, sound economic and social policies, during the re-construction period, and the later proper functioning of the facilities and services provided. Rehabilitation of infrastructure also provides opportunities for enhancing the dialogue and cooperation between communities, around improving common infrastructure assets, as part of peace building efforts.
3. The Somali JNA Infrastructure Cluster report covers transport (roads, airports and seaports), power and energy, urban infrastructure including water supply and liquid and solid waste management and urban roads. The report presents the current state of infrastructure in all parts of Somalia, including findings from consultations with various stakeholders, and other sources as detailed below.

Key Cluster Issues

4. All infrastructure facilities have suffered from lack of maintenance and rehabilitation, war damage and vandalism, and years of neglect. ***There are limited inventories and condition records. It will therefore be a priority during the first two years of the reconstruction and development program to refine data on the true state of the infrastructure, its institutional functions, as well as needs, design and costs and confirm implementation modalities.***
5. Somalia has not had a functioning central government for the last 15 years, and hence has had no stable and functioning central and/or local government to holistically and properly manage the country's infrastructure. It is noteworthy, that while the civil war has had a devastating effect on infrastructure in all regions of Somalia, some parts of Somalia, namely, Somaliland and Puntland have made some recovery because of the relative peace and stability established in those regions. Both regions have made progress in putting in place legislation and institutions to manage some of their infrastructure with support provided by EU and other donors. Also important to Somalia for the proper functioning of its infrastructure, especially transport and to some extent, power generation, is the need to link policies and regulations to those of recognized international and Africa regional associations.
6. The infrastructure related issues facing Somaliland and Puntland, clearly differ from those of SC Somalia, and the recommendations take account of the differences in institutional organizations and capacities, and the relative conditions for peace, development and growth. In SC Somalia, the priority concerns of local representatives throughout the JNA have been for the

re-establishment of peace through increased security and law and order. This is borne out by the completed questionnaire returns from central and southern regions, which show the following critical constraints that need attention such as: (a) Security and Law and Order; (b) lack of proper institutions; (c) lack of technical and professional expertise; (d) poor road condition, coupled with insufficient transport services and facilities; and (v) very high levels of unemployment or under-employment.

7. Lastly, it is noted that all infrastructure covered in this report have specific linkages to some or all of the other JNA clusters, and between the various infrastructure sub clusters. The report discusses crosscutting themes that apply to this cluster throughout the report, as well as separately in Chapter V, with the aim of highlighting and ensuring effective coordination between clusters in the planning and implementation of all activities.

Key Reconstruction and Development Objectives

8. The JNA's short-term (Years 1-2) infrastructure reconstruction and development priority actions aim at addressing the most urgent post-conflict needs of Somalia. At the same time, it needs to put in place practical and cost effective reconstruction programs for the different infrastructure sub sectors that consider poverty reduction goals in line with the Millennium Development Goals, regional and gender equity and available implementation capacity. More specifically, the proposals will include a short term plan to: (a) reconstruct essential infrastructure including feeder roads, power generating and distribution systems; (b) renewable energy development and promotion; (c) urban infrastructure and services including water supply and sanitation (waste management), housing and support to internally displaced peoples (IDPs), roads and bridges; (d) carry out study of the institutional requirements for various infrastructure and initiate actions to increase absorptive capacity, as well as the regulatory requirements for the functioning of various infrastructure; and (e) create employment for the population through labor-based works using approaches such as **community contracting**, with cash, or as necessitated, food for work, in places where the labor force live. These actions should bring much needed cash to impoverished communities, increase economic activities, improve absorptive capacities and contribute to peace building. As part of the overall preparation for infrastructure reconstruction, it will also be essential to refer to past land mine surveys, establish, in consultation with the various local stakeholders, the location of landmines and unexploded ordinances (Axis), and develop a clear strategy and plan for minimizing the potential dangers posed by them.

9. In the medium term (Years 3-5), the objective would be to build on the community level interventions and consolidate gains, complete feasibility and engineering designs and contract documentation and implement major infrastructure rehabilitation and reconstruction work, along with consolidating institutional development and capacity building for the longer-term. For example, in the road sub-sector, the priorities include actions to re-establish regional interconnectivity with countries such as Ethiopia, Kenya and Djibouti, and between the various regions within Somalia with the aim of supporting efforts towards peace and reconciliation and regional linkage. The following sequencing of activities could follow in the medium term reconstruction phase:

- Continue community level interventions to improve feeder roads and other infrastructure;
- Select projects for implementation based on techno-economic feasibility studies, regional equity, funding, as well as address issues important for security and peace building.
- Carry out feasibility studies, engineering designs, and procurement procedures, and plan and implement de-mining activities for road and other large infrastructure investments.
- Start or continue implementation of works on major national and inter-regional roads and other infrastructure, which are awarded for implementation.
- Carry out and complete studies to identify key regulations and institutional framework needed for the proper functioning of infrastructure, associated services, and take actions to ensure effective enforcement of regulations alongside balanced development.

- Implement training and capacity building for staff in public sector institutions identified for training.
- Identify and categorize capabilities of nationally owned private consulting firms and contracting companies and implement program of training and capacity building.
- Prepare and implement a national strategy for development, maintenance and financing of critical infrastructure.

Structure of Report

10. The report covers, in order, the key infrastructure sub clusters assessed by the JNA, viz., Transport, Electricity and Energy, and Urban Infrastructure. For each sub cluster, the report discusses status and context, institutional and legal framework, identification of needs, issues and opportunities, and cost of reconstruction and development priorities broken down into short-term (Years 1-2) and medium term (Years 3-5) priorities. The estimated reconstruction and development costs are for various regions, which are then presented as one set of tables at the end of each sub cluster section report as appropriate. Chapter VI presents the Results Matrix of the summary of key initiatives and outcomes, (Baseline, Years 1-2, Years 3-5), with timeline and estimated costs for achieving agreed priority outcomes; and Chapter VII presents a Matrix summarizing proposed implementation and monitoring arrangements, which chapter will need to be coordinated with the other clusters of the JNA. The Annexes include specialized reports, tables, maps of the locations of roads, airports, ports and jetties, and possible sub-cluster interventions for transport, electricity and energy, and urban, water supply and sanitation, and specific regional reports not fully reflected in the main report.

11. The approach adopted for the assessment is to treat the issues as they apply to Somalia as a whole, while recognizing and highlighting the unique and diverse social-economic, demographic and environment characteristics of the different parts of the country -- Somaliland, Puntland, and SC Somalia. The approach derives from the inter-regional characteristics of some sub cluster facilities such as transport and power distribution, which would often require planning and coordination on a national basis between the various regions/zones. Out of necessity, power supply and urban infrastructure such as water supply and sanitation and urban services, in general, are of localized nature to each region or zone, and therefore would be of specific interest to the various regional and local administrations. Essential to all this, is the setting up of common policy frameworks under the TFG as reflected in the various regional governments or administrations.

II. TRANSPORT INFRASTRUCTURE

Introduction

X. At present, the transport infrastructure of Somalia comprises of about 22000 km of roads, four major ports, and fifteen major airfields, four of which have paved runways. There are no railways, pipelines or inland waterways. Since the late 1980s, there has been no major investment in the development of transport infrastructure and very limited maintenance of the existing transport infrastructure. This has resulted in the capital infrastructure stock that Somalia had built up by the late 1980s being largely depleted. Road transport continues to be the principal mode of internal transport due to a lack of railway infrastructure and limited coastal shipping. However, the provision of transport services has declined steadily due to limited investment, aging equipment and prevailing insecurity. Animal transport - camels and donkeys - continue to be the most important and only means of transport for many people. The former usually move over long distances (with an average load of 100 kg over an average distance of 30 km per day). The latter typically carry small loads within urban areas and around them.

X. With insecurity, and a deteriorating road network, air transport has continued to play an important role. However, despite a coastline of about 3300 km, coastal shipping has had limited development, although it has much potential. In recent times, piracy along part of the Somali coast has held back the development of coastal shipping.

(A) Roads and Bridges

Status and context

X. By 1990, the country's road network totaled about 21830 km³ and consisted of the following road classifications: (a) primary; (b) secondary and; (c) rural/feeder roads. The primary road network, which was mostly paved, serves major population centers like Kismayo, Mogadishu, Hargeisa, Berbera, Garowe and Bosasso. The secondary road network connects settlements of local significance to one another and to the primary road network, and is predominantly earth roads or tracks. Rural/feeder roads are mostly low volume earth roads, which served, as access to the primary and secondary road systems and no reliable inventory exists covering these roads. A breakdown for the 21830 km network is in Table 2.1 below.

Table 2.1: Road Network by Administrative Classification and Surface Type

	Primary Roads	Secondary Roads	Rural/Feeder Roads	All Roads	Percentage
	Length (km)				
Paved:	2,339	418	--	2,757	
Gravel:	--	844	--	844	3.9
Earth:	220	3,588	14,421	18,229	83.5
TOTAL:	2,559	4,850	14,421	21,830	100.0

SOURCE: Directorate of Highways, Ministry of Public Works and Housing (1989)

X. The extent of the primary and secondary road network in 1990 was already then barely adequate to meet the transport needs of the economy. Despite considerable investments in the road sector in the 1980s, the standards and condition of the road network remained unsatisfactory in many parts of the country. Some of the more productive regions did not have all-weather roads

³ Somalia Infrastructure Rehabilitation Project. Staff Appraisal Report, The World Bank Report No. 8220-SO, September 14, 1990. Recent sources via Internet estimate the total as 22,100 km.

crossing them, and this in part, greatly hindered the access to markets for farmers' products in Middle Juba from Jilib, over Bu'aale to Saakow and continuously along the Juba River to Bardhere in Gedo region.

X. During the 1980s, the paved road network increased from about 2460 km in 1981 to 2757 km in 1989. However, during the last fifteen years, the condition and quality of the road network has deteriorated sharply due to a lack of investment and maintenance. Today, only about 600 km of roads are still paved, and can be considered in a reasonably good condition. In general, paved roads that were constructed on the predominantly good, well-drained soils of central and northern Somalia have remained in a satisfactory condition, whereas roads in the valleys of the Shebelle and Juba rivers where soil conditions are more difficult are generally in poorer condition. Of note, the road between Bosasso and Garowe (about 400 km), completed in 1989, and remains in relatively good condition, because of the good construction standard and relatively low traffic volumes.

X. Historically, a paved two-lane road, between Mogadishu and Berbera on the Gulf of Aden, via Belet Uen, Galkaio, Garowe and Burao (about 1400 km) formed the north-south link and the backbone of the country's road system. The other most important roads are the coastal road from Mogadishu to Kismayo (about 475 km) and the road from Mogadishu to Dolo, on the Ethiopian border, via Afgoi and Baidoa (about 600 km), which also branches north-west to Bardhere. In addition, the road from the northeastern coastal town of Bosasso connects the north-south road at Garowe, while a paved two-lane road connects the port city of Berbera to Hargeisa and another paved two-lane, two-way road connects Hargeisa to Dila (25 km south of Borama).

Institutional and Legal framework

X. Up until 1991, the Ministry of Public Works and Housing (MPWH), through its Directorate of Highways (formerly Civil Engineering Department), was responsible for planning, constructing and maintaining roads throughout Somalia. The Ministry of Land and Air Transport (MLAT) was responsible for vehicle registration and Ministry of National Planning (MNP) responsible for general planning of the sector and for monitoring project implementation. By 1988, Government of Somalia (GOS) introduced major innovations in the management of road maintenance. Notably: (a) DOH was up-graded to the level of an autonomous self-budgeting Directorate of Highways (DOH) under MPWH; and (b) DOH gained direct control over all road maintenance activities in seven newly defined Highway Maintenance Areas throughout the country⁴, and they retained the services of several trained Somali engineers who formed the backbone of the technical capacity of the Directorate. MPWH also established a Road Maintenance Fund (RMF), which generated revenues through a motor fuel tax. It is noteworthy that Somaliland and Puntland, with support from the European Union (EU), have more recently adopted the institutional models for road authorities and road funds in different countries like Ghana, Ethiopia, Kenya, Zambia, etc., promoted under the RMI of the SSATP. Both regions, however, are still seeking to establish full institutional capacities for planning, implementing and maintaining a viable infrastructure reconstruction and development program. Also important to Somalia for the proper functioning of its infrastructure, especially transport and to some extent, power generation, is the need to link policies and regulations to those of recognized international and Africa regional associations, such as Common Market for Eastern and Southern Africa (COMESA), and the framework of the New Partnership for Africa's Development (NEPAD).

X. At present, the TFG has a Ministry of Transport (MOT) that has very limited capacity. However, the institutional and legal framework under which it functions is still not fully defined, taking into account the historical and more recent developments in the transport sector. Thus, the TFG should consider membership, representation and support from the SSATP in defining its institutional and legal framework for the transport sector. Already, Somaliland has continued to

⁴ Areas 6-7 now correspond roughly to the regions of Somaliland and Puntland.

seek such relationship and support, and this could benefit Somalia as a whole. *This issue will require work and refinement in order to arrive at effective institutional model(s) to manage the road transport sector. This will require consultations with the various stakeholders participating in the proposed program.*

X. In the case of Somaliland, many government institutions and private sector organizations have been the beneficiaries of restructuring and capacity building support by international donor organizations. For example, the establishment of Somaliland Road Authority (SRA) and Road Fund Administration with financing from EU is a prime example of successful effort in institutional capacity building. However, the (SRA) still lacks adequate technical, institutional and financial capacity to manage Somaliland's road network adequately, but it has the fundamental elements in place.

X. Puntland has also established a Puntland Highway Authority (PHA). The main objective of PHA is to formulate and implement roadway and airport rehabilitation programs and to secure transport sector funding from a fuel levy and from international and national stakeholders donations. As in Somaliland's SRA, the PHA is also a viable entity with the basic required structure for programming and maintenance tasks.

X. The SRA and PHA are already successfully implementing routine maintenance work on their respective networks, but both need technical and financial assistance to attain their full potential. The SC Somalia does not appear to have any fully functioning institutional arrangements in place to manage the road network. Thus, TFG, based on the outcome of consultations with various stakeholders, will need to decide which model it wants to follow to manage the various parts/levels of the road network.

X. Considering that both Somaliland and the Puntland State of Somalia have functioning road authorities, the final institutional structures could possibly be built on these with appropriate strengthening. SC Somalia will need to consider the advantages of establishing its own institutions. Ultimately, the overall institutional arrangements adopted should foster good cooperation, without undue control or centralization. The proposals for consideration for the coordination between regions in planning, programming, monitoring and regulation and control include federal type arrangement to manage the national and regional road networks by building on the examples from federal countries like the USA, Ethiopia, South Africa, India or Nigeria. This is because the issue of how the road network is managed will need to be resolved before major investments can realistically flow into the sector. One of the key questions, for example, is where the responsibility for the major road stretches that cross regional boundaries throughout the country will be – i.e., under the federal government, or under the regional governments?

ISAP

X. Leaving aside security, limited institutional and human capacity will be a major constraint to prepare and implement the infrastructure recovery and development plans. This has implications for all sub-clusters to varying degrees, and for the public and private sector institutions and workers. The *Governance, Security and Rule of Law Cluster* report discusses the principles of public sector management and accountability, the important role that NGOs and the private sector will be required to play in service delivery, as well as that of public private partnerships in development. The ability to address the capacity constraints depends in part on how firmly the public sector institutional arrangements/framework have been set in place, and how clearly the expected public sector objectives and institutional responsibilities have been laid out. For transport infrastructure, for example, the experience to date has been outlined above and in other sections of the cluster report, along with similar provisions for capacity building for the other sub-clusters.

X. For each regional sector ministry or agency/authority, the RDP should within the first

year of the program, and in the short-term, seek to establish a strong fundamental institutional capacity for policy development and for investment program planning, preparation, and implementation (i.e., economics and planning, environmental and social assessment and impact mitigation, engineering design and works implementation, monitoring and supervision). In addition, it is essential to establish program management capacity for the key fiduciary functions of procurement and financial management. One option for consideration, would be to hire a financial management firm to support the Ministry of Finance in each Region or TFG, as well as a procurement firm as an agent to support the procurement functions of the major infrastructure ministries/agencies or authorities. In this context, this report highlights four major areas of focus for implementation as part of the ISAP for Infrastructure:

- Extensive consultation process with key stakeholder participation to define a lean and viable institutional framework, setting out the public/private sector institutional objectives, functions, structures and roles, as well as human resource needs.
- For each of the proposed areas of investment (e.g., community contracting, labor-based EIIP, cash-for work with food-for work as needed, etc.) carry out an in-built program and process of capacity building and training (on-the-job or specialist training for public sector staff/work-force and local private contractors, consulting firms and selected individuals) for the persons involved and managed through a framework agreement with international agencies or consulting firms.
- Recruit/mobilize interested qualified and experienced Somali expatriates of appropriate professional and technical skills to help restore some of the institutional capacity to manage infrastructure development, train others and support management and implementation of the program. The selected candidates can be required to have professional qualification and technical skills to work in the functional areas cited in the main paragraph above: to support policy formulation, planning, preparation and program implementation.
- Recruit/hire private International consultants – individuals and firms/NGOs as independent TA to carry out various assignments, or as in-line staff of public institutions charged with responsibility for managing and implementing the programs. This arrangement could also involve twinning arrangements involving interested infrastructure agencies from countries abroad, in areas similar to above, and particularly if confirmed, for the fiduciary functions related to financial management and procurement.

Identification of needs, issues and opportunities

X. The cumulative effect of limited investment over the last 15 years together with the progressive deterioration of the road network means that the reconstruction and development needs of the road sector are large. However, taking into consideration the inherently high costs of rehabilitating/reconstructing road infrastructure, the need to carefully prioritize and sequence the required investments is essential. For example, to rehabilitate and reconstruct the primary road from Kismayo to Mogadishu to Hargeisa to paved surface standard could cost about US\$500 million, depending on the design standards adopted. Beyond the priority list of needs and investments, techno-economic feasibility studies and extensive peace building consultations, will be required to quantify the prioritized actions, and confirm economic trends and regional interconnectivity needs.

X. Development efforts in the more stable regions of Somaliland and Puntland could require different sequencing from the rest of Somalia to take advantage of their stronger absorptive capacity. Recommended actions could include: (a) expanding the technical and managerial capabilities of the SRA and PHA; (b) rehabilitating to a minimum all weather standard (paved) small stretches of the North–South primary road; and (c) constructing gravel feeder roads from coastal towns to inland population centers or to the primary and secondary road networks. Many potential projects in the north and northeastern regions have had completed feasibility studies that are ready for financing. Among other possible road infrastructure priorities are: (a) the

development of the Berbera Corridor to provide Ethiopia with access to the Port of Berbera; (b) rehabilitation of part of the Galkaio to Garowe portion of the North–South primary road; and (c) the preparation of Phase II (engineering design) of Borama to Lowyado portion of the North-South trunk road. Priorities should be taken from this list for the medium-term program (5 years), depending on the level funding available, and above all, an adequate capacity and a peaceful environment.

X. Puntland’s five-year development plan outlines a US\$19 million expenditure for roads improvement alone. This investment level compared to the current annual budget of US\$1 million would require major external technical and financial support to fill the current gaps in absorptive capacity. The JNA team noted that the road between Bosasso and Garowe, while in good shape now, is approaching the end of its design life. This means that it will require major resurfacing and drainage work to extend the road’s serviceability by another ten years. A feasibility study for the Garowe-Galkaio trunk road is near completion, which will more clearly identify its rehabilitation needs and costs.

X. **Short term (Years 1-2) needs.** The short-term actions for developing this sector should aim at addressing the short-term needs of the post-conflict situation and support the peace building efforts. At the same time, it will be essential to set out an ambitious but practical reconstruction program for transport infrastructure that considers poverty reduction goals, regional equity and available implementation capacity. The proposals include a two-year high impact and visibility plan to reconstruct gravel feeder roads, increase institutional absorption capacity and create employment opportunities through labor-based works using approaches such as **community contracting** with cash, and as needed, food, for work.

X. Priority feeder road general locations recommended by the regional authorities for consideration are in Annex II.A.2 for Somaliland, and Annex II.A.4 for Puntland, respectively. Similar priority listings can be drawn following consultations with regional authorities in SC-Somalia including from the lists in Annexes IIA.5-7. All the proposed roads will need to be subjected to further field evaluations, ground surveys, detailed engineering designs, and environmental assessment before finalizing the plans for their improvement and reconstruction.

X. These actions will bring much needed cash to impoverished communities, increase economic activity and improve institutional absorptive capacities. In parallel, detailed techno-economic feasibility studies and extensive consultation on the existing North-South primary road and other major secondary roads will be conducted to better prioritize the needs. This will be supported by studying the capacity building needs and providing institutional strengthening support to establish viable regional institutions in SC Somalia.

X. In light of the low traffic volumes on most roads, and the long technical preparation times of at least 18 months required for survey and design, contract processing and award, as well as the lack of capacity to implement major road works, the reconstruction and rehabilitation of major roads during the first two years is not anticipated. Thus, the proposed road works and actions would have the following overriding objectives before embarking on additional major investments in the medium to long term.

- Improve/re-establish basic accessibility to major productive centers such as farming communities, livestock hubs and fishery processing centers.
- Facilitate peace building and national reconciliation.
- Start the process of improving regional interconnectivity to increase economic interaction among the productive sectors and better communication among various groups.
- Start to improve accessibility to disaster-affected communities.
- Start to reduce vehicle-operating cost.
- Start to increase social service delivery and emergency relief to vulnerable people and IDPs.

X. A significant portion of investments in the first two years will be required to develop institutional capacity in SC Somalia and elsewhere. However, most of the capacity building efforts will need to run concurrently with actual physical improvements of the basic transport infrastructure. This will present a major challenge in terms of having the necessary implementation capacity in place to be able to start road rehabilitation works while also developing the capacity to manage such a program. Along with implementation capacity will be the systems such as the guidelines for procurement, tendering and contract administration as a basis for implementing works under the different possible scenarios existing in Somalia and its regions. Finally, the implementation of the short-term road reconstruction and development plan in much of SC Somalia will be contingent on an improved and assured security and law and order situation. Without an improved security, human rights, as well as law and order, only very limited and localized road reconstruction and development works can realistically be implemented. Reinforcing the rule of law as elaborated in the Governance, Security and Rule of Law Cluster report is therefore a key element towards any reconstruction/ rehabilitation process.

X. **Medium term plan (Years 3-5):** The medium term plan would seek to build on the community level interventions, complete feasibility and engineering design studies and implement major road rehabilitation and reconstruction work, along with institutional development and capacity building. The selection and prioritisation of projects will need to take into account the strategic peace building importance that infrastructure rehabilitation can have. Criteria can be developed through wide consultation with relevant stakeholders and authorities. The selection of infrastructure rehabilitation could be linked to the efforts or preparedness for peace building and reconciliation that is evidenced in the particular area/region/zone. This recommendation can relate to **a general principle of peace dividends/incentives for rehabilitation**. By the end of first two years, the various parts of Somalia must have the basic institutional framework to manage the bulk of the road rehabilitation and reconstruction in order to ensure success. The priorities would include the reconstruction of sections of the North-South trunk road and rehabilitation of important secondary roads. Based on a limited field condition survey and interviews with Zonal coordinators, the portion of the North-South trunk road between Mogadishu and Belet Uen (about 322 km) was determined to be beyond repair and will probably need to be reconstructed. The following sequencing of work could follow in the medium term reconstruction phase:

- Select projects to be implemented based on techno-economic feasibility studies, regional and social equity and available funding, as well as explore the possibility for implementing peace-building objectives.
- Establish the design standards, procurement guidelines and tender procedures that would facilitate the building on the lessons learnt under the short-term program, and for implementation as part of the medium-term program implementation.
- Carry out engineering designs, and contract award procedures, for roads with the completed feasibility studies, along with plans for de-mining as required at critical identified locations of various infrastructure facilities.
- Identify and categorize capabilities of nationally owned contracting companies; and
- Formulate and implement a strategy for development and maintenance of critical infrastructure.

X. **Development of inter-regional/country corridor:** Regional interconnectivity and establishing economic corridors is important for Somalia as a whole and Somaliland in particular. The corridor with the most inter-regional/country connections is the Berbera Corridor road, which provides an important link between the Berbera Port and Ethiopia. The 260 km road includes: (a) Berbera Port to Kalabaydh section (241 km) with a 7.3 m carriageway which was originally paved; (b) Berbera to Hargeisa section which requires major resurfacing, replacement of drainage structures, and a bypass of Hargeisa to avoid congestion within the city; (c) Hargeisa to Kalabaydh section which requires resurfacing and widening to accommodate increased truck

traffic; and (d) Kalabaydh to Togwajale on the Ethiopian border (19 km) which is currently unpaved and , requires paving to complete an all-weather road link to Ethiopia. Most of the corridor road was constructed in the 1970's and early 1980's, but has had no rehabilitation works except for maintenance including patching, sealing and reconstruction of damaged culverts.

X. Other major potential economic corridors include Borama to Djibouti, Bosasso-Garowe-Galkaio, Jowhar- Adale, Mogadishu-Baidoa- Dolow, and Bardhere-Jilib-Kismayo. Somalia will need to explore inter-regional/country links beyond Kismayo to northwestern parts of Kenya such as the link to Ilara, along with links to other parts of Kenya as the program moves from the short-term to medium term implementation. Strategic planning studies carried out for the sub-cluster would provide the basis for decisions in this regard. This will require continued inter-country dialogue as political conditions stabilize in the country, as well with interested financing partners.

Cost of reconstruction and development priorities broken down into short-term (Years 1-2) and medium term (Years 3-5) priorities

X. The development priorities for infrastructure investments in general and roads in particular are based on the overriding assumption of improved security and law and order in the areas to be served by the prioritized infrastructure selected for reconstruction, rehabilitation and maintenance. The specific needs and costs can be found in Tables 2.4 - 2.11 at the end of the Transport Section of the report. These include some of the priorities expressed by authorities in Somaliland and Puntland. *However, refinements will naturally be made during preparation and implementation to confirm the priority needs and costs for SC Somalia, where the overriding concern expressed by some stakeholders is that of ensuring proper security through law and order.*

Implementation, monitoring and institutional arrangements

X. In light of the limited overall implementation capacity, both the short and medium term road reconstruction and development programs will require the creation of a simple but effective implementation framework. The example of Somaliland and Puntland, which have already established functioning Road Authorities, can serve as a model for the management of the road infrastructure in SC Somalia. A federal model could also be considered, if the situation allows. This then could mean establishing a federal roads authority, which would be responsible mainly for national sector policy, and manage the primary road network while regional road authorities are responsible for the secondary and feeder road networks within their respective regions. *The TFG, with assistance from its partners, and in close consultation with regional authorities, will need to address the issue of road infrastructure management to enable proper implementation, coordination and monitoring of any road reconstruction and development effort. This should involve arrangements at national/regional levels as well as joint arrangements for coordination of donor-financed programs*

X. A comprehensive action plan for institutional strengthening and capacity building is to be implemented to address institutional framework and capacity issues are addressed in accordance with the ISAP described in paragraph XX.

X. The implementation of the road infrastructure reconstruction and development program will require an effective public sector program management as well as capable and willing private sector enterprises and NGOs to participate in the tenders and execute the works. The Governance, Security and Rule of Law Cluster report deals with issues related to public-private partnership and private participation in service delivery in general and provides complementary reference. All the tendering processes must of necessity be undertaken according to strictly laid down procedures and guidelines. This would require that the existing tendering and operating guidelines be reviewed for setting the basis for program implementation using private entrepreneurs. One of the important aspects of tendering is everyone's equal access to the possibility to compete, with the

whole process taking into account equity, and ensuring transparency and non discrimination. This would mean that all the tendering notifications would have to be announced in all the relevant regions/districts. The exact procedures need to be established during first two-years (short term program) to ensure replication and extension during the medium-term.

X. The implementation arrangements will therefore include identifying international and domestic NGOs, which have established the good record of accomplishment for infrastructure works programs implementation in Somalia regions already. The source group will include international/UN implementing agencies such as the ILO, which has implemented labor-based road works in Somaliland and Puntland, and have successfully applied or are implementing workable methods/solutions of execution, such as those described below.

X. **Community Contracting.** The community contracting approach was developed by the International Labor Organization (ILO) to address the poverty and massive unemployment existing in rural or unplanned urban settlements. The ILO has already implemented small-scale pilot programs in Somalia using both the Community Contracting and the Employment Intensive Infrastructure Programs (EIIPs). Since the population of Somalia is predominantly rural, Community Contracting is well suited to empower neglected communities, and provide much needed boost to the cash economy. Furthermore, through a process of intensive consultation, the Community will reap additional advantage by being the owner and the beneficiary (user) of the enhanced level of services provided by newly rehabilitated or reconstructed infrastructure. Recruitment principles must minimize potential sources of conflicts by ensuring that various communities and minorities including women and other disadvantaged tribal groupings would have sufficient or equal opportunity for involvement, and employment. A scaling up of this program to cover a larger number of rural communities throughout Somalia could have a beneficial effect by enhancing the economic health and stability of large parts of the country, which would promote peace and development. In the same endeavor, projects such Food for Work implemented by WFP can be utilized to support low scale rehabilitation/ reconstruction projects for both rural and urban areas in consultation with the local leadership and populations.

X. **Employment Intensive Infrastructure Program (EIIP).** This was also developed by the ILO to enhance the economic livelihood of communities through labor-intensive infrastructure works. As with Community Contracting, the benefits of EIIP are many and include:

- Community and gender empowerment.
- Job and income creation.
- Application of cost-effective labor based methods and technologies.
- Capacity Building and Partnership Development.

X. **Developing national contracting capacity.** An essential element will be the existence and availability of qualified domestic contractors available to implement the infrastructure works. In parts of Somalia, especially Somaliland, contractors have been conducting road maintenance work for the SRA in the past few years and have been able to build up some relevant experience in the road sector. Some of the contracts performed by these companies include, bituminous pavement patching and sealing, new culvert construction and rehabilitating and repairing of existing bridges and culverts. In collaboration with ongoing efforts, such those being proposed by ILO under its Mogadishu and Southern project, it will be beneficial to prepare a database of Somali engineers and technicians. This should lead to the establishment of a professional organization and facilitate mentoring, training etc. with some overseas, regional engineers' associations. The policy and regulatory framework around contracting will also need to be developed and in an inclusive participatory manner. The aim would be to build and establish the culture of transparency, accountability, as well as the guidelines, procedures and arrangements for monitoring the same.

X. The development of the contracting industry in parts of Somalia has occurred despite

continuing law and order issues, lack of bank financing, very limited public funding, limited trained work force and limited equipment. Utilizing the local contractors for the small to medium repair works will prove invaluable for the future development of a sound civil works-contracting base in Somalia. Furthermore, it will ensure that the benefits of investments in road infrastructure will be as widely distributed as possible from a regional point of view. However, taking into consideration the limited capacity of the local contracting industry and probable limited interest from international contractors, development of the local capacity will necessary for the implementation.

(B) Air Transport/Civil Aviation

Status and context

X. Somalia has four major international airports in Mogadishu, Berbera, Hargeisa and Kismayo. The airports in Mogadishu and Berbera, when operational, could accommodate major cargo and passenger planes. Almost all of the other major urban centers in Somalia also now maintain at least one unpaved or paved airstrip capable of handling small aircraft. From 1995, insecurity led to the closure of Mogadishu's main international airport over ten years ago. However, following the recent events in and around Mogadishu, news reports from SC Somalia indicate that the Mogadishu international airport has been re-opened in July 2006. However, its operational status and reconstruction needs have not yet been fully assessed and reported. Several unpaved privately owned airstrips also opened around Mogadishu to compensate for the fact that the main airport has been closed. The status of these also had not been confirmed at the time of this report. It seems that the overall number of airports/airstrips, etc., may be 60+ (6 with paved runways, with the rest unpaved) throughout Somalia. It is noteworthy that due to the prevailing stability in Somaliland, the authorities have carried out some infrastructure rehabilitation at Hargeisa Airport including the construction of a new Departure terminal built with donor financial assistance.

X. Airport infrastructure remains the most critical piece of infrastructure for trade and communications with neighboring Kenya and Ethiopia. Without adequate airport infrastructure, it would not be possible to expedite high value economic commodities for export and supply around Somalia. This means that the socio-economic consequences of potential high value commodities need consideration when selecting, rehabilitating and reconstructing airport infrastructure.

X. With the assistance of International Civil Aviation Organization (ICAO), basic air navigation services are now provided from Nairobi. The development of the air navigation infrastructure will need to be closely coordinated with the reconstruction of airport infrastructure to provide safe passenger and freight services to/from/over-flying Somalia.

Table 2.2: Airport Classification⁵ and Location.

⁵ Classification is based on CACAS Infrastructure Study

Airport Class/Category	Number	Airport Name/Location
International	4	Mogadishu, Hargeisa, Berbera, Kismayo
Major Domestic	4	Bosasso, Galkaio, Buroa, Ballidogle,
Feeder	8	Borama, Belet Uen, Bardhere, Kalabayd, Baidoa, Alula, Mogadishu North
Airstrips	45	Up to the total number including Jowhar, Abudwak, Mareray, Garbahare, Luuq, Afmadow, Wajid in Bakool, Saakow and Bu'aale in middle Juba, Jamame in lower Juba, Abudwaq in Galguduud and several others in Galgudud
ALL (Estimated)	60+	

Institutional and Legal framework

X. The CACAS was formed in 1996 to ensure the safety of air transport operations, in the absence of a functioning central government. CACAS is jointly managed by UNDP and the ICAO. It operates from a facility in Nairobi, Kenya, and field stations in Somalia. With roads in poor condition, poor law and order in large parts of the country, airports are increasingly essential for the movements of humanitarian and commercial goods to/from and within Somalia. The main objectives of CACAS are to: (a) to provide the safe operation and maintenance of essential facilities, equipment and services for all air transport operations in Somalia; and (b) assist in the rehabilitation and development of aviation (airport and air navigation) infrastructure in Somalia.

X. Somaliland also maintains its own civil aviation ministry responsible for the management of day-to-day operations of Hargeisa and other regional airports. Hargeisa Airport is now the busiest in the country with 1750 landings, 5600 passengers and 2300 tons of Cargo in 2002. It also has regular international flights to Kenya, Ethiopia and Dubai. Other major airports in Somaliland include Berbera with a 4140 meter paved runway, by far the longest runway in the country, Borama, Kalabaydh and Buroa with unpaved airstrips.

X. Berbera airport is another major international airport in the region. The airport's design can accommodate any wide body plane including the soon to enter in service A-380. It was even designated as an alternative landing site for the American Space Shuttle. However, despite its long paved runway in reasonable condition, hardly any traffic is using Berbera airport, partly due to lack of basic supporting infrastructure, and partly because of its location away from any major city.

Identification of needs, issues and opportunities

X. The high economic value of airports has made them a major source of interest and inevitably conflict in parts of Somalia. The best example of this is the airport in Mogadishu, which had been closed for the last 15 years due to on and off fighting over its control. It was reported that people continued to remove sub-base material from under the runway of the main Mogadishu airport for housing construction, and this would compromise the structural integrity of the runway and will require rehabilitation or reconstruction. The main reason for airports being a major source of conflict is that, warlords through their control of the airports could extort large amounts of revenue through landing fees and taxes on the Khat trade, and other imports. ***The competition for control over some of the major infrastructure assets in Somalia, like the ports and airports, is among the key drivers of the conflict in Somalia.*** However, the reported partial re-opening of the airport by the Islamic Courts Union in Mogadishu provides new opportunities for reassessing the needs for airport rehabilitation, in the Short-term, if peaceful conditions prevail. It would also be necessary to assess the status and future functioning of the other private airports reported to be operating in and around Mogadishu. This process will require extensive

consultation, planning and probably compensation. Aside from the political dynamics required for any work on the damaged infrastructure, the capabilities of local contractors to undertake some of the huge rehabilitation work are yet to be tested. Hence, developing the technical and managerial capacities of local contractors is essential to allow the preliminary rehabilitation works to start on some of the airport infrastructure.

X. Other airports in Somalia that would require major rehabilitation and equipment upgrades include Hargeisa, Berbera, and Bosasso. Overall, one of the priority actions will be the need to refine and confirm the inventory of the existing airports, their number, condition and needs. Further validation in the early part of the program will be beneficial in identifying the needs and proposed actions. This is because of the high cost of reconstructing and/or rehabilitating airport infrastructure.

Cost of reconstruction and development priorities broken down into short-term (2 yrs.) and medium term (5 years) priorities

X. The costs and priorities for airports and civil aviation are included in the Tables 2.4-2.11 (pages 20-25) at the end of this Transport Sub Cluster Report.

Implementation, monitoring and institutional arrangements

X. Implementing any improvements to the airport and air navigation infrastructure will require policy coordination and support from TFG's ministerial setup, under a Ministry of Transport. However, this should build on the strengths of the working institutional arrangements in both Somaliland and Puntland. In addition, CACAS could play an important coordination and management role in continuing to assist Somalia's needs to meet the requirements needed to provide international passenger and air cargo services with neighboring countries and the outside world. All interventions regarding air transport in general would need to be made under the overall oversight, management and policy framework of the ICAO, out of necessity.

(C) Ports and Shipping

Status and context

x. Somalia, with one of the longest coastlines in Africa (about 3300 km), has only four major ports located at Mogadishu, Kismayo, Berbera and Bosasso. There are two other ports (Merca and Las Qorey), which are essentially jetties. Each of the major ports is a deepwater facility, which used to handle the bulk of Somalia's seaborne freight. In 1988, Mogadishu Port was the largest and handled about 817,000 tons of total cargo; representing 73% of export/import traffic, while Berbera handled 20% and Kismayo 4%. The small secondary ports handled the rest of the cargo. The ports of Berbera and Kismayo handled mainly the export of livestock (94%) and bananas (75%), respectively. The Port of Berbera was the main hub for exporting Somali Livestock, until Saudi Arabia's ban on imports of livestock from Somalia in 1999 due to the Rift Valley Syndrome, reduced its volume of activity. Mogadishu and Kismayo ports only operated sporadically during the civil war, and both ceased operations for the last ten years. Most of the cargo for Mogadishu and environs shifted to a privately owned natural small deep-water port in El ma'an north of Mogadishu. However, recent news reports indicate, that the Mogadishu seaport has been re-opened as recently as end-August 2006. In fact, the first ship is reported to have docked at the main port on August 25, 2006, the first time in 10 years.

X. The relative security of the northern corridor, and the unresolved border dispute between Eritrea and Ethiopia, combined to make the Ports of Berbera and Bosasso the focus of maritime activity in Somalia. Berbera port attained increased importance as an alternative port for serving the Ethiopian hinterland. The Port was partly rehabilitated and modernized with financial assistance from the EU. Considering the limited number of deep ports available in Somalia, and

the high capital cost of their rehabilitation, it is essential that any port development plans made include prior consultation and agreement with all the regional authorities. In the case of Puntland and Somaliland, this consultation would have to form part of the envisaged political arrangements with the TFG and might need to include Ethiopia who probably would be the principal user of Berbera Port.

X. While foreign vessels traditionally handled most of Somalia's international trade, the previous Somali Shipping Agency and Line (SSAL) carried about 5%. GOS established SSAL in 1978 as an autonomous parastatal agency under the authority of MFMT. The SSAL shipping operations have now come to a halt due to the conflict. However, prior to this, SSAL operated two small ships of about 4,500 dwt in total and in 1988, total freight transported by SSAL was about 60,000 tons, mostly exports of livestock and bananas to the Near East and Italy, respectively. Financially, SSAL was also about breaking even. To re-establish viable cargo shipping services, the private sector will need to be mobilized together with foreign shipping lines. This is to provide regular feeder services to major ports in the area like Mombassa and Dubai.

X. The development of coastal shipping has been limited mainly because there has been little inter-regional trade suitable for such shipping. However, individual operators with small boats of up to 300 dwt carry some passenger and freight traffic along the northern coast between Seyla and Bereda. The development of commercial fishing could stimulate coastal shipping. ***However, shipping operations in general were threatened and virtually curtailed because of increased piracy in the along part of the Somali coast. This has prompted the international community to deploy warships to combat the rising piracy in the area.*** Piracy needs to be curtailed along the whole Somali coast, before firm development of coastal shipping can be possible and allow re-establishment of feeder cargo services. However, additional feedback from Regional Authorities has indicated that it was along the coastal stretch from Mogadishu to Hobyo where most piracy activity originated. It also indicated that piracy did not usually affect the Red Sea/Gulf of Aden coastline. In addition, feedback indicated that recent expansion by the Islamic Courts in South-Central Somalia has come as far north to include the coastal port of Hobyo, providing some relief.

Table 2.3: Ports Classification and Locations

Port Class/Category	Number	Port Name/Location
Major	4	Mogadishu, Berbera, Kismayo, Bosasso
Jetty	2	Merca, Las Qorey,
Other minor ports	9+	Lughaya, Mait (Somaliland), and Candala, Aluula, Hafun, Eyl, Garad and Hobyo (Puntland), El Maan and others to be confirmed (SC-Somalia)
All	15+	

Institutional and Legal Framework

X. In 1989, the Ministry of Fisheries and Marine Transport (MFMT) through the Somali Port Authority (SPA), was responsible for port operations, and, through the SSAL, was responsible for marine transport. Until 1990, the ports were under the jurisdiction of and were managed by the SPA. Berbera Port Authority also now manages the Port and requires institutional strengthening. A fraction of the Berbera Port revenue is used for capital investment, resulting in a lack of regular maintenance.

Identification of needs, issues and opportunities

X. Individuals and groups representing cross-sections of the community, which included civil society, government officials and NGO discussed issues and identified priorities of needs for the various regions. From the discussions, the need to enhance regional interconnectivity and strengthen viability of the established Berbera and other planned economic corridors into the neighboring countries also had its strong linkages to the port improvement needs. Much emphasis is on increasing road links to Ethiopia to strengthen trade activities between the two countries. Somaliland authorities and the private sector emphasize that Ethiopia, with a population of 70 million people and a viable economy, is completely landlocked and dependent on foreign ports, such as Djibouti for most of its import needs and require an additional port to communities in Somali inhabited regions of Ethiopia. Hence, diverting some of Ethiopia's imports from other regional ports to Berbera Port will have a tremendous economic benefit for Somaliland and Ethiopia and in the long term will contribute to regional stability and dialogue. A pre-feasibility study funded by the EU supports Somaliland's contention that Berbera port could handle about 15% of the present Djibouti Corridor traffic. This would translate into about 200-300 thousands tonnes of cargo per year.

X. Puntland places a high priority to the improvement and operation of the Bosasso port, which is considered of high potential for shipping and cargo handling, with rehabilitation and improvement. More specifically, Puntland is looking for funding to complete part of the port development strategy, which came to a halt with the onset of the civil war. However, in light of the high capital costs of developing port infrastructure, a detailed review of the port development strategy for Bosasso port will need to be done.

X. Other essential economic lifelines for Somaliland include, building small ports and jetties for fishing along coastal towns, and rehabilitating feeder road links to major inland population centers. These basic facilities would support low income fishing communities to access markets and other economic opportunities. As part of JNA, the selective development of a number of strategic coastal feeder port facilities (jetties, ice-making, cold storage, boat/engine repair workshops, etc) is being considered. The latter were justified, *inter alia*, due to the prohibitive costs of constructing or repairing a feeder road along the Somaliland and Puntland coast, for relief of geographical/economic isolation, improving access to inputs and markets and to create/improve livelihood opportunities for fishermen and hinterland producers/communities. The proposed target ports for development in **Somaliland** were Lughaya, Berbera, Mait and Las Qorey, and in **Puntland**, Bosasso, Candala, Aluula, Hafun, Eyl, Garad and Hobyo. It was also suggested that the developments should include resources for repair/construction of and/or spot improvements to about 50 km of feeder roads from the hinterlands of the target rural ports.

Cost of reconstruction and development priorities broken down into short-term (2 years) and medium term (5 years) priorities

X. The costs and priorities for ports and shipping facilities are included in the Tables 2.4 - 2.11 (pages 21-25) at the end of the Transport Sub Cluster Report.

X. For the Berbera Port, the Authorities in Somaliland have been exploring alternatives to generate lost income and for creating new economic development opportunities in the region. The Berbera Corridor Board was established in 2005 to develop, manage and coordinate activities related to the use of the Berbera Port by the Ethiopian Business Community. The Port is also a viable transit hub for responding to humanitarian needs through out the horn of Africa. According to Berbera Port Authority Management, the port could handle 300,000 tonnes of food aid from World Food Program (WFP) for Ethiopia this year alone. The location of the port along the red sea, its proximity to Ethiopia and the fact there is an all weather road network from Berbera to Ethiopia, makes it more likely that the cross-border transit activities will increase dramatically in the next few years. While, the needs of the ports are many, a short-term priority need is to invest in port operations equipment and training of personnel. In the longer-term, action will be required to dredge the navigation channel, which is increasingly affected by wind blown siltation. The

Berbera Ports Authority management has submitted the following list of itemized needs for the port, which are presented in Annex IC.1.

Implementation, monitoring and institutional arrangements

X. Implementing any improvements to the ports sub-sector along with the development of coastal shipping requires policy coordination and support from TFG’s ministerial setup, under a Ministry of Transport, or the equivalent of the Ministry of Fisheries and Marine Transport (MFMT) that previously existed. These arrangements should build on the strengths of the working ports authorities in Somaliland and Puntland. In addition, all international issues relating to ports operations and shipping need addressing within the framework of the International Maritime Organization (IMO). Finally, the private sector will need to play a key role in the development of coastal shipping services and the re-establishment of regular feeder cargo services to the main ports in the region.

(D) Estimated reconstruction cost tables broken down by region/zone and duration (short and medium term)

X. Here below are the costs and priorities for the reconstruction, rehabilitation and development for the various parts of Somalia. The figures are tentative and are subject to further discussion and validation with concerned stakeholders and civil society.

X. **Somaliland:** The reconstruction and development needs of the transport infrastructure sector Somaliland are relatively well defined and prioritized. The total estimated amount required for the short-term (2 years) reconstruction and development needs in the transport sector is about US\$59 million, while the total estimated amount required for the medium term (5 years) reconstruction and development is about US\$130.5 million. This gives an estimated grand total of about US\$189.5 million. See following tables for details.

Table 2.4: Short Term (Years 1-2) Priority Matrix (Somaliland Transport Sector)

Activities	Quantity	Unit cost	Implementation Body	Total Cost US Dollars million
1. Rehabilitation and construction of Feeder roads (See Annex IIA.2)	250 km	\$40,000/km	ILO/National contractors/local communities	\$10.0
2. Rehabilitation of existing major primary and secondary network roads	50 km	\$300,000 /km	National/International contractors	\$15.0
3. Rehabilitation of critical bridges and structures	4 Girder Bridge	Lump sum	National/International contractors	\$4.5
4. Rehabilitation and construction of Hargeisa airport infrastructure and preparatory work at Buroa and Borama			National/International contractors	\$4.0
5. Procurement of essential port equipment	1-Mobile Crane	Lump Sum	Equipment supplier	\$4.5
6. Capacity Building, Studies and TA and condition surveys		Lump Sum	International/National consultants	\$10.0
7. Techno-economic feasibility		Lump Sum	International/National	\$5.0

studies, surveys, designs, detailed engineering, condition inventories and supervision services			consultants	
8. Training		Lump Sum	National/International consulting firms	\$2.0
Total:				\$45.00

Table 2.5: Medium Term (Years 3-5) Priority Matrix (Somaliland Transport Sector)

Activities	Quantity	Estimated Unit cost	Implementing Body	Total Cost US Dollars
1. Rehabilitation and construction of Feeder roads (See Annex IIA.2)	300 km	\$40,000/km	ILO/National contractors	\$12.0
2. Berbera corridor road rehabilitation	100 km	\$300,000/km	National/International contractors	\$30.0
3. Rehabilitation and limited reconstruction of existing primary and secondary road network roads	150 km	\$350,000/km	International/National contractors	\$52.5
4. Rehabilitation and limited reconstruction of bridges	To be determined		International/National contractors	\$10.0
5. Hargeisa Airport runway resurfacing		Lump Sum ⁶	International/National firms	\$15.0
6. Development of airports to be defined		Lump Sum	International/National firms	\$5.0
7. Capacity Building and TA			International/National firms	\$10.0
8. Design and supervision consultant services			International/National firms	\$15.0
9. Training			Contracting Firms	\$5.0
Total:				\$154.50

X. **Puntland:** The reconstruction and development needs for Puntland are also relatively well defined and prioritized. The estimated total cost of the short term (2 years) reconstruction and development requirements for the transport sector is about US\$40 million while the medium term (5 years) requirements is about US\$37 million. This gives a grand total for Puntland of about \$159.5million. See following tables for details.

Table 2.6: Short Term (Years 1-2) Priority Matrix

⁶ Airport resurfacing cost is based on ICAO estimates.

(Puntland Transport Sector)

Item	Quantity	Unit Cost	Implementing Body	Total Cost US Dollars million
Rehabilitation and construction of Feeder Roads See Annex IIA.4	250 km	\$40,000/km	ILO/National Firms	\$10.0
Resurfacing part of ⁷ Galkaio-Garowe Road	235 km	\$200,000/km	National/International Firms	\$47.0
Design and Supervision Services				\$8.0
Airports (Galkaio)		Lump Sum	National/International Firms	\$2.5
Rehabilitation of Bosasso Port	Civil Works ⁸	Lump Sum	National/International Firms	\$5.0
Bosasso Port	Equipment	Lump Sum		\$10.0
Capacity Building		Lump Sum	International Firm	\$5.0
Training		Lump Sum	Consulting Firm	\$2.0
Total				\$89.50

**Table 2.7: Medium Term (Years 3-5) Priority Matrix
(Puntland Transport Sector)**

Item	Quantity	Unit Cost	Implementing Body	Total Cost US Dollars million
Rehabilitation and construction of Feeder	250 km	\$40,000/km	ILO/National Firms	\$10.0
Resurfacing part of Bosasso-Garowe Road	200 km	\$200,000/km	National/International Firms	\$40.0
Improvement of airports at Bosasso and Garowe		Lump Sum	National/International Firms	\$5.0
Design and Supervision Services		Lump Sum	National/International Firms	\$8.0
Capacity Building		Lump Sum	International Firm	\$5.0
Training		Lump Sum	Contracting Firm	\$2.0
Total:			Total	\$70.00

X. **SC Somalia.** South-Central Somalia includes the following areas: (a) Central (including

⁷ Estimate from Studies by NESHA and Carl Bro, Kenya, Limited

⁸ Estimates is based on Proposal prepared by UNDP/UNCTAD

regions of South Mudug, Galguduud, Hiraan and Middle Shabelle; (b) Benadir (12 municipalities that makeup Greater Mogadishu); (c) Southern (including regions of Lower Shabelle, Lower Jubba and Middle Jubba; and (d) South-West Somalia (regions of Bay, Bakool and Gedo).

X. For SC Somalia, unlike for Somaliland and Puntland, it was only possible to obtain limited primary and secondary data on the true state of infrastructure. Based on the limited primary field information gathered, it became apparent that the reconstruction of the N-S trunk road sections from Mogadishu to Belet Uen road would have the biggest impact in improving the lives of the people in these regions.

X. Banadir consists of the 12 municipalities that makeup the city of Mogadishu. Transport sector efforts focus on assessing the needs of the main Mogadishu airport, port and N/S trunk road leading north to Jowhar. The city's other infrastructure needs are covered in the Urban Sub-Cluster report.

X. The southern regions of Somalia are by far the most productive area in Somalia in terms of agriculture and livestock potential. The Middle Juba regions, for example, have not benefited a great deal from infrastructure development during the past regime, with the exception of the main road (Mogadishu-Kismayo) cutting through the region, and the Fanole project with the hydro-electro power plant and the irrigation canal. The Marere sugar factory also belonged to the region, but has been totally destroyed during the civil war. There was one bridge in Jilib and another bridge over the Juba in Buaale. The road from Jilib to Sakoow is still a seasonal earth road. This example supports the fact that a region can have some infrastructure development in one corner, but be totally neglected through most part setting up the need for improvements to ensure a homogenous entity.

X. Conditions prevailing on the ground make the existing roads the sources of revenue for the faction or militia group that controls it. Extreme caution needs to be exercised in considering roads for rehabilitation that continue to be under militia control, and often may need to be avoided. The rehabilitation of roads should be linked to the establishment of legitimate structures of government in the areas concerned. This is essential in order to ensure that eventual road levy or road tax collected go to the legitimate governance structure for the road maintenance and repair and not to reinforce the illegitimate structures of warlord/militia rule. This situation highlights the need to build on the *principle of peace dividends / incentives for rehabilitation*.

X. In the absence of functioning institutions, any major investment in the road sector cannot be justified, as it would most probably lead to conflicts and increase human rights abuses in the area. Thus, the most practical actions include, over the next two years, to gradually introduce EIIP works, and whenever possible, through community contracting on relatively simple projects. Proposed works include opening up all drainage structures/facilities including, cross drainage, side ditches and miter drains on sections of roads through “village maintenance committees”. The initial surveys could include using local resource professionals to identify specific bottlenecks in road sections, open and improve the sections in order to gain and maintain access. The approach adopted could include use of EIIP labor-based works, local machine operators, and contractors. ILO is currently beginning work in Baidoa and Merca, and the experiences in both places will prove invaluable for replicating across those areas of Somalia.

**Table 2.8: Short Term (Years 1-2) Priority Matrix
(South-Central Somalia Roads Sub-Sector)**

Item	Quantity	Unit cost	Implementing Body	Total Cost US Dollars million
Rehabilitation/ construction of Feeder Roads	200 km	\$50,000/km	ILO/National Contractors	\$10.0
Rehabilitation and limited reconstruction of part of N-S Trunk Road (Mogadishu –Jowhar)	100 km	\$350,000/km	National/International Consultant Firms	\$35.0
Techno-economic feasibility studies, surveys, detailed engineering, condition inventories and supervision services		Lump Sum	International/National Consultant Firms	\$5.0
Capacity Building		Lump Sum	International/National Consultant Firms	\$7.5
Training		Lump Sum	International/National Consultant Firms	\$2.5
Total:				\$60.00

**Table 2.9: Medium Term (Years 3-5) Priority Matrix
(South-Central Somalia Roads)**

Item	Quantity	Unit cost	Implementing Body	Total Cost US Dollars
Rehabilitation and construction of Feeder Roads	300 km	50,000/km	ILO/National Contractors	\$15.0
Rehabilitation and limited reconstruction of N-S Trunk Jowhar-Belet Uen	300 km	300,000/km	National/International Contractors	\$90.0
Design, supervision services and other services		Lump Sum	International/National Consultant Firms	\$10.0
Capacity Building		Lump Sum	International Firms/National Consultant Firms	\$10.0
Training		Lump Sum	Contracting Firms	\$3.0
Total				\$128.00

**Table 2.10: Short Term (Years 1-2) Priority Matrix
(South-Central Region Airport/Ports)**

Item	Quantity	Unit cost	Implementing Body	Total Cost US Dollars million
Rehabilitation of Mogadishu Airport		Lump Sum	National/International Firm	\$15.0
Equipment for Mogadishu Port		Lump Sum	National/International Firm	\$5.0
Rehabilitation of Kismayo Airport		Lump Sum	National/International Firm	\$2.0
Equipment for Kismayo Port		Lump Sum	National/International Firm	\$3.0
Equipment for Merca Port		Lump Sum	National/International Firm	\$1.0
Capacity Building		Lump Sum	International/National Consulting Firms	\$10.0
Training		Lump Sum	International/National Consulting Firms	\$2.0
Various design and supervision services		Lump sum	International/National Consulting Firms	\$5.0
Total				\$43.00

**Table 2.11: Medium Term (Years 3-5) Priority Matrix
(South-Central Region Airport/Port Repairs)**

Item	Quantity	Unit cost	Implementing Body	Total Cost US Dollars million
Rehabilitation and reconstruction of Mogadishu Airport		Lump Sum	National/International Firms	\$40.0
Rehabilitation and equipment for Mogadishu Port		Lump Sum	National/International Firm	\$20.0
Rehabilitation and reconstruction of Kismayo Airport		Lump Sum	National/International Firms	\$20.0
Rehabilitation and equipment for Kismayo Port		Lump Sum	National/International Firms	\$20.0
Rehabilitation and equipment for Merca Port		Lump Sum	National/International Firms	\$8.0
Capacity Building		Lump Sum	International/National Consulting Firms	\$12.0
Training		Lump Sum	International/National Consulting Firms	\$2.0
Various design and supervision services		Lump Sum	International/National Consulting Firms	\$10.0
Total				\$132.00

III. ELECTRICITY

Introduction

1. Electricity, being the source of energy that can be quickly and reliability tapped into, will initially play a very important role in the development of post-conflict Somalia. With a reliable and quality electrical supply re-established, the reconstruction and development of the nation can focus on other aspects of improved commercial and industrial activities.

Status and context

2. Electric power generation using diesel fuel accounts for about 2% of the total energy use in Somalia. Electric power is probably the next highest source of energy to biomass and hydrocarbon fuels and is used mainly for the residential, commercial and industrial sectors. Electric power, using diesel generators, supplies up to 40% of the urban areas and is used to run most of the borehole pumps in the rural areas.

3. Most of the electric generation plants in urban and rural areas are owned and run by private enterprises or NGOs. In most cases, privately owned and operated generators supply electricity on a commercial basis. For some private generators, the primary objective is to supply their own businesses (telephone companies, hotels, small industry, etc.) and the spare capacity is sold over a very rudimentary fragmented network to supply the consumers in the locality.

4. Fenole in the south has a 4.6MW hydroelectric plant, which currently is out of commission. The generation from this power plant has been unreliable because of the seasonal flow of the Jubba River and the agricultural needs upstream of the plant. Work was about to commence on a more reliable hydroelectric scheme at Bardhere. However, its construction came to a halt in 1989 due to the start of the civil war. There were some rather serious environmental concerns raised in regards to this planned dam, since it would put large tracts of land under water and possibly change the fragile balance of the ecosystem around the Juba River. The former government had a special ministry set up for the development of the Juba River, and any future action would need to consider the body of knowledge available. The development of renewable energies to lessen the amount of wood-based charcoal consumed in Somalia will be a critical challenge. However, its development will take time and will be capital intensive.

Institutional and Legal framework

5. Government Electricity Supply agencies/authorities operate in regional centers of Somaliland and Puntland. These agencies, in most instances, operate existing publicly owned power plants and/or distribution networks. Table 3.1 is the list of known public companies in various zones with a description of its status in the zonal government.

6. Puntland Electric Energy Authority, which owns the Bosasso, Gharo and Garowe power stations, has recently signed up a private enterprise to manage the power stations and distribution network. The terms of the agreement are yet to be finalized and implemented.

7. While private companies can provide electricity at the local level, there is no legal framework enforced, and even the authority of the local government Agency is weak to enforce basic standards or safety criteria. The electricity supply business is usually managed in consultation with the local community leaders. In this context, Somali authorities should ensure that the privatization of basic social services such as power does not compromise general access, availability and quality. Actions taken must not result in the denial of access of vulnerable and poor people to socio-economic rights and benefits. Actions should include developing and

implementing specific interventions to provide access to minimum power supply for the poor to reduce the extent of unequal access to basic social services in the community and regions.

Table 3.1: Electricity Agencies/Authorities in Somalia.

Agency/Authority	Status
Somaliland Electricity Agency, Somaliland	Independent Authority. Head of the Agency appointed by the Somaliland President.
Puntland Electric Energy Authority	To be confirmed
Nugal Electricity Co-operative	Private co-operative of local investors. Also working with the Puntland Government in Nugal region.
Ente Nazionale Energia Elettrica (ENEE), Mogadishu	ENEE used to be the main player in the energy sector before the collapse of the central government. It's current role and function is unclear since most of the power generation in South Central parts of Somalia is done by small-scale private operators.

8. The points to note about supplier/consumer/authority relationships are as follows:
- When connecting customers to private generators, the connection is provided without any legal basis for quality, reliability and safety.
 - The private operators collect revenue from their customers and a percentage is paid to the authorities as a concession and for use of the streets to install overhead lines.
 - The commercial basis of supply, where metering is not available, is the size of the installation.

The Electricity Grid

9. An electrical grid usually connects major load centers to more than one power source. Such a grid is non-existent in Somalia. Some 15kV feeder lines exist in major regional centers transmitting power from a single power station to the load areas with step-down transformers 15kV/380V. The lengths of the 15kV lines in regional centers are summarized for some towns in Somaliland and Puntland in Table 3.2 below. Most of the supply is over low voltage (380/220 volts) distribution lines from a single generator source to the load area. There is no interconnection of various generator sources, and it is not possible to interconnect the generators safely and reliably in the existing state of the network. This means the generators are mostly under-utilized at the time of low loads and cannot share the loads at peak times. Such a system is called a radial system (as against interconnected system), and has much lower reliability and is more costly to operate. In order to run a generator in parallel with other generators on the network, a synchronization facility is required on each generator. Running many generators in parallel requires a system stability study. It is recommended further in the report to have a large pool of generators (power station), and run a grid to interconnect the power stations.

10. The feeder lines (15kV) are built of bare aluminum or copper conductors, strung on wood or concrete poles, with appropriate hardware (post insulators and line discs) for support. This system is quite unreliable and unsafe.

11. The 380V distribution networks are very rudimentary. Most of the distribution lines are built by stringing single core or twin, PVC insulated cables on very thin poles. The poles are of different sizes, and makes. Some are wooden others steel. The same poles also carry the communication wires. An example of this type of rudimentary electrical distribution system in Hargeisa is shown in Figure 1.

Table 3.2: Route Lengths of 15kV feeder lines – Somaliland, Puntland and Some South-Central Locations.

Township/Center	Route length of 15kV OH Line (km)
Bosasso, Bari	7.5
Hargeisa, Woqooyi Galbeed	15
Gardho, Bari	3
Berbera, Woqooyi Galbeed	4.5
Burao, Togdheer	4
Garowe, Nugaal	4.5
Jowhar, Middle Shabeelle	5.5
Merca, Lower Shabeelle	6.5
Baidoa, Bay	8.5

Figure 1: An example of electrical distribution lines in Hargeisa.

12. Some Overhead distribution network installed on appropriately sized wood or concrete poles also carry the feeder lines. Generally, the distribution network is unsafe and underrated to provide a quality of supply. Some two deaths per year occur in small townships due to electrical accidents. Underground network is virtually non-existent.

Rural Systems

13. The rural population of Somalia has very little or no access to electrical power. The main source of energy is charcoal produced from firewood or firewood itself. If a microwave cell phone tower is erected in the village, a small generator provides access power to the residential/commercial properties in the vicinity.

Generation

14. It is difficult to identify accurately the total installed generation capacity in various population centers because of the existence of private unregistered generation. However, Table 3.3 below is the summary of generation figures collected on site visits or obtained from various government agencies and private operators. These figures are installed capacity. The actual output is well below the installed capacity because, from time to time, some power plants are out-of-service due to lack of spare parts for servicing. Taking into consideration the average age of the generating plants across Somalia will mean that unless a substantial portion of it is replaced with new generating capacity, actual output will fall even further.

Table 3.3: Installed Generation at Various Power Stations.

Location	Owned by	No.x Size (kW) of units installed
Garowe, Nugaal	Nugal Electricity Co- operative	2x280 1x250 1x100
Bosasso, Bari	SomaliTech	3x600
Hargeisa, Woqooyi Galbeed	Somaliland Electricity Agency	1x1250 3x1500
Gardho, Bari	SomaliTech	2x140

15. The Somali Government *National Energy Document June 1988* states that the total installed capacity in Somalia was 55,300 kW of which 38,000 kW (69%) was in Mogadishu. Most of the generators that were installed then have been either looted, damaged or have had parts removed to replace in other machines or out-of-service due to lack of parts. Hence, the output from power stations with such equipment is much lower than what is “installed”. Some generators have been replaced with second-hand generators by the local authorities.

16. All generators in a power station work singly because synchronization equipment is not available. The associated switching and control equipment is not maintained due to inability to take generator off line without total loss of supply, lack of parts and lack of expertise. This leads to under utilization of the generators in periods of low loads. In addition, at times of peak load, generators with spare capacity cannot share the load. Synchronization is also required to run in parallel with the grid, which currently does not exist.

17. Capacity building is the key requirement for building, operating and maintaining the electrical infrastructure for most of Somalia.

Consumer connection and sale of electricity

18. Consumers are connected by running a suitable/available wire from the point of attachment on the premises to the nearest pole in the street. In some instances, the connection is made to the neighbor’s point of attachment if a power pole is not in the vicinity. The consumer installation is not tested in all cases and mostly do not have adequate earthing safety feature.

19. Consumer connections made to the grid run by the government agency have a better chance of being formally connected and recorded.

20. In the regional centers like Hargeisa, Somaliland Electrical Authority (SEA) meters the connection and the charges are (a) US\$0.50 / kWh for three-phase supply; and (b) US\$ 0.60 / kWh for single-phase supply.

21. However, across the nation, the average charge per kWh of electricity used is US\$1.00 per kWh. Hospitals, mosques, schools, public clinics, recreation centers/community halls and streetlights are charged US\$0.50 per kWh. Some suppliers do not charge some of the institutions mentioned. In addition, in some regions, government-owned buildings are connected to government-owned power stations and do not pay for electricity.

22. A summary of kWh generated and sold by SEA, Hargeisa in 2005 is shown in Table 3.4.

Table 3.4: Hargeisa Power Station production

Month	Production kWh	Sales kWh	Loss kWh	%
January	289,975	174,777	115,198	40%
February	263,660	173,680	89,980	34%
March	309,386	154,905	154,481	50%
April	304,173	168,893	135,280	44%
May	296,796	151,136	145,660	49%
June	297,712	181,250	116,462	39%
July	300,476	161,873	138,603	46%
August	327,025	168,885	158,140	48%
September	316,068	164,114	151,954	48%
October	344,191	179,268	164,923	48%
November	318,616	201,044	117,572	37%
December	310,253	173,848	136,405	44%
TOTAL	3,678,331	2,053,673	1,624,658	44%

23. Some private operators charge based on the size of the installation: In some instances, it is reported that domestic customers are charged US\$1.00 per light point per month.

Identification of Needs, Issues and Opportunities

Short Term (Years 1-2)

24. Electricity supply is critical for lighting and communications. While some light industries and water supply plants use it for motor power, others use diesel-driven engines. The quality and reliability of electricity supply leave much to be desired.

Areas of immediate needs

25. To boost economic development and standard of living **immediately**, improving the electricity infrastructure and supply would be one of the most effective options. If the investments to improve the electricity infrastructure are well planned and targeted, they can be done relatively quickly and will positively affect a large segment of the population and the economy. However, the necessary legal and operational framework will need to be put in place to avoid the further haphazard development of the sub-sector. Projects implemented would also explore the provision of inexpensive or free access to power supply, as required, for poor and low-income families.

Proposed arrangements for short-term needs

26. As stated above, the changes in this energy sub-sector, by way of the provision of electricity supply, can be implemented relatively fast. In addition, the impact of the change will be significant on a wider population. Electricity generation has a strong economic multiplier effect; and it will act as an immediate catalyst for commercial and industrial development. Furthermore, it can improve the standard of living of a large part of the population relatively quickly.

Recommendations 1 – rehabilitate and expand distribution network

27. The electricity transmission and distribution network needs to be improved and developed. This has several immediate advantages as illustrated in the following paragraphs.

28. It will allow electricity distribution over a larger area. Properly planned network will also enable electricity transmission over longer distances before distributing to local areas. Cables on a power line sized and constructed correctly will reduce voltage drop and power losses along the

line. Moreover, building the network will immediately connect more people. The reduced losses will add revenue to the suppliers, with an overall improvement in the quality of supply.

29. Constructing an interconnected transmission and distribution network will allow rationalization of the generators on the system. During site visits to various towns, e.g., Garowe, some large generators were running on low loads during off-peak. In addition, during peak loads, some networks could not take on the spare generation capacity of the adjoining networks because of the lack of interconnection and inability to synchronize.

30. It will encourage single generator operators to draw from the grid (and still have their generators as standby supply), or combine their business with other similar operators to run a larger power station. Having few large power stations on the grid will also improve system stability.

31. Table 3.5 below is an estimate of the additional lengths of 15kV (transmission) and 380/220 Volts (distribution) lines recommended for initial installation in the regional centers and important ports. In the short-term, development is recommended for these locations only due to the post-war state of the nation. An established, reliable base is required to manage and run the total development program. The short-term view is over 2 years only, the time it will require to implement the program with the limited funds expected to start the development. The prioritisation on the basis of possible peace dividends can still be considered.

32. Additional distribution transformers (15kV/380V) are required as an integral part of the network. Some local supply authorities have indicated their requirements. Where such data is not available, the estimates are based on average distribution lengths for various voltage levels for the geographical size of the towns. The number of distribution transformers is important in a distribution system to maintain good quality supply.

Table 3.5: Transmission & distribution construction required in the short-term

Location	15kV Three Phase Overhead Line (km)	380/220, 3-phase, 4-wire Overhead Line (km)	No of 15kV/380V, Distribution Transformers
Mogadishu, Benadir	100	300	100
Kismayo, Lower Jubba	40	120	40
Garowe, Nugaal	4	12	4
Bosasso, Bari	5	15	5
Hargeisa, Woqooyi, Galbeed	20	60	20
Berbera Woqooyi Galbeed	6	20	6
Galkaio, Mudug	4	12	4
Jowhar, Middle Shabeelle	15	45	15
Baidoa, Bay	20	60	20
Belet Uen, Hiraan	20	60	20

Recommendation 2 -- Expand generating capacity

33. Concurrent with the implementation of the first recommendation, large power stations (with multiple generators) would need to be established on the grid. Actions required include improving the state of the existing large power stations and installing new power stations in some regional centers. Priority locations could include only regional centers and important ports at this stage. In Boroma, Somaliland, it was observed that small scale generators wanted to form co-operatives with others, since running small generators was proving unprofitable. This form of co-operative ventures should be encouraged to the advantage of the investors and the electrical system.

34. In case of the hydroelectric plant at Fenola, a joint study during the short-term period is required with the irrigation/ agriculture sector to determine the serviceability of the hydropower plant, along with the cost and economic viability of re-commissioning the Fenola hydropower scheme. The capacity to run the plant efficiently should be assessed. As an option, TFG in collaboration with the state governments/regional government could enter into a lease agreement with a private company to run the plant for a reasonable time span, e.g., 10 years.

35. In most towns/cities of Somalia, currently, there are numerous private generators, who are mostly operating independently and not within the context of a grid. This raises the following issues:

- There is a need for a synchronization facility at each location so that all the generators in the grid could operate in parallel and rationalize their capacities;
- for maintenance of the lines and other equipment on the network, isolation of part of the system is without loss of supply is not possible; and
- safety of line workers, plant operators and other workers on the network can be compromised.

36. Summarized in Table 3.6 below is the additional generation required at various locations. Depending on the size of the generation and the existing network voltages, it may be worthwhile generating at transmission voltage and not require a step-up transformer to transmit power over the network. This will also assist with keeping the system losses low. There is also the need for specific location selection criteria for rehabilitation/reconstruction in order to avoid perceived bias to certain areas, and contribute to the peace building objectives.

Table 3.6: Additional generation required to be installed at various places

Location	Additional Generation required (kW)	Location	Additional Generation required (kW)
Mogadishu, Benadir	30,000	Berbera Woqooyi Galbeed	3,000
Kismayo, Lower Jubba	10,000	Galkaio, Mudug	2,000
Garowe, Nugaal	2,000	Jowhar, Middle Shabeelle	7,000
Bosasso, Bari	3,000	Baidoa, Bay	3,000
Hargeisa, Woqooyi Galbeed	5,000	Belet Uen, Hiraan	5,000

Recommendation 3 – rebuild needed skills

37. While some basic electrical skills are available in limited numbers at technician level, the numbers and skill levels need to increase to cater for the expanded network and proper operation of the system. A lot of plant and equipment breakdown has been due to, inter alia, lack of maintenance. In addition, due to lack of skills and shortage of skilled staff, plant and equipment remained out of service.

38. To deal with this situation, we recommend including training in the delivery contracts for all development projects implemented in the short term.

Recommendation 4 - Develop planning capacity

39. *Engage a Mobile Planning Team* to develop area and regional plans for the electricity infrastructure. An overview of short-term and long-term development of electrical infrastructure is essential to integrate the former with the later. The Planning Team will also play a crucial role in the development of policies and institutional framework to encourage private investment into the sector.

40. The planning team should be composed of technically competent people, but at the same time ensure inclusiveness, fair representation and transparency in the selection process. The policy development needs to take into account all the stakeholders in the process. The Team should comprise Private Enterprise (consumer and investor), Technical Experts, Government representatives and community groups. Technical Experts are required immediately to plan and design individual areas for the development of the electrical network.

Policies and Institutional framework required for short-term needs

41. As stated above, the relatively stable Somaliland and Puntland already have appropriate ministries, authorities/agencies established for dealing with energy matters of the region. The powers of these institutions need to be rationalized with the TFG to provide a national approach and planning criteria for the development of the energy sub-sector. The existing institutions also have a strong need for capacity building to make them effective. Of course, the whole of government approach, in terms of law and order and governance, is the basis for effectiveness of these institutions. Once the institutions are established, the priority issues to address are:

- The need to implement Public Private Partnership (PPP) in the electricity supply industry (ESI). The ESI requires private investment and management for the speedy recovery and development of the industry. At the same time, there is the need for regulation to provide quality, safe and affordable electricity to the public, on a sound commercial basis.
- Once the electrical grid is established, private participation is more likely to be in the generation business of the ESI. While it is possible to privatize the electrical grid as well, the rules of cost sharing on the grid (capital and operational) by the generators and retailers of electricity can be very complex, if owned by multiple private investors. As a starting point, to simplify the operations, it is recommended that the grid have a single ownership, i.e., privately owned and government regulated or government owned, regulated, and privately managed.
- The establishment of an independent Electrical Installation Inspectorate is also necessary. The role of the Inspectorate is to ensure the quality and safety in the ESI, from the generation to distribution and customer installation. The cost of running the Inspectorate should then be borne by all the participants (investors) in the ESI;
- The customer connection and sale of electricity can be an enterprise independent of the generation and transmission & distribution business. This set up needs to be looked at closely for the long-term structure. Initially, it can be bundled with the grid or the generation business.

Short Term (Years 1-2) Costs

42. The estimated cost for implementing each of the above recommendations is summarized in Table 3.7 below.

43. These are only initial costs. Revenues from electricity should be able to cover the on-going operating costs. This assumes that the rates and collection of rates follows commercial principles to allow the sustainability of the electricity generation and distribution industry.

Table 3.7: Estimated cost of implementing the short-term needs

No.	Recommendation	US\$ (million)
1	Development of Transmission and Distribution network	\$8.6
2	Development of Power Stations	\$70
3	Training and skills development	\$6.3
4	Establishment of the Planning Team	\$1.6
5	Establishment of Regulatory Body for Public Private Partnership	\$0.4
6	Establishment of Electrical Installation Inspectorate	\$0.8
Total		\$87.7

Medium Term (Years 3-5)

Strategic objectives and policies

44. With the above short-term actions underway, the demand for electricity should increase sharply as the general population starts to connect itself to the grid and the economy grows. The Planning Team recommended above, should initiate studies on further improving the capacity of the electrical network and rationalizing generation of electricity. This will require the preparation of detailed techno-economic and preliminary engineering studies to prioritize investments in electricity generation and distribution.

45. Inter-regional grids would be more economical in the southern parts of the country as the population density is higher in the area. Actions should include a system study to plan the medium term to long-term goals and program for developing the electrical infrastructure.

46. More regional towns should be electrified as part of the Rural Electrification program and brought to acceptable standards. In addition, three projects are recommended that could start in the medium term, after verification by the system study mentioned above. These projects should come on line as the demand for electricity grows with the country's development and they are: (a) Interconnection of Jilib, Jamama, Kismayo and Fenola; (b) re-commissioning of the power plant in Fenola; and (c) commence investigation and studies in the possibility of developing the Bardhere Hydroelectric Scheme. The potential of this latter scheme is to alleviate the power problems and reduce reliability on fossil and hydrocarbon fuel. However, a careful socio-economic-environmental study is required. Without the well-planned and strategic addition of additional electricity generation capacity, it will be extremely difficult to 'power' the reconstruction and development of Somalia.

47. Furthermore, training the workforce has to be considered on a national basis. While a separate assessment is not done for the requirement in this area of training, the framework set for Capacity Building and training as well as setting the Institutional Framework was discussed as part of ISAP in Section 13.

Institutional and Legal framework

48. The institutional framework recommended in the short-term needs to be strengthened and provided with a strong legal basis. This is particularly the case for power generation and distribution. Appropriate demarcation needs to be set between the Regulatory Body and the Inspectorate. The former should focus on commercial arrangements, public tariffs and easement issues. The latter would ensure the reliability, quality and safety of the ESI.

49. The regulatory and operational set up for the customer connection and sale of electricity business should be decided. This will lead to the price setting for the connection and sale to be completely removed from any regulation.

Medium Term (Years 3-5) Costs

50. The estimated cost for implementing the above recommendation for the power sector is summarized in Table 3.8 below. The details are in the spreadsheet in the appendices.

Table 3.8: Estimated cost of implementing medium term needs

No.	Recommendation	US\$ (million)
1	Development of Transmission and Distribution network	\$4
2	Development of Power Stations	\$49
3	Interconnection of Mogadishu, Jowhar and Fenola	\$11
4	Rural Electrification	\$10
5	Re-commissioning of the power plant in Fenola	\$2
6	Commencement of the Bardhere Hydroelectric Scheme	\$3
7	Reinforcement of the Regulatory Body and Inspectorate.	\$1
Total		\$80

Implementation, monitoring and institutional arrangements

51. The energy portfolio covers several ministries, both at the TFG level and the regional government levels. A federal National Energy Authority should be given the overall responsibility for managing the short-term and medium-term reconstruction and development program. Implementation will best be achieved if the responsibility is devolved at the regional level. Depending on the structure of the regional governments, projects for petroleum-based products, coal, and electrical should be implemented by respective departments/authorities/ministries.

52. For monitoring the projects, some base indicators have to be measured at the start of the program. These indicators have then to be monitored periodically for progress. Below are suggested base indicators for the electricity development program (project implementation):

- No of customers connected.
- Length of transmission lines installed at different voltage levels, i.e., 15kV, 3.3kV and 380V (km).
- Total installed generation (MW).

53. The base indicators to monitor the performance of the energy sectors are:

- Maximum demand (MVA).
- Peak generation (MW).
- System Average Interruption Duration Index (SAIDI) – No. of interruptions per customer.
- System Average Interruption Frequency Index (SAIFI) – Duration of interruption per customer.
- System Losses ((Generation – Revenue)/Generation) in units (kWh) generated, sold. The result is in percentages.

IV. ENERGY

Introduction

1. Energy is one of the key drivers in the development of any country's economy. As the post-conflict situation in Somalia eases, and the country starts to stabilize, energy will play an important role in giving the economy a kick-start and in ensuring its sustained development.

Status and context

2. Somali's primarily uses charcoal and firewood as the main source of their domestic energy. It is estimated that about 87% of the country's energy consumption is using biomass fuel. Petroleum products account for about 11% of the total energy use, while electric power generation using diesel fuel, account for about 2% of the total energy use. Firewood and charcoal provide energy to about 60% of the urban areas.

3. Other sources of energy in Somalia are solar, wind, coal and hydroelectricity. These are mostly untapped. Some wind turbines exist, but are not functional, on the east coast.

Institutional and Legal framework

4. The TFG, Somaliland and Puntland have Energy directorates/authorities. They form a focal point for data collection and policy setting and need empowerment to implement the policies.

Rural Systems

5. As stated before, firewood and charcoal are the key fuel for energy. This has hastened deforestation in most of the greener and less arid parts of the country. Further information on the potential for the development of Renewable Energy can be found in Annex III.1 of the report.

Identification of Needs, Issues and Opportunities

Short Term (Years 1-2)

Overall Energy Situation

6. The provision of energy for most of the country is from firewood or charcoal. Petroleum products are the next fuel type in use, mainly for transport and industry use. Electricity, generated mainly using diesel (light fuel and then heavy fuel) is the next energy source.

7. Use of firewood is widespread especially in rural areas, and this is causing major environmental damage due to the depletion of forests and woodlands. However, it is the cheapest fuel available and culturally integrated into domestic lifestyle. In case of the latter, ***development of other affordable fuel types and substituting for charcoal will also ease the lifestyle of the female homemaker, who is traditionally responsible for the house chores. Other alternatives to traditional fuel provision will also mitigate the risk of women's exposure to Sexual Gender Based Violence while collecting firewood outside the home.*** Stand-alone, decentralized rural energy systems based on renewable sources are considered to be a viable option for meeting the energy needs of sub-rural communities. The concept being pursued in this is based on an appropriately sized solar and wind energy conversion systems. Please see the Renewable Energy Annex for more information.

8. Refined petroleum products are 100% imported, and current imports of petroleum products are estimated at less than 100,000 tonnes per annum. Off-loading facilities and storage facilities are available for ships at Berbera and, to a lesser extent, at Bosasso. Fuel is stored in tank farms and carried inland using tankers. Fuel is transported in 200-liter steel drums. The cost of heavy diesel is \$45 per drum, while the cost of light diesel is \$110 per drum.

9. Ministries of Commerce of respective zonal governments keep the Importation statistics. Based on these estimates, the composition of petroleum products is as follows: **Diesel (Gas) oil** is by far the most important product due to its widespread use in transport (totally by road), electricity generation and industry, and accounts for about 55% of the total. **Gasoline** (23%), **Fuel oil**, which is largely used for electricity generation in the regions (13%); **Kerosene** (8%); and **LPG**, less than (1%) obtainable from IRAQSOMA when it was active. Consumption by end - use in 1986, was estimated as follows: Transport-41%, Electricity generation, 28%, Industry 10%, Agriculture, public administration, commerce, and residential sectors-7% each.

Areas of immediate needs

10. Heavy use of firewood and charcoal is of great concern due to the impact that it is having on deforestation. This means that immediate steps are required to reduce reliance on this fuel source using renewable energy and other possible alternative energy sources. JNA field visits in Somaliland and Puntland confirmed the possible use of different types of renewable energy technology (solar and on a limited basis, wind energy), although not widespread at present. The NGO – Horn Relief – is currently leading the production and promotion of various types of renewable energy products with a high chance of increased private commercial production. These efforts should be further promoted and enhanced through appropriate regulation, financing and capacity building.

11. The reliance on refined petroleum products such as diesel for power generation should also be reduced as much as possible due to its escalating costs and environmental impacts. The transport sector use may only shift from the use of petrol to natural gas or other alternatives in the long term, but industries and the power sector could make that move in the medium term.

12. Improved access to energy will leave time for disadvantaged communities for adult vocational/ literacy training and for women to develop creative activities for their children.

Proposed arrangements for short-term needs

Alternative sources of energy

13. The suggested alternatives to firewood and charcoal are as follows, in the order of priority and infrastructure required:

- **LPG Gas.** It is possible to implement tanked gas supplies to most areas near the port or that have reasonably good access to the ports, e.g., Berbera, Hargeisa, Bosasso, Ghardo, Garowe, Mogadishu, Kismayo, Belet Uen, and other major regional towns. UNDP has initiated a study on the establishment of this enterprise for Somalia. *The Productive Cluster of the JNA will be looking more into this, including the provision of gas stoves, fridges, etc.*
LPG Gas is considered as having a higher priority than Kerosene due to its positive environmental impact; and
- **Kerosene.** Since there are already facilities to import petroleum products, kerosene, (which may already be imported but no data is available), would be an easier alternative to implement. Again, this requires the provision of kerosene stoves, fridges, etc. If the Productive Cluster deems LPG Gas commercialization harder or difficult to achieve in the short-term, kerosene is recommended as an alternative. However, it should be noted that the general census is a reluctance to use gas for perceived safety reasons. Introducing kerosene first would make it culturally harder to change the course to LPG in the medium term.

14. The critical elements in introducing any of the above alternatives (LPG Gas and kerosene) will be to bring about a cultural change in household energy consumption and pricing it correctly. While the former can be managed through an appropriate communication and marketing strategy,

the latter may require Government subsidy initially. In light of the major environmental benefits of introducing LPG Gas for household consumption, its initial subsidization should seriously be considered. Careful planning is required to address any probability that implementation of the conversion to LPG or Kerosene is impaired initially because of costs.

15. The above are short to medium term cost effective alternatives to firewood and charcoal, which have heavy domestic use. The energy source for commerce and industry will remain electricity, which is generated using expensive imported diesel fuel. Further information is in the attached Renewable Energy Annex III.1.

Policies and Institutional framework required for short-term needs

16. As stated above, the relatively stable Somaliland and Puntland already have appropriate ministries, authorities/agencies established for dealing with energy matters of the region. The powers of these institutions need to be rationalized with the TFG to provide a national approach and planning criteria for the development of the energy sub-sector. The existing institutions also have a strong need for capacity building to make them effective. Of course, the whole of government approach, in terms of law and order and governance, is the basis for effectiveness of these institutions. Once the institutions are established, the priority issues to address are:

- The need to implement Public Private Partnership (PPP) in the energy sector.
- The introduction of LPG and kerosene as an alternative to firewood and charcoal will need to be managed nationally. This will also require a legal framework to set up the storage and distribution of the fuels. For further discussion of this, see the Productive Sectors Cluster Report.

Costs

Introduction of LPG Gas and Kerosene as alternative fuels

17. The costs are associated with setting up the storage and distribution systems. The infrastructure required for storage and distribution of LPG Gas and Kerosene is what is required also for the distribution of other hydrocarbon products.

Medium Term (5 years)

Strategic objectives and policies

18. Future investments should carefully assess the inclusion of other possible sources of energy such as wind and solar. All renewable sources of energy have good potential in Somalia. This will require an in-depth study of their viability and costs. Thus, the recommendation is for initiating technical studies immediately to enable these sources to be exploited in the **medium** term.

19. **Solar.** The applications of solar energy include powering emergency telephones along highways (successful), heating water with rooftop installations (successful but at best marginally cost-effective where energy is cheap), electric power where grid energy is not available (apparently not cost-effective at present compared to diesel generators) and central station electric generation (not presently economical). The capital cost (approx. US\$6.00 per Watt (peak)) may still be cost-effective where the current cost of electricity is about US\$1.00 per kWh.

20. **Wind.** As stated above, existing out-of-service wind turbine on the east coast are examples of failed attempt to harness wind power. The wind pattern map needs to be developed. Wind pumps may well prove to be the right energy source for borehole pumps in rural areas.

21. *Geothermal, natural gas, crude oil and charcoal.* The potential of finding these sources of energy in Somalia seems to be good. Coal deposits have been found in parts of the country and were exploited in a very limited manner by the Italian colonial authorities. Other potential sources of energy will need very extensive geophysical investigations. Taking into consideration the very high cost of oil and gas on the international markets, and assuming a much improved security situation, the assessment of Somalia real oil and gas-producing potential should be undertaken. Again, the productive sector of the JNA has included this in their investigation and report.

Institutional arrangements

22. The energy portfolio covers several ministries, both at the TFG level and the regional government levels. A federal National Energy Authority should be given the overall responsibility for managing the short-term and medium-term reconstruction and development program. Implementation will be best achieved if the responsibility is devolved at the regional level. Depending on the structure of the regional governments, projects for petroleum-based products, coal, and electrical should be implemented by respective departments/authorities/ministries.

V. URBAN INFRASTRUCTURE

Introduction

X. Urban infrastructure in all Somali cities requires major investment due to more than 15 years of neglect and rapid urbanization. The worst infrastructure conditions occur in urban areas in SC Somalia, where the continuing conflict, lack of maintenance and looting of urban infrastructure have hindered reconstruction initiatives. In sharp contrast, basic rehabilitation initiatives and development projects have taken place in relatively stable Somaliland and Puntland. Improvements in urban service sector (water, energy, waste management, roads and housing) have been carried out through small-scale community or private sector led local initiatives or international aid programs. Somaliland and Puntland can therefore be considered at the initial stages of urban infrastructure development, while the urban areas of SC Somalia are still grappling with the early stages of rehabilitation.

Status and context

X. As a direct result of the civil war, urbanization has been very rapid in all parts of Somalia. Prior to the civil war, Somalia was predominantly a country of nomads with very small urban centers. Apart from Mogadishu and Kismayo, towns generally had populations of a few thousand or less. Driven by the continuing internal strife in large part of the country as well as natural disasters, the urban population in major Somali towns has increased 300-500% on average during the last 15 years. However, no reliable data or censuses figures are available to determine with precision the urban population. For example, population figures for Hargeisa range between 450,000⁹ and 1,000,000, depending on the source. This has put enormous pressure on an already very limited urban infrastructure stock.

X. This urbanization process has happened haphazardly, with little spatial planning and urban management. Whilst the centers of the main settlements and some of the new villages are relatively structured in terms of lay-out, based on pre-civil war planning attempts, much of the urban space, including vacant space within the formal urban fabric, holds pockets of 'nomadic' tents ('buuls') belonging to displaced communities or recent arrivals. For example, in Bosasso at least one out of six structures is informal. Former farmland is being converted into 'urban' land by tracing a grid with a bulldozer, subdividing it into plots, leaving no space for public infrastructure. In other areas, land has mostly been grabbed by individuals belonging to (sub-)

⁹ Based on a recent detailed property survey (2005)

clans that control specific areas. An active but unregulated land market conflicts with old and recent draft laws, whereby an individual can be granted a plot for his personal use only. Failure to develop the plot means, in theory, that the 'control' reverts to government.

X. Ongoing land grabbing, destruction of land data banks during the civil war, competing – and sometimes corrupt - administrations and lack of legal framework have resulted in unclear land occupancy and tenure. Consequently, frequent violent land disputes occur, even in the relatively stable cities of Somaliland. *Urban land and property issues are discussed in detail in the JNA Governance Cluster report.*

X. Partly destroyed, inadequate and poorly maintained urban infrastructure has contributed to a sharp deterioration in living conditions and standards in urban areas. An estimated 43% of the urban population lives in extreme poverty with 61% living on less than US\$2 a day¹⁰. Unemployment and under-employment is a major problem - estimated to be over 80% in some cities¹¹. This may reflect seasonal and serious under-employment, while the urban unemployment in general is estimated at around 60%¹². Private entrepreneurs without a regulatory framework dominate the provision of most basic services including water. This has negative effect on the urban poor in particular.

Institutional and legal framework

X. Municipal institutions and management systems have inadequate functional capacities in Somaliland and Puntland and are absent altogether in SC Somalia. However, in the absence of clear governmental structures, central and local authorities, the private sector and community groups have taken up responsibilities on *ad hoc* basis. After the collapse of the central government, privatization of municipal services occurred mostly without governmental regulation, resulting in inequitable pricing and spatial monopolies in the provision of urban services. In order to engage the private sector as a key partner in the redevelopment process, private entrepreneurs will require a more stable environment for long-term business development and regulative framework from public bodies.

X. In the case of Somaliland and Puntland, certain laws have been passed which define the basis for taxation, the roles and responsibilities of local government and the management of land (e.g., Regions and Districts Law 23/2002 and Land Management Law 74/2003 in Somaliland). However, some aspects of these laws are not easy to enforce. The city Charters for Hargeisa and Garowe are currently in the respective Parliaments of Somaliland and Puntland for approval. They may evolve into the basis for long-term urban management systems. *JNA Governance Cluster report discusses urban legal framework in more detail.*

X. Another institutional constraint in the urban sector is the lack of large-scale municipal and national investment capacity required for the rehabilitation and development of expensive common use urban infrastructure. This derives from the very weak tax collection systems. The present legal framework in Puntland and Somaliland is insufficient for the local authorities to develop their revenue base. The lack of transparent municipal finance systems adds to the challenge of reconstruction and development of critical urban infrastructure. Budgetary or any other support from the central administration to local authorities hardly exists. On the contrary, any national budgets increase largely at the expense of the local level.

X. In Somaliland, a small share of overall budget (mainly raised from fees and duties at the port of Berbera and at the airports and other border points) is in principle allocated to municipalities, but its delivery is poorly planned. Municipalities thus have to raise their own

¹⁰ UNDP/World Bank Somalia Watchbrief (2002)

¹¹ Mayors interviewed for the Urban Development Strategy, EC, September 2003.

¹² UNDP/World Bank Somalia Watchbrief (2002)

funds from local taxes. In Puntland, municipalities are dependent on the central government, and budgeting and accounting systems are at an early stage of development, but addressed in the Five Year Development Plan. Thus, alongside import duties, municipalities are *ad hoc* sources for raising funds for the central authorities.

Strong role of non-governmental entities in urban sector development

X. Emerging state and municipal level authorities, especially in Somaliland and Puntland, provide the basis for development of urban infrastructure management and for a more effective environment for infrastructure investments. However, the institutional set-up process is slow. For fast delivery of priority infrastructure projects (within 2-5 years) and durable, self-sustained infrastructure systems, the role of the private sector has to be enhanced and harnessed. At the same time, public authorities should design policies aiming to fulfill the right to housing for disadvantaged groups by securing land and tenure rights and by putting in place housing finance systems especially for women, IDPs and returnees and the urban poor.

X. Somali urban communities possess a relatively strong private sector and civil society. However, the line between the private sector and key decisions makers is sometimes blurred and often functions along 'clan' divisions. Active role and interest of the private sector, CSOs and local communities in participating in urban development is critical in securing the sustainability of external investments. Private water companies have, for instance, are performing relatively well in several cities with limited public involvement and funding. The private sector has also initiated housing projects for the Diaspora in Puntland and Somaliland. Local community and citizen groups support several urban infrastructure services, such as markets, sanitation and crosscutting sectors (income generation, women's empowerment). These represent a resource for urban development planning that can mobilize through participatory urban planning processes.

X. The five-year development target in the urban sector is thus to establish varying models for PPPs' and non-governmental actors' involvement in different levels of infrastructure development and basic service delivery (water supply, energy, transport, housing, solid waste management, urban planning). The municipal authorities take lead in the development of solid policy framework, service quality control and service development planning. Policies set, *inter alia*, would aim to fulfill the right to housing for disadvantaged groups as well instituting housing credit accessible especially to women, returnees, etc.

Criteria for selection of priority targets of JNA investments

X. Given the vast development needs, limited donor, and local resources, the purpose of this section infrastructure report is threefold:

- To improve the quality of life of the rapidly expanding urban population through stimulating high impact investments in the rehabilitation of the most essential basic urban infrastructures in the regional capital cities starting from the mobilization of local stakeholders. These are addressed through an envelope funding mechanism, based on the population size and locally agreed priorities (see Annex IV.1 and the Other Municipal Infrastructure section).
- To address directly those strategic urban infrastructure needs that have most direct and highest affect in creating an enabling environment for economic development of relevance to the regional level.
- To reduce the potential of conflict escalation related to large-scale urban infrastructure investments. In those urban sectors where numerous private entrepreneurs (with the sometimes-strong clan affiliations) currently operate (such as water supply) or which have strong local economic importance (such as primary road construction); it will be

necessary to find a solution that will satisfy all parties to avoid conflict escalation.

X. Within this context, the proposed urban infrastructure investments should be prioritized by focusing on:

- High impact investments with a large target population in cities with a strong community mobilization capacity and willingness to set-up inclusive participatory processes.
- Large urban centers that play a major role in the growth of national and regional economies through industrial production, trade, administrative services or population growth.
- Urban centers that have a large percentage of IDPs/returnees in temporary settlements.
- Investments that contribute strongly to peace and stability.

Approach to urban infrastructure assessments and needs

X. The JNA process assessed the existing conditions and priority development needs in the following urban infrastructure sectors: (a) water supply; (b) waste management; (c) urban roads; (d) housing & shelter for IDPs and urban poor; and (e) local small-scale municipal infrastructure. As for the other infrastructure sectors, the urban infrastructure assessment was, to some extent, constrained by the restricted access to SC Somalia due to the evolving security situation.

X. As an integrative long-term urban development framework, the JNA also assessed the situation and assistance needed to establish urban and regional planning systems and institutions in Somaliland, Puntland and South/Central Somalia. This will not only benefit the planning and maintenance of urban infrastructure but also all other sectors of urban and regional economies.

(A) Urban Water

Status and Context

X. Clean water is one of the most critical resources in all urban areas in Somaliland, Puntland and SC Somalia, especially for the vulnerable groups (IDPs, urban poor, women headed households, etc.). The latest estimates suggest that less than 30% of the total population in Somalia has access to a clean, sustainable water source¹³. Besides causing serious health risks, the shortage of clean water can block progress towards general economic recovery, if not adequately addressed. Indeed, the right to water requires that everyone has access to “*sufficient and safe water for personal and domestic use*” to prevent disease. WHO recommendation for water supply is 50 liters per person per day. In this context, regulatory mechanisms and assistance measures must be put in place for the state to discharge its obligations. Such measures could include free basic water policies such as pertains in South Africa, and consideration be given to introduction of subsidies and similar measures essential for the survival of the poor in the urban setting. However, meeting the WHO recommended level for water supply and enforcing free basic water policy are probably too ambitious in Somalia in the medium term.

X. Most water supply infrastructure either are damaged or has been poorly maintained during and after the conflict. The continuing conflicts in various locations and lack of a functional central government have resulted in chronic under-investment in urban water infrastructure, institutions and policies. Only in the relatively more stable areas, such as Somaliland and Puntland, basic investment have been made to improve the water supply, mainly by the international community.

X. These investments have not even come close to being able to provide the rapidly growing urban population with piped or other adequate water supply. In the late 1990’s, several

¹³ UNICEF MICS..

development partners have implemented or supported a number of urban and rural water projects, including, for example, Garowe, Gardo, and Galkaio in Puntland, Hargeisa, Borama, Las Anod, Berbera and Gebiley in Somaliland and Jowhar and Merka in South-Central Somalia. The private sector is generally reluctant to invest in a conflict environment where there are no legal guarantees or regulations.

X. Water sources are inadequate in terms of quantity and quality. More geo-hydrological surveys are needed to locate adequate and sustainable sources of high quality water. The vast majority of the population in Somaliland, Puntland and SC Somalia obtain water from natural resources such as boreholes and shallow wells. Shallow wells are often located within the settlements and the quality of the water is often poor due to pollution from surrounding latrines. This causes frequent outbreaks of water related diseases such as cholera and diarrhea. Common methods of water collection in the urban centers include:

- Piped distribution by private or public water services.
- Collection from wells and boreholes run by private suppliers or water kiosk vendors.
- Delivery by water tank lorries either to individual houses or to the area.
- Delivery by donkey cart vendors to individual houses.

X. Parallel water supply systems have created unequal water markets in areas of water shortages. Water is cheapest for households connected to the piped water supply (generally the highest income customers) and most expensive for those collecting water from far away points in small quantities.

Institutional and legal framework

X. Prior to the civil war, urban water supply in Somalia was managed by the public sector. However, even before the war, the water sector was facing financial difficulties and water supply systems in many cities were inadequate. For example, Mogadishu relied on German and Chinese Government assistance to maintain the water supply system and had an unreliable water supply system.

X. Facing the mounting water supply crisis, both Somaliland and Puntland have attempted to re-organize the urban water sector and have established basic local level institutions (Water Agencies) and public-private partnerships to manage water sector development. This has enabled the flow of some investments into basic water infrastructure expansion in Somaliland and Puntland. Currently public-private partnerships only include the domestic private sector. Foreign direct investment remains unattractive due to Somalia's continued instability. The Somali domestic private sector has limited capacity. Traditional public-private partnership arrangements such as 'built-operate-transfer' are therefore not possible at this time. Rather, the infrastructure is given to an operator to manage under a long-term concession. These concessions are at this stage simple legal instruments that regulate the key points of the partnership, without defining any details regarding tariffs or tariff schedules.

X. The capacity of the water companies in Somalia varies greatly. As they are all shareholder companies, it also depends on the board members who are usually local business people such as traders or shop owners. The existing companies perform fairly well (with Boroma, Bosasso and Jowhar leading) in part of the country, but require continued assistance. Such assistance must equally include the regulatory authorities, in particular when tariff design issues are concerned. However, responsibilities between various water authorities in Somaliland and Puntland remain unclear and their power to enforce decisions and control activities is often non-existent. For example, unauthorized digging of boreholes near the water agency occurs. In

South/Central Somalia, there are no well-defined local or central government institutional structures to develop and maintain water supply systems. Private companies have developed functional services in some cities in the region.

X. Immediate training support in all aspects of utility management and regulation is required urgently in all parts of the country to achieve higher quality operation of water suppliers. In order to establish better institutional structures, more refined concession agreements need to be facilitated for future granting of concessions or renegotiated concessions.

Regional Situation

Somaliland

X. The current water supply situation in Somaliland is inadequate due to a variety of factors including an arid climate. The basic facts are as follows: (a) 45% of urban population is served by either piped water or water kiosks/trucks, while 45% of rural people use water catchments; and (b) current water requirement of Hargeisa city is between 12,000-20,000m³ per day, while the output capacity is only 6,000-8,000m³ per day¹⁴. A paradox is that four companies are treating 'public' water supplied through piped connection and are selling and even exporting it as mineral water.

X. In Somaliland, (parts of Hargeisa, Boroma, Erigavo, Berbera, Gebiley, Zeylac, Armo and Sheikh have urban water supply systems, which could be expanded assuming that the funding is available. In the rest of the main settlements, the water supply is based on springs and shallow wells (Las Anood, Badhan, Las Qoray, Midishe, Dubar, Baki, Kabri Dahar, Mandera, and Buran).

X. In Hargeisa, the water charges reported by the Water Agency are \$1.20/m³ for private customers with piped connection (the house connection charge is approx. \$100); \$4/m³ for donkey cart deliverers and \$10/m³ for water kiosks and trucks. Prices reported at water points in Hargeisa and Boroma run by private providers under municipal license sell water to single users normally for 300 Shillings (\$0.05) per 20 liter jerrican, and to donkey cart vendors that resell it with profit margin to business or privates that are far from a pipe connection (price can reach \$0.16 per jerrican)¹⁵. This implies that the more vulnerable groups are paying more than three times the price paid by the more affluent groups. Furthermore, the IDPs living in and around Hargeisa and other large cities in Somaliland are particularly vulnerable to water shortages and low quality water.

Institutional and legal framework in Somaliland

X. What follows are the basic institutions, division of responsibilities and regulation in place in Somaliland:

- The responsibility of urban water supply is shared between various ministries and agencies (see Table 5.1).
- Managers of regional water agencies should come under the local Mayor, but these do not possess the required power. In practice, the President of Somaliland usually appoints the general managers of Hargeisa, Berbera and Burao.
- All major cities in Somaliland have their own water authorities, for example Hargeisa Water Agency. Water agencies in Somaliland are semi-autonomous and self-accounting.

¹⁴ Source: Hargeisa Water Agency, January 2006.

¹⁵ Markets Local Projects Elaboration, UNA for SUDP, UN-HABITAT July 2006.

X. The National Water Policy for Somaliland was approved by the Council of Ministers in 2003 and is now a formal working document. The Water Act and Water Regulation were completed in 2005, and are currently awaiting government approval.

X. Somaliland has good public-private partnership practices in the urban water infrastructure. For example, although facing a problem of over-exploitation of its aquifer, the public-private water supply partnership in Boroma is considered a successful partnership mechanism and best practice model that could be applied to other cities in Somaliland and beyond. Some stakeholders argue that proper regulation of the water delivery system would increase interest of the private sector to invest in the water supply development in Somaliland.

Box 1. Good practice of a public-private water supply partnership (Somaliland):
 In 1993 in Boroma town, a community workshop launched the discussion about the management of urban water and the importance of the role of private companies' involvement. Decision was taken to extend the distribution system and look after O&M options. A private company was formed with individual share of 5,000 USD (Boroma Utility Company) for a total capital investment of 105,000 USD. A control board formed by Municipality, local Council and the Ministry of Mineral, Water and Energy supervises the private company. Investors deposited 20,000 USD and signed an agreement that guarantees 3% of revenues to the Municipality. Africa 70 provided the billing system. The main output of this project is the access of the population to potable water. The private company AUC provides the distribution in the entire town through 45 kiosks and some 2,000-house connections.

Municipal taxes are mainly from revenue coming from household and business centers. In the commercial area, tax is 500 SoShs/m² per year, for residential houses, 200 SoShs/ m² per year, and for open spaces 100 SoShs/ m² per year. Poor people do not pay now, but the Municipality is monitoring their ability to pay for the future. According to "The Statistical Abstract of Boroma Municipality" prepared by the Economic and Project Management Committee, Boroma Local Council (December 2003), the total revenue from markets in 2003 were 137,974,370 SoShs (presently 23,000 USD), from Licenses 24,167,350 SoShs (presently 4,000 USD) and from Livestock Market 79,452,000 SoShs (presently 13,250 USD). In 2002 the slaughtered animals were 37,000 corresponding to 18.500.000 SoShs (3,100 USD) tax revenues.

Table 5.1: Division of water sector responsibilities in Somaliland

Function	Responsible body
Urban water supply development	Ministry of Interior and municipalities
Urban water policy, operations, regulation & quality control	Ministry of Water & Mineral Resources
Hargeisa Water Agency	President of Somaliland
Coordination of long term planning and fund raising	Ministry of Economic Planning
Sanitation	Municipalities

The State of Puntland

X. Like Somaliland, Puntland suffers from major water shortages. Safe drinking water shortage is a recurring problem throughout Puntland. For example, in Bosasso 60% of the population gets water from approximately 500 shallow wells within the urban area with questionable water quality, while about 40 % is connected to the water supply network. Garowe, Gardo, Xafun and northern part of Galkaio have urban water systems in place covering some parts of the town, while most secondary towns (Callula, Kandella, Burtinle, Eyl, Armp, Isku Shuban, Bargal, Kobdhexad, Rako, Jeriban and Banderbeyla) have mini water systems. Xabbo, Garhat, Bali Busle and Jedda are served by less developed means (boreholes, springs, shallow wells).

Institutional and legal framework in Puntland

X. Basic water sector institutions, division of responsibilities and regulations are in place in Puntland. The main body is the Puntland State Agency for Water, Energy and Natural Resources (PSAWEN). Ministries and the private sector are also involved in the urban water supply (see Table 5.2). However, the government lacks sufficient financial resources to develop urban water supply to the required extent.

Table 5.2: Division of water sector responsibilities in Puntland

Function	Responsible body
Water related environment issues	Ministry of Interior
Water related health issues	Ministry of Health
Urban water policy, operations, regulation & quality control	Puntland State Agency for Water, Energy & Natural Resources PSAWEN
Urban water supply operations	Public-private water companies (e.g. GUMCO)

SC Somalia (excluding Benadir)

X. In light of the continuing strife in large parts of SC Somalia, there has been very little investment in the rehabilitation and development of water supply infrastructure. The international community has carried out individual projects to rehabilitate or develop fundamental urban water supply infrastructures (drilling of boreholes, mini water supply systems) in relatively safe urban areas.

Currently, only Jowhar and Merka have urban water systems (although the network in Merka has been destroyed) and Belet Uen has a mini water system in place. The rest of the regional capitals (Dusa Mareeb, Baydaba, Xudur, Garbaharey, Kismayo) in the SC region are served only by shallow wells, boreholes (some of which are private), springs and by river infiltration. For the secondary towns, mini water systems serve parts of Bula Burte, Ceel Barde, Adale, and Dar Es Salem, while the rest are services only by river filtration, boreholes and shallow wells (Bardera, Abduwaaq, Bula Awa, Afgoy, Jilib, Ceel Waq, Afmadow and Sakool).

Institutional and legal framework in SC Somalia

X. The absence of a functioning central and local government structures have further complicated investment and management in water supply in South/Central Somalia. The private sector plays a significant role in the urban water supply. However, with the establishment of the TFG the following has occurred: (a) At the central government level, the TFG has established a Ministry of Water and Natural Resources. No agencies or urban water legislations are yet in place; and (b) one of the priority tasks of the TFG is policy development to deal with the fragmentation of the water services and to clarify the role of the TFG itself.

Box 2. Examples of a successful private water supplier in the S/C Somalia:

The first private water company in the Somaliland, Puntland and SC Somalia, Farjanno Water Company, was established in Jowhar, and has been a success. It has made a positive impact on the entire urban community, with significant improvement in access to clean water and reduction of water-borne diseases, such as cholera. The company has contributed to local schools and to various charities. Jowhar (population between 30,000 -35,000) has at present an adequate and expanding water supply.

Farjanno can be an example of what the private sector is able to do at the local level in a stable

operational environment. Other cities are adopting the Jowhar model gradually. These include GUMCO, and most recently, Boroma public-private water sector partnership. Nonetheless, interference from outside is common and exerts pressure on private water agencies.

In Baidoa, a private company Mumin Global Service and Trading Agency (MGSTA) is in charge of water services ‘by default’. The company took over after the collapse of the government, but has no formal contract or partner. Instead, they obtained an agreement with Baidoa communities to invest in water supply. MGSTA Board of Directors has invited some influential people join in order to gain consensus and a safe operating environment.

Benadir region (Greater Mogadishu)

X. Mogadishu had an urban water system in place, but it has been substantially destroyed. The provision of water supply in Benadir is now dominated by default by the private sector. Recent estimates show that about 550,000 people have direct access to water while 650,000 get water through private vendors. However, no major water shortages have been reported for Benadir.

Institutional and legal framework

X. Some 400-500 private water supply companies operate in and around Mogadishu¹⁶ without any central or municipal government regulation. The water quality varies between vendors from good to unacceptable/toxic. Some supply only small neighborhoods while others have a large customer base. Existing private sector structures in the water supply in the Benadir region gives a basis for the system expansion based on best local practices, although it is necessary to reduce the number of private water suppliers and improve the average quality of water through a participatory process. The emerging municipal water institutions should focus on the development of regulatory and planning frameworks for the Benadir region.

Table 5.3: Short term (Years 1-2) priority interventions in urban water supply

Proposed activities	Target cities	Unit cost	Total cost In US\$ million
1. Puntland and Somaliland: Continue investments in urban water infrastructure (drill boreholes, install pipelines) in cities where good municipal water sector management is in place. Target at minimum of 20 boreholes in the 1 st year, 30 boreholes in 2 nd year – <i>1st year assessments, new boreholes & pipelines</i>	Hargeisa, Boroma, Burao, Erigavo, Bosasso, Gardho, Galkaio ¹⁷	\$100,000 per new borehole; \$50,000 for rehabilitation of a borehole	\$0.10 \$5.0
2. S/C Somalia: Implement local urban water infrastructure rehabilitation/ development projects, targeting at achieving 30 % population coverage in towns where good water sector management is in place – <i>1st year assessments, water infrastructure system rehabilitation</i>	Cities to be identified	\$13 per capita ¹⁸	\$0.10
3. Extend the geo-hydrological survey on water in Somaliland to other cities in Somaliland and to Puntland	Cities to be identified		

¹⁶ Source: JNA Zonal Coordinator for Benadir.

¹⁷ Cities in the South/Central Somalia will be identified based on quality of water management and security conditions.

¹⁸ The number of target cities to be decided based on assessments. Budget not included in the total.

4. Establish a multi-sectoral Water & Sanitation Committee for each regional capital to coordinate water sector regulatory framework and the water service development; Build capacity of the Committee for Water & Sanitation through provision of training and equipment - <i>Policy consultants, training, equipment</i>	Regional/Zonal capitals		Costed in Basic Services cluster/ Water & Sanitation subcluster
5. Support creation of public-private partnerships and private utilities for municipal water supply - <i>Training, workshops</i>	Regional/Zonal capitals	\$30,000 per city	\$0.60
Additional priorities in Benadir region:			
7. Reduction of the number of water companies operating in Mogadishu by merging small ones into large and medium size companies. - <i>Workshops, administration</i>	Mogadishu		\$0.10
8. Carry out a controlled closure of private wells within urban areas, minimizing conflict escalation risk through the use of compensation schemes - <i>Workshops, administration</i>	Mogadishu		\$0.10
Total:			\$6.0

Table 5.4: Medium term (Years 3-5) strategic investments in urban water supply

Activities	Target cities	Scope	Unit cost	Total cost US\$ million
Rehabilitation/extension of urban water supply in regional capitals ¹⁹ , targeting additional 30 % (approx. 530,000 people) of the population in the regional capital cities targeted. - <i>Boreholes, pipeline, power sources, management</i>	Hargeisa, Burao, Erigavo, Bosasso, Gardho, Garowe, Galkaio, Jowhar, Kismayo, Merka, Baidoa, Mogadishu	Local	Average \$910,000 per city/ \$13 per capita	\$10.9
Construction of new urban water supply in regional capitals, targeting 30 % (approx. 30,000 people) of the population in the target cities - <i>Boreholes, pipeline, power sources, management</i>	Las Canood, Dhusa-Mareeb, Belet Uen, Xudur	Local	Average \$500,000 per city/ \$7 per capita ²⁰ .	\$2.0
Develop a national Water Policy (further develop & enforce the Somaliland Water Policy) and municipal revenue collection policy; clarify the role of the responsible line ministries and TFG - <i>Policy consultants, administration</i>				Costed in Basic Services cluster/ Water & Sanitation subcluster
Total:				\$18.4

¹⁹ Africa 70 and UNICEF are involved in the extension of Hargeisa water supply and other water and sanitation projects and have accurate costing of development needs.

²⁰ Total investment will be calculated for 30 % population coverage when population number is known.

Implementation and institutional arrangements

X. The implementation of the short and medium term proposed investments in the urban water sector faces numerous challenges ranging from a lack of capacity in parts of the country, and overall funding constraints. Furthermore, the strong presence of the private sector in the provision of water supply will require careful management to avoid exacerbating local tensions. The following paragraphs provide the basis strategy for the implementation and institutional framework for the rehabilitation and development of water supply infrastructure:

X. While JNA targets at minimum 30 % population coverage in urban water supply through reticulated systems in the medium term in targeted cities (mainly regional capitals), the existing and future public-private/private water agencies should take the responsibility of expanding the water supply to close to 100 % of the urban population/households on a long-term cost-recovery basis. Further prioritization of water sector investments is done by directing most urgent investments to towns where less than 30 % of the urban population is currently served by piped urban water supply.

X. Various public and private parties currently involved in water supply should retain ownership in the development projects and their management during implementation to ensure local capacity development. This should be done within a clearly defined regulatory framework;

X. The rehabilitation projects in Somaliland and Puntland should take place under existing ministerial and public agency oversight. In SC Somalia, the emerging municipal authorities and local communities have a role to play;

X. Public sector regulation should be organized through the work of the regional Water & Sanitation Committees that will coordinate regional and inter-regional Water Policy preparation, water sector service development and analyses of needs and priorities. Legal and institutional frameworks should ensure affordable access to clean water for the urban poor. In the future, the public sector has to be well capacitated in order to be positioned as an authority and manager over the public-private partnership water companies, whose knowledge and skills can in many cases exceed those of the public sector authorities. *Details on regulatory framework are reported in the Basic services/Water and Sanitation cluster.*

X. If acceptable and there is a consensus, in the medium term, the TFG can lay the foundation for water sector institutions and prepare legislations at the federal level. *Link: Basic services/Water and Sanitation cluster.*

Monitoring

X. Some of the indicators suggested for monitoring how successful the short and medium term rehabilitation and development investments proposals:

- the number of people with access to safe drinking water.
 - the distance people have to travel to get safe water.
- the extent of the expansion of the water supply network in major urban areas.
- the affordability of water, especially for the poor and disadvantage people.
 - the reduction of all water related diseases.
 - the participation of women and other minorities in the management of the water supply system and in the workforce.
 - the number of satisfactorily functioning urban water supply systems.
- the number of effectively functioning water and sanitation management institutions.
- the number of policy and regulatory frameworks established.

- monitoring of water table to ensure no over-exploitation is occurring.

Links to other JNA sectors

X. Due to its key role both, in general well-being of the people and economic activities, the JNA considers water as a crosscutting type of sector in Somalia, and in the semi-arid areas of Somaliland and Puntland in particular.

X. Therefore, several JNA Clusters investigated water related issues: while the Urban Infrastructure subcluster discusses here the development needs in water supply and delivery infrastructure in urban areas, the detailed policy and regulative framework for the creation of an enabling environment for water supply development (especially with regard to domestic use and vulnerable groups) and monitoring of achievements are discussed in the Water and Sanitation subcluster report in the Basic Services cluster. The Productive sectors and Environment and Livelihoods Clusters look into the water investment needs with regard to livestock and industrial production and other key sectors for economic development.

(B) Urban waste management

Situation and context

X. Detailed information is available on the urban solid and liquid waste management situation in Somaliland and Puntland, while more information is needed for SC Somalia, especially in the largest cities (Mogadishu, Kismayo).

X. The overall urban waste management situation is critical in SC Somalia and poor in Somaliland and Puntland.

Solid waste

X. In Somaliland and Puntland, municipalities have limited human and technical capacity and skills to carry out solid waste collection. Small private companies and local NGOs are involved in waste collection and disposal in most towns. In addition, individuals, mostly women (either IDP or other poor), collect solid waste directly from households in return for a fee. They use low quality equipment, such as wheelbarrows and transfer the solid waste to the local collection points. From there, the waste is transported by, either private or municipal trucks, to unregulated and uncontrolled dumping sites. Poor coordination between these two levels of collection result in a multitude of illegal dumping sites in the urban areas and cause major sanitation problems. No system exists to collect plastic bags. This creates a major waste management problem.

X. In SC Somalia, individuals collect solid waste, such as household waste, on a voluntary basis, and burn or bury it in shallow pits within their housing plots. These are not generally emptied, but covered once full. In some places, semi-organized collection systems exist. No system exists to collect plastic bags and this creates a major waste management problem.

Policy and institutional framework

X. No state level or municipal waste management policies or responsible institutions exist in Somaliland, Puntland and SC Somalia. Local authorities decide on an ad-hoc basis on how to manage solid waste. This was the case also prior to the civil war. Furthermore, the municipal taxation system is inadequate to cover waste collection costs. Individual collectors mostly charge the households directly. Municipalities usually cover the cost of transporting solid waste from urban collection points to dumping sites. However, no direct cost-recovery systems seem to be in

place for this.

Identification of needs, issues and opportunities

X. The urban solid waste management situation has been exacerbated by the rapid and uncontrolled urban population growth. Local authorities and the private sector do not possess the capacity to meet the growing needs. It has been estimated that waste production in the cities of Somaliland and Puntland exceeds the collection capacities by a factor of four to ten times. Reliable information on waste collection capacities in SC Somalia is not available. The continued rapid urbanization in all parts of Somalia may lead to major outbreaks of diseases caused by the uncontrolled disposal of increasing amount of waste. The lack of available space in many congested urban centers for waste management activities further aggravates problems.

X. Throughout Somalia, there is limited knowledge, technical capacity and equipment for waste collection and disposal. The number and level of maintenance of waste collection trucks for transport from collection points to dumping sites and treatment equipment are insufficient.

X. A complete lack of regulated dumping sites and the lack of coordination between door-to-door collection and centralized transfer points have resulted in numerous illegal sites within urban areas. Locations of existing dumping sites are not determined according to geophysical or hydrological surveys.

X. In the absence of coordinated waste management systems, the private sector and civil society organizations, linked to varying arrangements with the local authorities, have attempted to solve the most urgent waste management problems. Livelihood opportunities exist for local entrepreneurs and individuals to manage the various components and stages of solid waste collection and disposal systems.

X. The following are some emerging good practices in local public-private management systems in Somaliland and Puntland: (a) Localized cost-recovery systems for waste management are in place mainly for commercial premises, such as market places, in Somaliland and Puntland; (b) Some municipalities in Somaliland have carried out successful clean-ups and awareness building campaigns in collaboration with the private sector and local communities (especially women and youth organizations). Organizations have implemented situation analyses and pilot waste-management projects through joint efforts.

Table 5.5: Short term (Years 1-2) interventions in solid waste management

Suggested interventions	Target cities	Unit cost	Total cost US\$ million
Support development and strengthening of private companies and public-private partnerships in all aspects of solid waste management to ensure adequate service capacity to cover 50 % of waste collection and disposal needs in selected cities (approx. 240,000 beneficiaries). Increase community awareness. Use labor-intensive systems where applicable. (Activities target approx. 20 cities); - <i>Training, policy consultants, workshops, regional study tours</i>	Towns with between 5,000 and 20,000 inhabitants	\$250,000 per city	\$5.0
2. Support the municipal capacity building (targeting approx. 20 cities)	Towns with >20,000	\$70,000 per city	\$1.4

- <i>Training, policy consultants, regional study tours</i>	inhabitants		
3. Construction of high quality dumping sites (options: semi-aerobic landfills or sites to dump and burn based on local environmental conditions) incl. geo-physical survey and planning exercise to identify safe locations for new dumping sites in all regions (targeting 15 cities in SC Somalia, Puntland, Somaliland) - <i>Construction, surveys</i>	15 Regional capitals	Average \$250,000 per city	\$3.75
5. Investment in most essential equipment for solid waste collection in the largest urban centers in SC Somalia. Related training of the collection work staff (targeting approx. 5 cities and 2,000,000 people) - <i>Equipment capital costs, training</i>	5 cities in S/C Somalia as situation allows	Average \$0.75 per capita	\$1.5
6. Labor intensive clean up operations immediately upon establishment of peace and stability in individual towns in South/Central Somalia, involving IDPs/returnees and demobilized militia (targeting approx 10 cities). Support to community organization for awareness building and maintenance of clean environment - <i>Administration, equipment</i>	10 cities to be identified as the situation allows	Average \$200,000 per city	\$2.0
<i>Total:</i>			\$13.65

Table 5.6: Medium term (Years 3-5) strategic investments in solid waste management

Activities	Target cities	Scope	Unit cost	Total cost
Regional and local waste management policies developed in all regions to regulate operations - <i>Policy consultant, workshops, administration</i>		Somaliland, Puntland, S/C Somalia	\$200,000	\$0.60
Waste management system established for large industrial production units and in major industrial areas (approx. 10 units to be constructed)	(to be identified in collaboration with the Productive sector)	Regional		
<i>Total:</i>				\$0.60

Liquid waste and sanitation

X. Liquid waste management, including drainages, wastewater management and sanitation (excreta disposal) facilities in urban areas is closely linked to public health conditions. These must therefore be addressed during the development of basic services in key public spaces and services, such as schools, hospitals, market places, slaughterhouses etc.

X. In Somaliland and Puntland, within few upscale neighborhoods, aqua privy latrines exist, but the common excreta disposing technology is a simple-pit system, in which the excreta accumulates at the bottom of the pit while liquid effluent infiltrates in the soil. If the soil is suitable, the water table is not contaminated. This type of latrine should be closed and moved elsewhere when the sludge reaches the bottom of the slab. The type is recommended for rural or scattered settlements or for temporary use. In practice, in many towns, the high number of users of such urban facilities and the fact that they are considered a permanent investment introduced

the use of desludging by means of vacuum tankers. Desludging in this case does not avoid water table contamination because infiltration is not stopped as in a septic tank. Therefore, the simple pit systems form a public health and environmental risk.

X. The main issues affecting liquid waste management and sanitation in urban areas include:

- Liquid waste collection is rare with less than 2 % of wastewater being discharged outside urban areas. Wastewater is commonly thrown to the streets with no communal rules. This forms an immediate health hazard, for the children in particular. Implementing liquid waste and sanitation projects will require additional technical capacities from international organizations operating the field and local implementing partners. Only in very few cases (restaurants and shops), waste water is collected by trucks and carried to liquid waste sites;
- On average, 48 % of urban population has access to sanitation facilities ²¹. Few latrines are equipped with septic tanks and 2/3 of these are not managed. Sanitation conditions in the numerous IDP settlements are often very poor or totally lacking. This forces the people to relieve themselves in the areas around the settlements.
- Community spaces, such as market places, slaughterhouses and hospitals lack septic tanks and toilets. In some towns, limited liquid waste collection is organized from community facilities;
- Drainage is poor in nearly all towns in Somaliland and Puntland. Existing systems are often blocked by solid waste. Urban construction has disturbed the natural drainage systems and cause accumulation of water in ponds (leading to spread of diseases) and frequent flooding.

X. The situation with regard to liquid waste management in SC Somalia has not been studied to the same extent as that of Somaliland and Puntland, but it is clear that many problems and issues are common between the regions. Only a fraction of the already very limited pre-war sewage system in Mogadishu is still functioning. This implies that a more cost effective liquid waste disposal system must be developed for Mogadishu.

Policy and institutional framework

X. Policy development needs are vast in the liquid waste management and sanitation sector. As in the case of solid waste, no national or municipal policies or responsible institutions exist in Somaliland, Puntland and SC Somalia for liquid waste and the municipal taxation systems do not include integrated water tariff (comprising of collection, discharging and treatment of wastewater). Individual collectors mostly charge the households directly. Municipalities usually cover the cost of transporting solid waste from collection points to the few existing liquid waste disposal ponds.

Identification of needs, issues and opportunities

X. The urgency of the need to establish liquid waste management and sanitation systems are emphasized by the continued rapid urbanization and the presence of densely populated IDP settlements. Under these conditions major outbreaks of diseases may occur, caused by the uncontrolled disposal of increasing amount of waste.

X. Although a pit may seem cheaper than septic tanks, in reality, maintenance cost (as well as health and environmental risks) should be taken into account: properly designed neighborhood septic tanks need desludging much less frequently than simple pits. Neighborhood septic tanks can be used for wastewater treatment for sanitation facilities in public places and for small

²¹ UNICEF Multi-indicator Cluster Survey.

housing estates. The wastewater may be waste from toilets only, or may also include sullage. A septic tank, combined with an effluent disposal system, offers many of the advantages of conventional sewage, and the system could be upgraded to local sewerage in the future. However, they are more expensive than most other on-site sanitation systems and are unlikely to be affordable by the poorer people in society. They also require sufficient piped water to flush all the wastes through the drains to the tanks²².

X. As for the solid waste, adequate knowledge, technical capacity and equipments are not available for liquid waste collection and disposal in any part of Somalia. The number and level of maintenance of liquid waste collection tanks is insufficient and the sanitation workers have no training or means of protecting themselves from harmful substances.

X. Locations of the existing liquid waste dumping ponds are not determined according to geophysical or hydrological surveys. Liquid waste and sewage are commonly deposited in wadis and landfills with no environmental management or restrictions to public access. Furthermore, special management system for hazardous and medical waste by municipal or private sector exists only in few towns in Somaliland and Puntland. These focus on selected industrial or commercial properties. Hazardous substances are dumped into landfills or dry-river beds with no environmental management.

X. Slaughterhouses are facilities with particular waste management infrastructure needs that have broad hygienic, environmental and public health issues. Rehabilitation and construction plans for slaughterhouses need to design comprehensive management systems for liquid and solid waste, including adequate water supply and distribution, toilets and washing facility for male and female users, disposal of blood and wastewater and disposal of solid waste²³.

X. The following are some emerging good practices in local public-private management systems in liquid waste management and sanitation:

Box. 4. Best practice in public-private partnership in sanitation (Puntland):

Public involvement: Municipal Sanitation Department supervises the activities of Garowe Waste Collection Management (WCMC) and it organizes community collection of garbage when it significantly remains on the road.

Public-private partnership or private sector involvement: WCMC is managing the garbage collection receiving support from Municipality (1,000 USD/monthly) to cover expenses for maintenance and fuel. They collect fees from restaurants and shops (ranging from 2,000 to 5,000 Shs for each collection) for an amount of 1,300 USD/m to cover costs of the staff. Municipal tax collection cover an average annual amount of 120,000 Shs (8 USD) from each household and semester amount of 400,000 Shs (27 USD) from small shops. Town garbage collection received support by ILO, which provided equipment and cash flow for the starting up of the activities. After ILO support, WCMC reduced the number of the staff (50%) and the number of hired vehicles.

²² Development of Appropriate Design Criteria for Washwater and Excreta Management, UNA for SUDP, UN-HABITAT July 2006.

²³ Development of Appropriate Design Criteria for Sanitation in Slaughterhouses, UNA for SUDP, UN-HABITAT, July 2006.

Table 5.7 Short Term (Years 1-2) interventions in liquid waste management

Suggested interventions	Target cities	Unit cost	Total cost US\$ million
Support development and capacitating of private companies and public-private partnerships in managing disposal of <u>liquid waste</u> from selected sources . Increase community awareness. Use labor-intensive implementation mechanisms where applicable. (Activities target approx. 20 cities) - <i>Training, policy consultants, workshops, regional study tours</i>	Towns with between 5,000 and 20,000 inhabitants	\$250,000 per city	\$5.0
2. Support the municipal capacity building, including experiment with integrated cost recovery system (water tariff based taxation) where possible in order to create self-sustained waste management system (targeting approx. 20 cities) - <i>Training, policy consultants, regional study tours</i>	Towns with >20,000 inhabitants	\$150,000 per city	\$3.0
3. Construction of high quality dumping sites for liquid waste (targeting 15 cities in SC Somalia, Puntland, Somaliland) - <i>Construction, surveys</i>	15 Regional capitals	Average \$250,000 per city	(costed in the solid waste section)
4. Experiment with neighborhood level domestic septic tank and soakpit systems in selected urban centers (targeting approx 6 cities) as part of a broader feasibility study - <i>Equipment, installment, training</i>	Hargeisa, Boroma, Gebiley, Gardo, Garowe, Bosasso	\$250,000 per city	\$2.5
5. Investment in most essential equipment for liquid waste collection in the largest urban centers in SC Somalia. Related training of the collection work staff (targeting approx. 5 cities and 2,000,000 people) - <i>Equipment capital costs, training</i>	5 cities in S/C Somalia as situation allows	Average \$0.75 per capita	\$1.5
<i>Total:</i>			\$12.0

Table 5.8: Medium term (Years 3-5) strategic investments in liquid waste management

Activities	Target cities	Scope	Unit cost	Total cost US\$ Million
- Rehabilitation/ extension/ creation of drainage in regional capitals to cover at least 50 % of the target cities' population (approx. 210,000 people). (Cost of open drainage based on construction scope of 5 km per city) - Consider rehabilitation/ extension/ creation of sewage systems in regional capitals where no system is in place. - <i>Open air drainage construction (equipment, labor, training)</i>	Erigavo, Gardho, Garowe, Galkaio, Jowhar, Merca, Baidoa, LasCanood, Dhusa- Mareeb, Belet Uen, Xudur, Bu'aale	Regional	\$100,000/km Average \$35 per capita	\$6.0 ²⁴

²⁴ Sewage system construction cost (average \$35 per beneficiary) not included in the costing.

Build additional sewage systems following the feasibility study carried out previously (target approx. 1,2 million people) - <i>Equipment, labor</i>	Mogadishu, Kismayo, Hargeisa, Bosasso	Regional	Average \$35 per capita	\$72.0
Regional and local waste management policies developed in all regions to regulate operations - <i>Policy consultant, workshops, administration</i>		Somaliland, Puntland, S/C Somalia	\$200,000	Costed in the solid waste section
Total:				\$78.0

Implementation and institutional arrangements for solid and liquid waste management

X. The private sector in cooperation with the local authorities, have attempted to respond to the most urgent liquid waste management needs. Through capacity building and training, liquid waste management can provide livelihoods for a number of local entrepreneurs at the various components and stages of liquid waste collection and disposal systems.

X. Implementation of the short- and medium-term priority interventions/investments in solid and liquid waste management will require a coordinated action from local entrepreneurs, municipal authorities and the civil society, supported by international organizations. International financial assistance will cover approximately 50 % of urban waste collection and disposal needs in selected cities. Enabling private sector and public-private partnership arrangements should set the stage for further expansion of the system and sufficient cost-recovery.

X. Municipal authorities need support in development and enforcement of local and regional waste policies and in leading the service development and priority needs assessments. Municipal revenue systems for waste management needs to be established in order to support the policy and administration development in waste sector and to support those components of waste management systems that cannot be yet covered on cost recovery basis by the private sector (e.g. disposal sites and servicing of poorest neighborhoods). At the central government level, the Ministries of Water, Health and Labor in Somaliland and Puntland are in position to take a lead in coordinating the development of a national level waste policy. In the case of SC Somalia, it is not clear who would take the lead.

X. The existing private sector implementation capacities in urban waste sector provide a starting point to scale up services in the major towns in Somaliland and Puntland. However, in order to meet the required service standards and coverage, public-private partnership and the private sector need improved technical and managerial capacity support from the international organizations in the short-and medium-term. Private sector has the capacity to cover part of the capital and operational cost for low-technology collection systems through private cost recovery based services.

X. Waste management systems should be developed using the experiences gained in ongoing local projects that have engaged NGOs, municipalities and private sector to develop proposals and action plans for cost recovery based solid waste management systems. These are tailored to the specific conditions and needs of each target town in Somaliland and Puntland. During the system development, it is important that IDPs (usually women), for which small-scale waste collection at neighborhood level provides a means of livelihood, are not excluded from their income source.

X. Information obtained from SC Somalia so far indicates that the capacities are more limited than those in Somaliland and Puntland. Thus, the role of international assistance in the establishment of waste management systems is expected to be bigger in terms of further

assessments, supporting immediate service provision and building local municipal and private sector capacities. The role of private companies is likely to become central in this region.

Links to other JNA sectors

X. ***Productive Sectors.*** Large industrial plants that would generate hazardous waste should be made legally responsible for their waste management. Investments also in municipal solid and liquid waste management systems are critical in cities that possess economic growth potential. The two clusters need to coordinate on the waste management systems and industrial development projects.

X. ***Livelihoods & Environment.*** Waste management provides a number of opportunities in local livelihoods that do not require high investments. The required health and environmental issue training can be conducted at relatively low costs.

X. ***Infrastructure/Urban Roads.*** In the case that citywide sewage system networks will not be constructed because of the JNA, the sewage network (or space reservation for pipelines) should be included in the road construction plans, together with other urban municipal underground networks

X. ***Infrastructure/Urban planning.*** Construction of dumping sites and pit latrines should be planned based on available information on urban hydrology, water resources and urban growth plans.

X. ***Crosscutting Issues.*** Design of sanitation services in communal spaces, such as market places, should also include facilities adapted to the needs of disabled persons. Access for women and minority entrepreneurs to credit facilities should be improved to enable them to participate in PPPs created in waste management sector. In all labor-intensive methods, the project implementation must be gender-budgeted, i.e., the project plan must ensure involvement of women in training opportunities and in paid labor force arising from the project. It should also guarantee equal pay for men and female employees. Such interventions should target low-income groups aiming at reducing poverty and social disparities.

(C) Urban roads

Situation and context

X. The condition and status of development of urban roads in all Somali cities is extremely poor. In the major towns, some main paved roads were constructed during the 1970s and 1980s, but have not been maintained, except for some of the main urban through-roads that form part of the rehabilitated regional road network that connect major towns. Road maintenance is made difficult by various unplanned constructions, such as street vendors' kiosks, IDP shelters, or houses, which occupy road spaces. Bridges serving urban areas have mostly been destroyed or damaged during the civil war and by lack of maintenance. The absence of bridges has cut off many sections of towns from the economic dynamics in the rest of the city.

X. A central problem related to road infrastructure in cities is an often inexistent or very poorly maintained drainage system. The limited drainage systems put in place are not functioning due to blockages caused by waste, dust from roads and illegal constructions. This is due to the collapse or very weak of municipal administrations throughout Somalia.

Policy and institutional framework

X. Regional road authorities are functioning in Somaliland and Puntland. However, municipalities are responsible for urban roads. The regional road authorities, linked to the

Ministry of Public Works, manage the national and regional networks, and, in Somaliland, include bridges in urban areas.

X. There are currently no resources, planning systems or capacities at the municipal level to address road development in urban areas. The *ad hoc* measures taken to cover this problem include street maintenance through private entrepreneur self-help in order to improve business environment or through neighborhood level negotiations.

Identification of needs, issues and opportunities

X. The lack of urban road management resources and planning capabilities also contributes to the following urban access problems:

- The lack of drainage facilities and maintenance contributes to the rapid deterioration of the road network and health problems (mosquito-breeding ponds, dust, waste disposal sites, etc.). Furthermore, safety and health problems are escalated by lack of street infrastructures (for example lack of streetlights cause security problems for women) and traffic regulations and their enforcement;
- road improvement and maintenance works are made more difficult by various unplanned construction activities for street vendors, IDP shelters or houses. All these occupy valuable space that should be reserved for municipal infrastructure (walkways, drainage, sewerage, lampposts, etc). These can be re-located and re-organized through community led activities (see recommendations in the Other Municipal Infrastructure);
- street maintenance is typically done through private entrepreneur self-help in order to improve business environment or through neighborhood level negotiations;
- in urban growth areas, roads begin as ‘strips’ cleared by the bulldozer tracing the general lay-out of the new development; and
- inappropriate standards for road width or settlement layout resulting in inefficient land-use (up to 50% reserved for roads), lack of relation with the topography and the soil conditions (roads unusable because of erosion or slope) and poor connection with the existing road network.

Table 5.9: Short-term (Years 1-2) interventions in urban roads

Activities	Target cities	Unit cost	Total cost US\$ million
1. Rehabilitation of urban road networks through low-cost seal improvements and with a strong focus on implementing proper drainage systems, including: <ul style="list-style-type: none"> - construction of pavements on urban through road sections and pedestrian crossings - storm water drainage system and flood prevention works in major urban centers - installment of street lights in the main 	Regional capitals (average road 5 km/city, Mogadishu east 30 km; drainage 20km/city, Mogadishu 100 km)	Road rehab. \$100,000 /km ²⁵ Open air drainage \$100,000/km (included in the waste management)	Road rehab. \$11.5

²⁵ Targeting at low cost seal secondary road rehabilitation, including drainage, pavements, pedestrian crossing, and streetlights in selected places, using labor-intensive methods where applicable.

<p>business areas, such as in and around market places, main housing areas and in strategic locations to improve security for the women and children</p> <ul style="list-style-type: none"> - reservations in street plans for the future urban infrastructure investments (traffic signs, energy transmission, basic street lightning, telephone cables, sewage networks, public transport nodes, pedestrian crossings, space reservation for street vendors and parking spaces) <p>At the 1st phase, prioritize cities where good municipal road management system is in place. Except for urgent priorities, the investments will be financed as much as possible through improved municipal tax collection systems.</p>		section cost)	
<p>2. Rehabilitation of destroyed/degraded main bridges or Irish crossings in regional capital cities, as applicable (e.g. in Hargeisa, Burao, Jowhar, Garowe). A geophysical and traffic survey to guide the construction, if necessary and urgent flood prevention measures (estimated total 10 bridges and 10 Irish crossings to be constructed/rehabilitated)</p> <ul style="list-style-type: none"> - <i>Survey, materials, labor</i> 	Regional/ Local	\$800,000 per bridge; \$5,000 per Irish crossing	Bridges \$8.0 Irish crossings \$0.50
<p>3. Further development of municipal taxation and revenue collection systems to finance urban road network planning and development (targeting 11 cities)</p> <ul style="list-style-type: none"> - <i>Consultants, workshops, training</i> 	Somaliland, Puntland	\$100,000 per city	\$1.1
<p>4. Priority strategic urban road projects with regional impact:</p> <ul style="list-style-type: none"> o city center by-pass and new access road to port in Bosasso (+- 7 km) o Berbera–Ethiopian corridor road by-pass for Hargeisa (+- 18 km) (costed in transport section, Table 2.5) <ul style="list-style-type: none"> - <i>Planning process, materials, labor costs</i> 	Hargeisa, Bosasso	\$300,000/ km ²⁶	\$2.1
Total			\$23.2

²⁶ Paved roads including enforced drainages, pavements, streetlights and traffic lights.

Table 5.10: Medium term (Years 3-5) strategic investments in urban roads

Activities	Target cities	Scope	Unit cost	Total cost US\$ million
<p>Further strategic urban road and bridge projects with regional impact based on further assessment²⁷, planning and feasibility studies, including environmental assessment. Potential projects:</p> <ul style="list-style-type: none"> o Berbera – Garowe through-road in the urban area in Burao o Bosasso – Belet Uen through-road within the urban area in Qardho, Garowe, Galkaio, Dhusa-Mareeb o N-S trunk through road in Belet Uen and Jowhar o the main arterial streets and ring road in Mogadishu <p>- <i>Planning process, materials, labor costs</i></p>	Selection based on further feasibility studies	Regional	<p>\$150,000 per km²⁸</p> <p>\$800,000 per bridge;</p> <p>\$5,000 per Irish crossing</p>	\$20.0

Implementation and institutional arrangements

X. International assistance is required for the major urban roads (structural at the city and regional level) and bridge works due to their technical complexity and high cost. However, to enhance local capacities, there is an urgent need to increase the quality and number of local contractors over medium-term and use labor-intensive methods where applicable. In this way, the externally funded road projects provide a platform for establishment and capacity building of small- and medium-size local road contractors.

X. For secondary urban roads in Somaliland and Puntland, the focus should be on improving the revenue base of local authorities, in order to allow them to invest in road improvements through labor-intensive methods. Through parallel building the technical, planning and management capacities of local road authorities, these should be able to manage and supervise the labor-intensive and secondary road construction works in the medium term. Communities have expressed their willingness to pay for improved urban roads if visible improvements are made. In the meantime, the proposed program can adopt current practices of community self-help and private sector initiatives in local street rehabilitation. Depending on the local priority needs, these road projects can be funded through the envelope funding mechanisms introduced in the Other Municipal Infrastructure section below.

X. In all urban road projects, rehabilitation/construction of drainage network is essential. Spatial provision should be made also for other urban infrastructure development, such as sewage and water network, power grid, streetlights and pavements.

Links to other JNA sectors

- **Macroeconomics, Social services, Productive sector, Livelihoods & Environment** – Private industries and entrepreneurs will benefit from improved accessibility within urban areas and from shorter travel times. Prioritization of investments in the urban road network need to be guided by strategic urban planning frameworks taking into account

²⁷ Socio-economic indicators can be developed to identify neutrally the roads that are economically most important in the given region/district.

²⁸ Paved roads including enforced drainages, pavements, streetlights and traffic lights.

economic development opportunities, accessibility to major urban services (like markets) and opening up of new areas for urban development (incl. resettlement of IDPs/returnees).

X. **Cross-cutting issues:** The following issues need be addressed:

- Road infrastructure development can be particularly volatile and expensive in terms investment for peace and reconciliation. Benefits from road investments that tied to selected geographic areas may cause conflict between clans;
- Street right-of-ways should include, where needed and possible, space for street vendors;
- Pedestrian space should be sized enough to accommodate the large movements and walking related activities. This should also help women to use streets more safely during dark hours, as it would reduce congestion. Now, congested pavements increase sexual harassment of women after 6pm; and
- Particular attention must be paid to improve access for women and minority entrepreneurs to employment and training opportunities provided in road construction schemes. This can be either low-skilled manual work or in project management. Labor-intensive methods must ensure employment opportunities for women.
- Street lighting should be constructed first in those areas that women and children use on frequent basis in the dark hours (market areas, IDP temporary settlements, connections between shelter and water kiosks, etc.);

D. Shelter for the IDPs and the urban poor

The proposals in this section is given to highlight specific urban needs, and expected to be coordinated with the interventions proposed by the Livelihoods Cluster.

Context and situation analysis

X. The current estimates of number of IDPs in Somaliland, Puntland and SC Somalia are²⁹:

- Somaliland – total of about 40,000 IDPs, majority of whom in Hargeisa and Burao.
- Puntland – total about 60,000, of which 22,000 in Bosasso, 12,600 in Garowe and 10,000 in Galkaio. The rest live in smaller towns or in spontaneous settlements along major roads.
- Along the river Shabelle, Gedo and Lower Juba – approx. 90,000, out of which 15,000 are in the city of Kismayo.
- Mogadishu – estimates vary between 233,000 and 300,000³⁰. IDPs in Mogadishu are scattered over almost 200 settlements. According to some sources, they represent almost a quarter of the city's total population.

Institutional and legal framework

X. International organizations have funded IDP policies with help from local CSOs and NGOs. In 2005, the UN Country Team Somalia developed a *Joint UN Strategy to address IDP related problems in Somalia*. The joint strategy targets at development of durable resettlements while, at the same time, upgrading the conditions in the temporary IDP settlements to meet minimum living standards and supporting creation of sustainable livelihoods for IDPs. It also

²⁹ Source: OCHA, 22 November 2005, unless otherwise stated. Numbers are rough estimates.

³⁰ FUPAG, 30 May 2005; OCHA, South/Central 22 Nov 2005; and UNICEF, Oct 2005, respectively.

includes an approach to deal with the risk of forceful evictions from public buildings. The strategy is organized along the following lines:

- Plan local durable resettlement, as part of an integrated urban development plan, including provision of shelter through a self-help community-driven approach;
- upgrade temporary settlements to secure basic living standards starting from clear agreements that consider both the rights of the displaced persons and the interests of the land-owners;
- Stimulate spontaneous small-scale resettlement through support mechanisms, facilitating access to land and shelter; and
- Create pull-factors, based on sustainable livelihoods, to encourage resettlement in rural or coastal areas, or, where feasible, their areas of origin.

X. Municipal authorities acknowledge the vast challenges related to IDPs, but no concrete municipal or regional policies exist to manage IDPs. In Somaliland, the responsibility for IDP issues is disputed between several ministries (Ministry of RRR, Ministry of Interior, Ministry of Public Works, etc.), while municipalities are in charge of acquiring land for and basic service provision in IDP resettlements.

X. In SC Somalia, policy level interventions to develop legal frameworks necessary for future project interventions will need to be discussed with the newly emerging administrations linked to the TFG. So far, limited emergency and relief interventions have been the dominant form of assistance to IDPs in SC Somalia.

Identification of needs, issues and opportunities

X. IDPs in unplanned and overcrowded temporary settlements have limited or no access to urban services and infrastructure (clean water, sanitation, health facilities, education). Shelters are put together of waste materials, such as plastic sheets, pieces of cloth, cardboard and cartons. These shelters are prone to fires, outbreaks of diseases and lack privacy. Fire risk increases due to extreme densities and cooking habits (charcoal).

X. Conditions in the settlements vary between two different situations: (a) Permanent or *official* sites (i.e., land allocated by the authorities, as well as some basic infrastructure, usually water, sanitation, schools, police station, provided by aid organizations); and (b) temporary/unofficial (IDPs renting a plot on private land or occupying a public building/land, etc.), under harsher living conditions. The latter is the predominant situation on the ground.

X. IDPs are a mixed population group, including people who moved due to natural disasters, people affected by drought or conflicts within the region and returnees, poor local people, refugees and other foreigners. There are no significant differences in the living conditions or immediate needs between these groups, although the more remote the clan affiliation is with the host community, the more difficult the accessibility is to land and basic services.

X. Regardless of the conditions in settlements, majority of IDPs want to settle permanently in the new areas, mainly due to long duration of displacement (over 10 years in average). However, insecure land tenure in the current settlements halts investment in durable shelter and basic infrastructure by the local authorities and landowners. This reluctance links to the perception that improvement of settlements will make them permanent and discourage IDPs from returning to their origin or even attract more people from other locations. Temporary settlements on private land have also seen cases of property owners or militias privatizing the infrastructure facilities provided in order to charge fees from IDPs. In addition, IDPs will not make investments in their shelter construction without access to appropriate land and sufficient security of tenure.

X. Insecurity of land tenure conditions in IDP settlements is intensified by the following issues:

- Problematic access to land for durable resettlement of IDPs: illegal land grabbing, related land disputes, lack of land management system and legal framework as well as rapidly rising land prices in the growing urban centers (especially in economic centers such as Mogadishu, Bosasso and Hargeisa) are at the core of land and tenure problems. Improving availability of land (through land sharing etc.) is essential in order to increase authorities' ability to act in IDP related issues;
- fear of eviction of IDPs out of government buildings: IDPs are occupying abandoned government buildings, schools, factories, and houses left empty by the collapse of governmental structures. With the new emerging government structures comes the desire to reclaim some buildings for government's use. Governments have no capacity to provide durable resettlement options at this point. This increase risks of forced evictions; and
- new displacements to urban areas at the end of the conflict: The end of conflict in Somalia may result in a new flow of displaced people to urban centers, as some refugees return from asylum in the neighboring countries³¹ or communities will migrate to the cities hoping to be part of the expected economic revival. Earlier return patterns in Somaliland and Puntland from Ethiopia and Djibouti have showed that almost 80% preferred not to return to their area of origin where they had pastoralist livelihoods. Returnees opted to move to urban centers instead, following clan affiliations.

X. The following ongoing/emerging processes and initiatives provide a window of opportunities for improving the policy framework and the security of tenure for IDPs:

- Land sharing arrangements with private landowners: opportunities for large-scale housing production exist using land sharing and community schemes. Experiments are ongoing with land sharing principles in newly developing areas for example in Hargeisa, Garowe, and Bosasso; and
- Experiences gained from community self-help/participatory pilot projects on housing: participatory IDP shelter projects are ongoing in three cities in Puntland and Somaliland and involve organizing and training the target communities to produce affordable housing units using local construction materials.

Table 5.11: Short-term (Years 1-2) interventions in shelter for IDPs and the urban poor

Activities	Target cities	Unit cost	Total cost In US\$
1. Preparation of draft Urban Development Plans of selected cities to identify further resettlement options for IDPs, based on land sharing principles (targeting approx 10 towns) - <i>Consultants, workshops, training, administration</i>	Hargeisa, Burao, Bosasso, Garowe, Galkaio, and, as feasible, Kismayo, Mogadishu and other cities	Average \$60,000 per city	\$0.60
2. Improvements in current IDP locations to meet the minimum living standards:	Hargeisa, Burao, Bosasso,	Average \$700,000	\$7.0

³¹ For example, 240,000 Somali refugees are settled temporarily in Kenya.

<ul style="list-style-type: none"> ○ improved sanitation through promotion of neighborhood septic tanks ○ improved access to basic education and health services ○ fire prevention plans ○ density of residents on a plot regulated; compulsory provision of a minimum number of pit latrines per a number of families ○ improved protection for IDPs (against evictions, human right abuses, security, legal status, etc.) (Approx 10 towns targeted) - <i>Policy development, materials, training, workshops, construction</i>	Garowe, Galkaio, and as feasible Kismayo, Mogadishu, and other cities	per city	
3. Implement pilot resettlement operations for IDPs occupying selected public buildings urgently needed for government functions and basic rehabilitation of the buildings themselves (targeting 20 buildings in different cities) - <i>Planning process, materials, construction, project administration</i>	1. Cities in S/C Somalia as feasible for key TFG functions 2. District & Regional Administrations in regional capitals	\$250,000 per building	\$5.0
4. Strengthening and expanding ongoing resettlement projects (housing, basic infrastructure & services). Develop best practices and gain visibility amongst the local and national stakeholders, donors and IDPs with a view to scale-up of activities (targeting 2,000 shelters in selected cities). - <i>Planning process, materials, construction of housing & services, training, project administration</i>	Hargeisa, Garowe, Bosasso	\$7,500 per housing unit	\$15.0
5. Design of larger scale resettlement operations as part of Joint Program exercises, starting from the Joint UN IDP Strategy (targeting 7 cities) - <i>Planning process</i>	Hargeisa, Burao, Galkaio, and, as feasible, Kismayo, Mogadishu, and other cities	\$100,000	\$7.0
Total:			\$34.6

Table 5.12: Medium term (Years 3-5) strategic investments in shelter for IDPs and the urban poor

Activities	Target cities	Scope	Unit cost	Total cost
Strengthening and expanding ongoing resettlement projects (housing, basic infrastructure and services) as part of Joint Programs (targeting 5,000 shelters in selected cities) - <i>Planning process, materials construction of housing & services, training, project administration</i>	Hargeisa, Burao, Galkaio, and as feasible Kismayo, Mogadishu, and other cities	Local	\$7,500 per housing unit	\$37.5

Development of institutional mechanisms to make land accessible to urban poor/IDPs and for shelter provision targeting IDP families (see the Land and Property Report, Governance Cluster)		Regional		Included in the Governance cluster budget
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Implementation and institutional arrangements

X. The implementation of IDP shelter interventions will follow the principles of the Joint UN Strategy on IDPs, linking protection issues with basic principles of sustainable urbanization (aimed amongst others at slum prevention). The strategy states that the issue of IDPs and returnees must focus on integration with host communities and urban restructuring as well as on promotion of return to rural and coastal areas or areas of origin. In addition, shelter issues need be linked to general infrastructure and service provision planning for the IDPs and wider urban population.

X. Local public and private sector implementation and funding capacities in the low-cost housing sector are very limited. Therefore, in the beginning, all major housing schemes will be funded and managed by been made, using the self-help and participatory housing approaches, as described above. In the medium term, alternative financial mechanisms need to be developed to assist urban poor/IDPs to gain access to land and shelter.

Links to other clusters/sectors

X. The following linkages are important:

- **Basic social services** – Public septic tank provision to be planned in collaboration with the Water & Sanitation sub cluster; the aspect of provision of social services for IDPs must be taken into account when deciding the resettlement policies and locations;
- **Productive sectors** – Attracting people to the rural and coastal areas and/or their areas of origin requires creation of economic opportunities (pull factors) in diversified areas. Profiling and skills training of possible beneficiaries to better identify who and how many in the current temporary IDP settlements would be attracted by these programs;
- **Livelihoods & Environment sector / Solutions for the displaced** – Use Joint UN IDP Strategy as common framework for action. Use of labor-intensive construction methods in housing and infrastructure development; and
- **Cross-cutting issues:**
 - Improving the human rights situation, security of tenure and living conditions in the short-term and integration and permanent settlement of IDPs in the long term will have a major direct positive impact on peace and reconciliation in Somaliland, Puntland and South/Central Somalia. *(See also the Land & Property section in the Governance Cluster report.)*
 - Women-headed households are to be prioritized during allocation of housing, while ensuring resettlement of well-balanced communities and women to be included in the skills training alongside with members of other marginalized groups.

E. Other municipal infrastructure

Context and situation analysis

X. Localized productive municipal infrastructure, such as market places, plays a vital role in local economic development of Somali cities. They often represent the most vibrant public spaces of the cities and their sub-districts and provide structure to the latter. They also offer a wide variety of livelihood opportunities for the urban poor and women. As the livestock trade is a major part of the Somali economy, functional livestock markets and slaughterhouses are part of the key municipal infrastructures. Functional local government buildings are often non-existent and hamper proper basic municipal operations.

X. In Somaliland and Puntland, investments for rehabilitation have been made in most cities, and the remaining gaps and priorities are known. The JNA has not clearly identified local infrastructure needs in SC Somalia due to restricted access.

Institutional and legal framework

X. Municipal infrastructure is planned, built and managed at the local level. The level of involvement of local authorities, the private sector and civil society organizations differs between towns. Local authorities have many times taken a leading role in market place development, whereas slaughterhouses have been often supported by the private sector. Local NGOs have been actively engaged by the international community to build and run municipal infrastructure development. In places where local authorities are more developed, such as in Somaliland towns, the latter model has been most common. These initiatives rely on participation of the private entrepreneurs and local communities, or, e.g. in the case of market place initiatives, the vendors.

Identification of needs, issues and opportunities

X. The lack of planning and rehabilitation of local urban infrastructure is a central problem in all cities in Somalia. The civil war largely destroyed formal market structures, leaving formal and informal market vendors to clog the streets. Poorly organized market places pose both health and safety problems (unhygienic selling of meat, fires, traffic accidents, dusty air, unorganized public transport, inaccessibility for the disabled etc), cause pollution (inadequate solid and liquid waste disposal) and contribute to a dysfunctional urban environment in general.

X. Similarly, most slaughterhouses do not meet basic sanitation standards. This results in serious public health hazards. Meat is usually transported to market places in unhygienic conditions.

X. As mentioned earlier, most public buildings in Somali cities have been either destroyed or looted during and after the civil war and are currently occupied without authorization by various groups. These are a key part of the local infrastructures that need rehabilitation in order to return their use value to the urban administration or local economy.

Table 5.13: Short-term (Years 1-2) interventions in small scale municipal infrastructures

Activities	Target cities	Unit cost	Total cost US\$ million
1. Call for proposals to local consortia (public private CSO partnerships) for local municipal infrastructure rehabilitation and/or development focusing on key urban	All urban centers with population	\$200,000 per city	\$2.0

infrastructure (markets, slaughterhouses, etc.) to be developed as strategic projects, part of an integrative urban planning approach (approx. 10 towns targeted) - <i>Planning process, materials, labor, administration</i>	>10,000 in Somaliland and Puntland		
2. Small-scale rehabilitation of municipal infrastructure based on a participatory approach involving private sector and civil society in those cities where a basic governance set-up exists (to be used as peace and governance dividend in South/Central Somalia) (approx. 20 districts targeted) - <i>Planning process, materials, labor</i>	S/C Somalia	Average \$100,000 per city	\$2.0
3. Rehabilitation of key public buildings for local governments and other social facilities such schools and hospitals (targeting 20 cities in Somaliland, Puntland, South/Central Somalia) - <i>Consultant, materials, labor</i>	Selected cities in Somaliland, Puntland and S/C Somalia	Average \$150,000 per building	\$3.0
4. Funding envelopes for Short-term urban infrastructure rehabilitation, based on locally agreed priorities	Regional (Zonal) capitals	See Annex IV.1	\$1.3
Total:			\$8.3

Table 5.14: Medium term (Years 3-5) strategic investments in local municipal infrastructures

Activities	Target cities	Scope	Cost
Scale-up of 2-year investment program	To be identified	Local	Depending on resources

Implementation and institutional arrangements

X. In the short- and medium term, due to the lack of adequate local revenue collection systems, financing of priority small-scale urban infrastructure rehabilitation and development requires private sector initiatives and community self-help schemes, supported by the international community and local NGOs. Basic implementation capacities for construction of small-scale infrastructures are available within municipalities, NGOs and local communities. However, these need further technical support. There are numerous good experiences in this sector to build on.

X. An envelope funding approach is a potential funding mechanism to implement small-scale local priority infrastructure projects. The use of the envelope funding allows further priority setting by the urban communities using participatory planning methods, such as City Consultations, Urban Forums and Local Project biddings. Somaliland and Puntland have benefited from a number of local upgrading projects by international organizations. These projects aim at partnership building between local authorities, the private sector, organized community groups (for example Vendor Committees) and civil society groups. Management should be left, to the extent possible, to non-governmental actors.

X. A few pilot projects have also been implemented in SC Somalia. They have proven to be good entry points to strengthen local governance capacities and to introduce participatory urban planning and management approaches, to promote stability, and mobilize communities.

X. In the long term, local infrastructure rehabilitation and maintenance projects can be funded through municipal revenue collection systems and private sector led infrastructure developments. In order to meet the socio-economic expectations and potentials of urban centers in a sustainable manner, the development of local infrastructures is best addressed through long-term, cross-sectoral urban planning approach.

X. Exception is required in upgrading local government buildings, which will need full international support.

Links to other clusters

X. Important links include:

- **Livelihoods & Environment** – Small-scale urban infrastructures are essential prerequisites for livelihoods sector development and investments: amongst other things, energy and water supply for small-scale entrepreneurs and vendors, road access and transport between producers and markets need to be in place before schemes to provide micro-credit to vendors can be realized. Revenue collection from those who use urban public spaces for private income generation should be utilized as a means of municipal income. Labor-intensive methods in construction and rehabilitation of public spaces and localized infrastructures also provide opportunities for enhancing local livelihoods;
- **Social services** – Major market place developments must be planned in collaboration with the health sector in order to provide basic health (especially maternal care) services in close or jointly in the market place, as done in Puntland. This would increase opportunities for women traders and customers to carry on their normal income generating or daily activities more safely before, during and after pregnancies. This would have direct positive impact on maternal and child mortality rates; and
- **Crosscutting issues:** (a) Special focus needed for planning of market place facilities for women traders and customers, especially maternal care and sanitation, in collaboration with the local women organizations and vendors; and (b) slaughterhouses employ many women and their facilities should be designed to cater for their needs.

F. Urban planning as a strategic policy framework

Context and situation analysis

X. Urban planning is an efficient tool that municipal authorities can use as a framework to guide economic development, infrastructure and municipal service investments and address social disparities. It is particularly useful as a method to achieve long-term balanced cross-sector regional and urban development targets under changing political and socio-economic conditions. The continuing rapid urbanization and increasing economic potentials in all major towns in Somaliland, Puntland and South/Central Somalia call for urban planning tools and urban policies to be developed urgently.

Institutional and legal framework

X. Urban planning concepts and systems, as well as resourced planning institutions and authorities are absent in all Somali cities. In Somaliland and Puntland, municipal urban planning units are in place but not functioning. Furthermore, the division of labor between the central level (normally the urban planning department at the Ministry of Public Works) and the municipal

planning and land departments is unclear³². In South/Central Somalia, municipal institutions are currently being established, and there is a need to find a balance of authority and responsibilities between Mayors and the appointed Governors.

X. Moreover, the absence of up-to-date Town Plans in Somali cities is a challenge to comprehensive urban planning attempts by public, private and community stakeholders. Due to uncontrolled expansion, spaces reserved for municipal and infrastructure services are occupied by illegal constructions, including housing and small enterprises. Space for public infrastructure is often not set aside in new developments in order to maximize the land area that can be sold.

Identification of needs, issues and opportunities/

X. Urban planning issues and needs have been relatively well explored in Somaliland and Puntland, but less so in South/Central Somalia. The key challenges to be addressed through development of urban planning system are:

- Institutional authority and responsibilities of urban planning institutions need clarification and strengthening. Municipal planning capacities (human resources and technical equipment), norms, guidelines, methodology and related data need to be developed ‘from scratch’;
- Strategic Structure Plans with environmental protection consideration need to be prepared for all major towns to initiate and guide integrated approach to urban growth and development. Strategic Plans need to respond to the key social and economic needs as identified in other sectors, such as basic services (health, education), power, access roads, IDPs and other vulnerable groups;
- Municipalities need continuous planning support in order to recognize growth potentials that will guide urban infrastructure investment prioritization and sequencing; and
- Municipal budget resources in all Somali cities are very limited and allow few urban development activities.

X. However, several trends are currently creating a positive environment for urban planning system development:

- The growing interest in establishment of urban planning system among the central and local authorities in all parts of Somalia provides an opportunity to the development of this sector
- Preparation of a comprehensive, cross-sector Town Plan is commonly ranked as one of the top urban sector priorities by authorities in Somaliland, Puntland and South/Central Somalia. The absence of urban planning framework and plans is seen as a limitation to cost-efficient provision of municipals services and realization of economic growth potentials. Moreover, establishment of municipal land & property management systems as a parallel process to urban planning will create development synergies and finance base (*see the Governance Cluster Report/ Land & property*); and
- The willingness of the private sector and local communities to participate in and support urban planning process is increasing. Thus, it may be possible to increase municipal revenue

³² For example, the Somaliland Constitution does not refer specifically to municipal authority, but Articles 109-112 address regional and district administration and thus, indirectly, support decentralization of decision-making in municipal services. These Articles also require a specific law to determine the relationship between central and regional governments, which allows regions become self-sufficient in their provision of basic services. This law is yet to be enforced.

through the development of regulatory frameworks for managing public-private partnerships in the urban sector. To support this process, training in local governance, urban management and participatory planning has been provided for municipal authorities, community groups and other stakeholders through City Consultation and Action Planning exercises in a number of cities in Somaliland, Puntland and South/Central Somalia.



Table 5.15: Short-term (Years 1-2) interventions in urban planning

Activities	Target cities	Unit cost	Total cost US\$ million
1. Preparation of Strategic Structure Plans with environmental consideration for major urban growth centers to enable integrated cross-sector approach in urban expansion and land-use planning, especially in terms of improving services for hospitals, schools and key public institutions - <i>Consultants, training, workshops, materials/equipment</i>	Mogadishu, Kismayo, Bosasso, Hargeisa, Berbera	\$100,000 per city	\$0.50
2. Development of practical and normative aspects of urban planning and urban management - <i>Consultants, training, workshops, materials/equipment</i>	Mogadishu, Kismayo, Hargeisa, Bosasso	\$30,000 per city	\$0.12
3. Capacity building of urban planning institutions and staff at municipal and regional levels (focus on local leadership and in technical and analytical capacities of urban planners and technical staff). Potential set up of new institutions - <i>Consultants, training, workshops, materials/equipment, administration, regional study tours</i>	Regional capitals	\$150,000	\$2.7
4. Finalization of appropriate legal framework for urban planning and land management - <i>Consultants, training, workshops, materials/equipment</i>	Somaliland, Puntland, S/C Somalia	\$100,000; \$200,000; \$200,000	\$0.50
Total:			\$3.82

Table 5.16: Medium term (Years 3-5) strategic investments in urban planning framework

Activities	Target cities	Scope	Cost
Preparation of comprehensive urban and economic development plans in incorporation of environment at the regional level, in collaboration with adjacent regions and neighboring countries - <i>Consultants, workshops, materials/equipment, study tours</i>	To be identified as projects are refined	Regional	
Development of regional level urban policy to set standards and guide all urban development activities - <i>Consultants, training, workshops, administration</i>		Regional	
Preparation of Urban Development Plans in incorporation of environment, especially for strategic economic and		Local	

expansion zones			
- <i>Consultants, training, workshops, materials/equipment, administration</i>			

Implementation and institutional arrangements

X. In the context of limited or absent urban planning capacities, in the medium term, development of urban planning systems, revenue collection and strengthening the local planning capacities (human resources, technical expertise and equipment) requires involvement of external planning expertise.

X. The development process can benefit from good practices gained from the local governance and urban management training projects implemented in various towns in Somaliland, Puntland and South/Central Somalia, mentioned earlier. These projects trained urban sector stakeholders in key urban planning concepts, identification of local priority needs and in making related action plans. Through the use participatory planning process in strategic project implementation, local authorities can also engage and develop financing and implementation partnerships with the private sector and the civil society. Envelope funding mechanism is a possible method to implement strategic local projects in the short-term (see the Other Municipal Infrastructure section and Annex IV.1). The bidding process for the envelope funding will help the private sector, civil society and municipalities to adopt and strengthen strategic planning approach and skills.

X. In Somaliland and Puntland, there are also ongoing training projects for municipal staff in the use of GIS techniques for land and property registration (see the Governance Cluster Report for details). The use of GIS methods can be expanded to development planning of other urban sectors and support municipal finance through development of taxation system.

X. Urban planning plan peer reviews and knowledge sharing between mayors and municipal planning staff in inter-regional workshops is an also an effective way to create competitive environment that supports development of local planning capacities. ***Development of local governance system in other than urban planning sector is also discussed in the Governance Cluster/Local Governance report.***

Links and other clusters/sectors

X. Urban planning is a development-planning tool that cuts cross the urban service sector and should thus be linked to all other JNA clusters in order to improve public service delivery. Amongst others, the following links are important:

- ***Governance/decentralization.*** Successful institutional development in urban planning requires linkages with the decentralization process ongoing in Somaliland and Puntland. Clarification is needed in dividing authority and responsibilities between local, district, and regional/national level institutions. Constitutional support for decentralization of authority to the local level already exists in Somaliland and Puntland;
- ***Macroeconomics.*** Direct revenue collection (as opposed to tax contributions to the Treasury) from infrastructure in urban areas to be explored as a basis of increasing self-sustained urban sector management;
- ***Social services/capacity building.*** Urban and land-use planning requires collection and management of and reporting on accurate data and involvement of all municipal service sectors, such as social and health, economic, environment, and governance to achieve comprehensive, sustained results. Basic planning skills of all municipal service sectors need to be developed;

➤ **Crosscutting issues:**

- Long-term, legal cross-sectoral participatory urban & regional planning system can help reduce the likelihood of future conflicts currently arising from ad hoc decision-making on use of common resources, such as urban infrastructures and land.
- Gender-based inequalities, as well as inequalities involving minorities in urban areas can be addressed effectively through a more inclusive participatory planning processes (sufficient women and minorities' representation) and involvement of women (groups) and minorities in the planning and implementation space.

V. LINKS TO OTHER SECTORS AND CROSSCUTTING THEMES

Introduction

X. Infrastructure, covered in this report, individually or severally, have specific linkages to some or all of the other JNA clusters, and between the sub clusters of infrastructure itself. Crosscutting themes that require attention include, but are not limited to the following topics.

- (i) Implementation of infrastructure projects, vis-à-vis other cluster interventions. The latter relates to a number of factors: (a) how to sequence cluster priority actions such as ensuring improved governance and expedited actions towards maintaining peace, law and order; and (b) Arrangements for overall program management, coordination and monitoring within Somalia, and coordination between national and international partners engaged in the JNA program financing and implementation, etc.
- (ii) Environment and social safeguards framework and monitoring arrangements established. These in turn relate to natural resources management and other aspects covered under the productive services sector;
- (iii) Selection of priorities to enhance the overall objectives of the productive sectors and contribute to economic growth and poverty reduction towards the MDGs for Somalia.
- (iv) Gender mainstreaming in infrastructure and its relation ship to other gender issues overall;
- (v) Major risks mitigation such as mine risk management; and
- (vi) arrangements for addressing the external inter-regional linkages and trade that may transcend specific individual regional needs, for example, Berbera – Addis Ababa Corridor development.

Crosscutting Themes:

X. The JNA integrates crosscutting issues, such as gender and Human rights, and capacity building, into the sector analysis, recommendations and costing. The report takes account of crosscutting issues throughout; however, these points are made here to elaborate the key principles to govern implementation. The actions essential to the infrastructure program include ensuring that women, marginalized groups, persons with disabilities, etc., participate in consultations on all aspects of project conceptualization, design, capital improvement projects implementation and institutional building and operations. In addition to improving the general living conditions of the rural and urban population, infrastructure improvement projects will produce good paying jobs for the communities as a source of income for the people. Infrastructure facilities development should take into consideration the specific needs of people with disabilities in the whole process of design and implementation of the different projects.

X. Respect for human rights and institutional and human resource capacity building is another crosscutting issue, which is a prerequisite for sustaining any development and progress. Almost all regions of Somalia lack capacity to absorb major capital improvement projects on their own; however, Somaliland and Puntland have established a rudimentary institutional framework to undertake some projects. Building on the successes of Somaliland and Puntland will be very important in instituting similar frameworks in other regions. The overwhelming nature of capacity

building and the need for trained professional, technical and skilled labor, clearly call into focus the need to consider more far-reaching actions and educational policy and strategy that address the needs for vocational and technical work force development.

X. Finally, all infrastructure projects will require features to enhance and augment peace and stability. Proposed actions should ensure maximum community participation in the RDP activities. Implementers, including, local leaders will need to adhere strictly to the maxims of DO NO HARM in all program stages.

Gender Aspects in Development and Management of Infrastructure

X. Traditionally, men dominate the construction industry in Somalia, and mostly out of custom, feel that manual hard work involved in construction projects is too difficult for women. However, as poverty increases in many urban areas, it is noticeable that some women are attracted to the higher paying construction jobs. Again, this trend is not common in Somalia, but remains sporadic at best. More importantly, however, there are anecdotal evidences of women owned construction companies in major cities.

X. While it is impossible, and may even be, impractical now, to regulate women's participation in construction contracting, it would be beneficial to set goals, similar those used in the United States for Women Owned Enterprises (WOE). Again, one must consider the level of specialization and efforts required on each contract. Many construction contracts relating to clearing, landscaping, and materials supply require very rudimentary technical know how and would make a good basis for start-up strategy.

X. The following points are suggested to enhance women participation in the infrastructure sector:

- Institute gender sensitive participatory mechanisms to facilitate women's role in the infrastructure sector decision making at the regional level.
- Set a goal of 5-10% of subcontracting work of some contracts to be set-aside for Women Business Enterprises (WBE).
- Provide provisions for training of women in infrastructure contracting and maintenance related skills.
- Institute mechanism to monitor progress of schemes set out to promote women participation in the infrastructure sector.

VI. SOMALIA - JOINT NEEDS ASSESSMENT
Results Matrix for Infrastructure Cluster
(Transport Infrastructure, Power and Energy & Urban and Water Supply Infrastructure)

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
Transport Infrastructure					
<p>Improve the primary roads connecting major urban centers (Kismayo, Mogadishu, Garowe, Hargeisa, Bosasso, Berbera)</p> <p>2007 (\$20 million) 2008 (\$81 million) 2009-2011 (\$223 million)</p>	<p>Total road network is approximately 22000 km.</p> <p>Only about 15% of 2600 km of primary roads in good condition. Balance in poor to very poor condition.</p> <p>Low budgetary resources with little or no maintenance of existing roads</p>	<p>Very expensive and highly visible nature of investment could be potential sources of conflicts.</p> <p>Low management and implementation capacity</p> <p>Time consuming and security dependent nature of investments.</p> <p>Low traffic volumes</p>	<p>Conduct road condition survey to determine real condition and needs of primary road network</p> <p>Start design and procurement process to rehabilitate/reconstruct part of the primary road network (1st and 2nd phase)</p> <p>Initiate development of national contracting capacity through minor road works schemes</p> <p>Conduct techno-economic feasibility studies to better prioritize required investments to improve/re-establish part of the primary road network</p> <p>Prepare and initiate implementation of Institutional</p>	<p>Initiate rehabilitation of 1st phase (about 100 km) of primary road network (2008)</p>	<p>Initiate implementation of 2nd phase (about 400 km) of primary road network</p> <p>Finalize institutional framework and funding arrangements to manage the primary road network</p> <p>Enhance capacity of SRA and PHA to manage primary road network in their respective regions</p> <p>Complete rehabilitation of 1st phase of primary road network</p> <p>Complete implementation of institutional strengthening and capacity building action to improve management of primary road network</p> <p>Complete preparation of a simple needs based medium term (5-7 years) primary road network development plan</p>

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
			<p>Strengthening and Capacity Building Action Plan to improve management of primary road network</p> <p>Identify critical bridges/structures that require immediate rehabilitation</p>		
<p>Improve basic accessibility to major productive centers such as farming communities, livestock hubs and fish processing centers</p> <p>2007 (\$12 million) 2008 (\$18 million) 2009-2011 (\$37 million)</p>	<p>Less than 10% of 19200 km of secondary & rural/feeder road network in good condition. Balance in poor to very poor condition.</p>	<p>Very dispersed nature of works</p> <p>Unresolved security problems in SC Somalia; Time required to establish community dialogue and cooperation arrangements</p> <p>Low implementation capacity.</p> <p>High cost of investments</p> <p>Low levels of economic activity</p>	<p>Develop simple multi criteria framework to facilitate process of selection of secondary, rural/feeder road networks for development or rehabilitation</p> <p>Prepare and initiate implementation of Institutional Strengthening and Capacity Building Action Plan to improve management of secondary/rural/feeder roads network</p> <p>Initiate development of national contracting capacity through minor road work schemes including community contracting (2007)</p>	<p>Complete rehabilitation and construction, through labor intensive and highly participatory methods, of about 400-500 km of secondary & rural & feeder roads throughout country</p>	<p>Complete rehabilitation/construction, through labor intensive and highly participatory methods, of about 1000-1500 km of secondary & rural/feeder roads throughout the country</p> <p>Complete implementation of Institutional Strengthening and Capacity Building Action Plan to improve management of secondary/rural/feeder roads network</p> <p>Finalize institutional framework to manage and fund the non-primary road network</p> <p>Enhance capacity of SRA and PHA to manage non-primary road network in their regions</p> <p>Complete preparation of a simple needs based medium term (5-7 years) non-primary road network</p>

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
					development plan
<p>Improve basic airport and air navigation infrastructure throughout country</p> <p>2007 (\$6 million) 2008 (\$15 million) 2009-2011 (\$85 million)</p>	<p>One fully functioning international airport (Hargeisa)</p> <p>Three existing but not fully functioning international airports (Mogadishu, Kismayo, Berbera)</p> <p>Three functioning major domestic and regional airports (Bosasso, Galkaio, Baidoa, Jowhar)</p> <p>50 + domestic airstrips providing limited passenger and freight services</p>	<p>High cost of investments required to improve/re-establish functioning airport and air navigation infrastructure</p> <p>Prioritization process for which airports should be improved/re-established extremely difficult and time consuming</p> <p>Competing highly lucrative private domestic airstrips</p> <p>Slow resolution of vested interests in existing airstrips;</p>	<p>Validate existing studies and, if necessary, conduct techno-economic feasibility study to prioritize which airports will need to be developed/re-developed to international standard or domestic standard and to identify sequence of investments</p> <p>Start implementation of first phase of emergency rehabilitation of two international and five domestic airports</p> <p>Start implementation of first phase of emergency rehabilitation of air navigational aids</p> <p>Put in place compensation closure framework to reduce number of unauthorized airstrips (2007)</p>	<p>Prepare and initiate implementation of a Institutional Strengthening and Capacity Building Action Plan for the management of airport and air navigation infrastructure</p> <p>Initiate first phase of rehabilitation of Hargeisa Airport</p>	<p>Start implementation of works development/rehabilitation works on two international and five domestic airports</p> <p>Start implementation of second phase of Hargeisa Airport, which will include rehabilitation of the existing runway (2008)</p> <p>Complete preparation of a simple needs based long term (20 years) airport infrastructure development plan</p>
<p>Improve basic port infrastructure and shipping services throughout country</p>	<p>Two functioning major ports (Bosasso, Berbera)</p>	<p>High cost of investments required to improve/re-establish functioning</p>	<p>Validate existing studies, and if necessary, conduct techno-economic feasibility</p>	<p>Start emergency rehabilitation of Bosasso Port</p>	<p>Complete preparation of a simple needs based long term (20 years) port infrastructure development plan</p>

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
2007 (\$9 million) 2008 (\$20 million) 2009-2011 (\$59 million)	Two non-functioning major ports (Mogadishu, Kismayo) Two functioning minor ports (Merca, Las Qorey) 10 + minor ad hoc ports	port infrastructure Prioritization process for which airports should be improved/re-established extremely difficult and time consuming Competing highly lucrative minor ad hoc ports	study to prioritize which ports will need to be developed/re-developed to international or domestic standard and to identify sequence of investments	Start procurement of equipment for Berbera Port (2008)	Start major rehabilitation of Berbera Port Start major expansion of Bosasso Port Start construction of at least two minor fishing ports Develop enabling environment to facilitate coastal shipping
Power and Energy Infrastructure					
Electricity Infrastructure					
Improve electrical distribution network throughout country 2007 (\$3.5 million) 2008 (\$5.5 million) 2009-2011 (\$4 million) (i) by extending the 15kV backbone three phase overhead line (285 km, \$1.4 million)	59 km installed at 9 locations data available for	Establishment of institutional and legal framework Capacity building in skills. Urban planning implementation (to cover street lighting, easements, etc)	Establishment of a Planning Team (see short-term recommendation 4) Recruitment of available human resources for above and the proposed EII Training in various trades, e.g., electrical, mechanical, building, survey, etc.) Preparation of designs for regional centers.	Procurement of materials Continue recruitment and building the skills base Design and procurement continues. Erect power lines and construct reticulation works in the order of priority determined by the Planning Team. (Major towns must be reticulated first. This will provide base for government, commercial and industrial development.)	Reticulation of the towns continues and is expanded
(ii) by extending the lower voltage (380/220 volts, 3-phase, 4-wire) overhead back bone line (1134 km, \$9.0 million)	Limited data available				
(iii) by installing additional 15kV/380V Distribution Transformers.(313 nos., \$2.4 million)	No data available				

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
<p>Improve electrical supply in SC Somalia by interconnecting the power grids of Mogadishu, Jowhar and Fenola</p> <p>2009-2011 (\$11million)</p>	No data available	<p>Status of the interconnection, said to have existed, not known.</p> <p>The need for this interconnection arises only if hydrogenation is available at Fenola.</p>			<p>The Planning Team assesses the project based on current status and available generation at Fenola to match the demand in Mogadishu and Jowhar</p>
<p>Improve extremely low rate of rural electrification through the implementation of a broad rural electrification program in areas of high agricultural, pastoral and fishing potential</p> <p>2009-2011 (\$10 million)</p>	No data available	<p>Political wrangling to achieve electrification of villages/towns on clan basis may skew the selection process.</p> <p>It is important that the chosen locations have commercial/light industry potential and a good payback capability.</p>			<p>The Planning Team assesses the villages/towns to be electrified. Each location electrified in order of priority set by the Planning Team</p>
<p>Improve production of electricity throughout the country through the installation of additional electricity generation capacity (119MW)</p> <p>2007 (\$28 million) 2008 (\$42 million) 2009-2011 (\$ 49 million)-</p>	8.74MW installed at 4 locations for which data is available.	<p>Establishment of institutional and legal framework</p> <p>Capacity building in skills.</p> <p>Urban planning implementation (to cover street lighting, easements, etc.)</p>	<p>Establishment of a Planning Team (see short-term recommendation 4)</p> <p>Recruitment of available human resources for above and the proposed EII</p> <p>Training in various trades, e.g., electrical, mechanical, building,</p>	<p>Procurement of generation sets and ancillary equipment</p> <p>Continue recruitment and building the skills base</p> <p>Design and procurement continues</p> <p>Erect power stations in the order of priority determined by the</p>	

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
			survey, etc.) (2007) Preparation of designs for power stations	Planning Team. (Major towns must be provided with the generation capacity. This will provide base for government, commercial and industrial development.)	
Improve power generation capacity in SC Somalia through the re-commissioning of the Fenola Power Plant 2009-2011 (\$2 million)	No data available	No impediments seen. Access to data and site essential			Investigate and implement the re-commissioning of Fenola to enable additional 4.6 MW to be connected to the south grid
Improve power generation capacity in SC Somalia by assessing the potential of the Bahdere Hydroelectric Scheme 2009-2011 (\$3 million)	No data available	Large investment involved. Hence may compete for funding with major infrastructure projects like roads and airports			Initiate feasibility with the water development of the south region. Develop plans and designs up to implementation stage

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
<p>Establish planning and implementation capacity through training, TA and skills development</p> <p>2007 (\$3.5 million) 2008 (\$5.5 million)</p>	<p>Almost non-existent</p> <p>Power supply systems fragmented over regions/areas.</p>	<p>Lack of training institutions</p> <p>Prequalification for trade-based training. Primary education</p> <p>Establishment of governance in all regions</p> <p>Availability of local expertise</p> <p>Procurement of consultancy services from overseas</p> <p>Access to information.</p>	<p>The Capacity Building and Institutional Framework cluster will provide the necessary recommendation for setting up of the training institutions</p> <p>Establish the national Planning Team</p> <p>Establish structure to devolve planning to regions</p>	<p>Commence data survey and gather design information</p> <p>Establish planning and design criteria</p>	<p>Develop implementation plans</p>
<p>Establish basic regulatory capacities to manage PPP and improve quality of electrical grid through the establishment of an installation inspectorate.</p> <p>2009-2011 (\$1.2 million)</p>	<p>Non-existent. Managed by local authorities.</p> <p>Non-existent. Some measures implemented by Agencies.</p>	<p>Lack of legal framework.</p> <p>Recruitment of qualified resources.</p> <p>Lack of legal framework.</p> <p>Recruitment of qualified resources.</p> <p>Lack of Rules and Regulations.</p> <p>Lack of standards</p>	<p>Establish the Regulatory Body</p> <p>Structure the Electricity Supply Industry for public/private ownership</p> <p>Establish the regulations</p>	<p>Develop implementation plans</p> <p>Negotiate and establish private ownership or PPPs</p> <p>Establish EII</p>	<p>Adapt international standards.</p> <p>Modify standards to accommodate local situations, without compromising safety.</p> <p>Commence inspection role for new installation</p>

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
Realignment of Regulatory Body and reinforcement of the Inspectorate 2009-2011 (\$1.0 million)	Builds on the implementation stated above.		Consider industry self-inspection role, with the EII taking more of the statutory role.		
Energy					
Reduce dependence on firewood/charcoal for domestic use through development of basic LPG Gas and Kerosene distribution infrastructure 2007 (\$4 million) 2008 (\$6 million)	Limited information available.	Cultural dependence on charcoal and firewood. Availability of suitable appliances. Skills shortage for installation and maintenance of infrastructure.	Establish institutional and legal framework Build capacity in skills Plan infrastructure installation to establish storage and distribution business	Continued development of LPG, Gas and Kerosene infrastructure	Sub-sector should be well established
Developed renewable energy sources to meet long term domestic energy needs 2008 (\$2 million) 2009-2011 (\$10 million)	Very limited use of renewable energy sources	High cost to develop renewable energy sources High profitability of charcoal business		Prepare renewable energy strategy action plan	Start implementation of initial elements of renewable energy strategy master plan
Urban & Water Supply Infrastructure					
Sustainable access to clean water for at least 30 % urban population in	30 % of urban population has access to clean	High costs to provision water supply infrastructure	Water infrastructure rehabilitation and development continued	A multi-sectoral water and sanitation committee established and fully	Urban water supply rehabilitated/ extended to cover additional 30 % of population in selected regional

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
<p>selected major cities through improved water sector management, private sector participation and infrastructure rehabilitation/development</p> <p>2007 (\$3.0 million) 2008 (\$3.0 million) 2009-2011 (\$8 million)</p>	<p>drinking water</p> <p>Approximately 45 % served by piped water supply</p>	<p>Chaotic existing water supply situation</p> <p>Water scarcity/stress in large parts of Somalia</p>	<p>in cities with functional water management in selected cities³³</p> <p>New urban water supply rehabilitated/ developed in cities to cover 30 % of population with functional water management in South/Central Somalia (targeting ≥ 20 boreholes + related pipelines + power in 2007; ≥ 30 boreholes in 2008)</p> <p>Continuing assessment of water infrastructure & supply needs in Somaliland, Puntland and South/Central Somalia</p> <p>Additional geo-hydrological survey to locate sustainable water sources in Somaliland and Puntland</p>	<p>functional and resourced in each region</p> <p>PPPs established and strengthened in the municipal water sector</p>	<p>capital cities³⁴</p> <p>New water supply constructed to cover 30 % of the population in selected regional capitals³⁵ (see also cluster report)</p> <p>Number of operating private water companies reduced through planned and compensated mergers in Mogadishu</p> <p>Controlled closure of private wells completed and compensation paid to owners in Mogadishu</p> <p>Strong National Water Policy developed and approved; municipal revenue collection from water services increased; role of TFG clarified</p>
Development of safe and	Approximately	High cost to develop	Communities awareness	PPPs and private	Open air drainage network

³³ Hargeisa, Boroma, Burao, Erigavo, Bosasso, Gardho, Galkaio

³⁴ Hargeisa, Burao, Erigavo, Bosasso, Gardho, Galkaio, Garowe, Jowhar, Kismayo, Merca, Baidoa, Mogadishu

³⁵ Las Canood, Dhusa-Mareeb, Belet Uen, Xudur, El-Waq, Bu'aale

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
<p>environmentally sound solid & liquid waste collection & disposal systems for 50 % of urban population in selected cities</p> <p>Waste management policies developed at central and municipal government levels</p> <p>2007 (\$10 million) 2008 (\$14 million) 2009-2011 (\$79 million)</p>	<p>10% of solid waste and 5 % of liquid waste appropriately managed in Somaliland and Puntland</p> <p>Exact waste management situation not known in S/C Somalia</p>	<p>safe and environmentally sound solid & liquid waster collection & disposal systems</p>	<p>of waste management needs increased (targeting approx. 20 cities) and systems implemented in 6 cities (to be selected); A related feasibility study implemented</p>	<p>entrepreneurs strengthened and developed to cover 50% of <u>solid</u> waste management needs</p> <p>PPPs and private entrepreneurs strengthened to cover selected sources of <u>liquid</u> waste</p> <p>Adequate quality dumping sites constructed in suitable geo-hydrological safe locations in 15 regional capitals</p> <p>Labor intensive clean-up operations carried out in 10 selected cities in S/C Somalia, as security situation allows and/or improves</p> <p>Pilot projects to develop neighborhood septic thank systems implemented in 6 cities (to be selected). A related feasibility study implemented</p>	<p>rehabilitated/extended/constructed in regional capitals (targeting average 5 km per city) (budgeted in waste management section)</p> <p>Rehabilitation/extension/construction of sewage system considered in regional capitals where no system is in place</p> <p>Regional and municipal waste management policies developed and enforced in Somaliland, Puntland and S/C Somalia</p> <p>Waste management system constructed for large industrial units (approx. 10 units)</p>

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
				Most essential solid & liquid waste management equipment procured in 5 cities in S/C Somalia where security situation allows	
<p>Accessibility to all parts of urban areas and travel times within urban areas improved to enhance local economic potentials</p> <p>2007 (\$7 million) 2008 (\$16 million) 2009-2011 (\$20 million)</p>	<p>All urban arterial and other roads in very poor condition.</p> <p>Most of the urban roads are not even paved</p> <p>Lack of or inadequate drainages</p>	<p>High cost of improving urban road infrastructure</p> <p>Very large demand for urban road infrastructure</p> <p>Social impact of improving urban road infrastructure</p>	<p>Urban roads rehabilitated applying low cost seal methods and related drainages constructed in regional capitals where road management system in place</p> <p>Municipal revenue system in urban road sector developed (targeting 11 cities in Somaliland and Puntland)</p> <p>Destroyed/ damaged bridges & Irish crossings rehabilitated (target total 10 bridges and 10 Irish crossings in Somaliland, Puntland, South/Central)</p>	<p>Municipal revenue used as a priority funding source (Road target average 5 km/city, Mogadishu 30 km. Drainage target 20 km/city, Mogadishu 100 km)</p>	<p>Further strategic urban road and bridge rehabilitation/ construction to improve regional level networks based on assessments</p> <p>Strategic urban road projects studied through detailed techno-economic feasibility studies to improve regional level networks such as: (a) city center by-pass in Bosasso; and (b) city center by-pass in Hargeisa for Berbera – Ethiopia Road Transport Corridor</p>
Standard of living and reintegration of IDPs to the local communities	Approximately 400,000-500,000 IDPs living in	Inadequate availability of land in urban areas to resettle IDPs that	New permanent resettlement sites identified for shelter	Visibility of shelter operations improved amongst the local &	Ongoing resettlement programs strengthened and expanded as a result of joint program operations in

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
<p>improved in existing and new settlements in selected cities</p> <p>7000 permanent shelters constructed for IDPs and the urban poor</p> <p>2007 (\$17 million)</p> <p>2008 (\$17 million)</p> <p>2009-2011 (\$38 million)</p>	<p>inadequate temporary or permanent settlements</p>	<p>want to remain in urban areas</p> <p>Protracted planning and implementation process to resettle large numbers of IDPs</p> <p>Risk of interference and politicization of IDPs rehabilitation and resettlement process</p>	<p>construction in 10 selected cities³⁶</p> <p>Ongoing resettlement program strengthened and expanded</p> <p>Design large-scale resettlement operations in 7 cities</p> <p>Living standards improved in the existing settlements in 10 selected cities³⁷</p> <p>Pilot resettlement projects to relocate IDPs occupying public buildings; Rehabilitation of the buildings in question³⁸</p>	<p>national stakeholders</p> <p>Best practices identified & shared (targeted construction of about 2000 shelters in Hargeisa, Garowe and Bosasso)</p>	<p>selected cities³⁹ (targeting 5000 shelters)</p> <p>Institutional mechanisms developed to ensure availability of land for the urban poor & IDPs and for permanent shelter projects for IDPs</p>
<p>Urban local environment improved in selected cities</p>	<p>Small-scale urban infrastructure in</p>	<p>Inadequate availability of land to be able to</p>	<p>Call for proposals implemented to local</p>	<p>Public buildings rehabilitated (targeting</p>	<p>Scale-up of 2-year investment program</p>

³⁶ Hargeisa, Burao, Bosasso, Garowe, Galkaio, and, as feasible, Kismayo, Mogadishu and other cities

³⁷ Hargeisa, Burao, Bosasso, Garowe, Galkaio, and, as feasible, Kismayo, Mogadishu and other cities

³⁸ 1st priority cities in S/C Somalia, as feasible for the key TFG functions; 2nd priority District & Regional Administrations in regional capitals.

³⁹ Hargeisa, Burao, Galkaio, and, as feasible, Kismayo, Mogadishu and other cities

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
<p>resulting in improved quality of life and governance in cities (improved livelihoods and basic services, especially health and sanitation)</p> <p>2007 (\$4 million) 2008 (\$6 million)</p>	<p>deteriorated and non-functioning condition in most towns</p>	<p>develop/re-develop essential small scale urban infrastructure</p>	<p>consortia for local municipal infrastructure rehabilitation and development projects (especially market places, slaughterhouses) thorough strategic projects (targeting 10 towns in 2007)</p> <p>Small-scale rehabilitation of municipal infrastructures implemented using participatory process in cities where good local governance structures exist. Applied as peace dividend in S/C Somalia (targeting 20 districts in S/C Somalia)</p>	<p>20 cities in Somaliland, Puntland, S/C Somalia) (2008)</p> <p>Immediate urban development needs addressed in regional capitals through envelope funding mechanisms using participatory planning approach (2008)</p>	
<p>Development of cross-sector urban planning system in major urban centers to guide long-term development of Somali cities</p> <p>2007 (\$2 million) 2008 (\$2 million) 2009-2011 (\$4 million)</p>	<p>Urban planning institution exist in some regions but no capacity or authority to perform</p> <p>No up-to-date Town Plans available in any cities</p>	<p>Weak institutional capacity and mandate for urban government bodies</p>		<p>Capacity of urban planning institutions strengthened (human resources and technical skills) in regional capital cities; Need for new institutions assessed (2008)</p> <p>Practical and normative aspects of urban</p>	<p>Comprehensive urban and economic development plans prepared at the regional level, in collaboration with neighboring regions and countries⁴⁰</p> <p>Regional level urban policy developed to set standards and guide long-term urban development activities</p> <p>Urban Development Plans prepared,</p>

⁴⁰ Locations to be identified with the Productive and Livelihoods Clusters

Target Outcomes for 2011	Baseline 2006	Constraints to Achieving Outcomes by 2011	Key Actions and Intermediate Outcomes		
			2007	2008	2009-2011
				<p>planning and management developed in the major cities of Somalia (2008)</p> <p>Strategic Structure Plans prepared for major cities to enable integrated approach in urban expansion and land use planning (2008)</p> <p>Legal framework for urban planning and land management finalized in Somaliland, Puntland and S/C Somalia (2008)</p>	especially for strategic economic and expansion zones

VII. SOMALI JOINT NEEDS ASSESSMENT
Monitoring & Reporting Matrix for Infrastructure Cluster
(Transport Infrastructure, Power and Energy & Urban and Water Supply Infrastructure)

JNPRDA Period Outcome Indicators	Baseline	Outcome Target Values			Data Collection and Reporting		
		2007	2008	2009/2011	Frequency of Reports	Data Collection Instrument/Method	Responsibility for Data Collection
Transport Infrastructure							
1. Improve primary road network connecting major urban centers	About 15% in good condition				Annual reports	Visual condition surveys by road agencies and consultants	Existing road agencies for Somaliland and Puntland. To be determined for SC Somalia
2. Improve basic accessibility to major productive rural areas	Less than 10% in good condition				Annual reports	Visual condition surveys by road agencies and consultants	Existing road agencies for Somaliland and Puntland. To be determined for SC Somalia.
3. Improve basic airport and air navigation infrastructure	One fully functioning International airport				Annual reports	Physical progress reports prepared by contractors and consultants	Airport authorities
4. Improve basic port infrastructure and shipping services throughout country	Two functioning major ports				Annual reports	Physical progress reports prepared by contractors and consultants	Airport authorities
Electricity Infrastructure							
1. Improve electrical distribution network throughout country by extending high voltage/low voltage line and by installing new	59 km installed of high voltage line				Annual reports	Physical progress reports prepared by contractors and consultants	Electricity companies and public authorities

JNPRDA Period Outcome Indicators	Baseline	Outcome Target Values			Data Collection and Reporting		
		2007	2008	2009/2011	Frequency of Reports	Data Collection Instrument/Method	Responsibility for Data Collection
Transport Infrastructure							
distribution transformers							
2. Improve low level of rural electrification	Limited data available				Annual reports	Physical progress reports prepared by contractors and consultants	Electricity companies and public authorities
3. Improve electricity availability through increased installed production capacity	8.74 MW installed				Annual reports	Physical progress reports prepared by contractors and consultants	Electricity companies and public authorities
4. Establish planning and regulatory capacity in electricity sub-sector	Very weak capacity at present				Annual reports	Not applicable	To be determined
Energy							
1. Reduce dependence on firewood/charcoal for domestic use through increased use of cleaner hydrocarbons (LPG, gas, Kerosene) and through development of renewable energy sources	80% of household energy needs meet by firewood and charcoal				Annual reports	To be determined	To be determined
Urban & Water Supply Infrastructure							
1. Sustainable access to clean water for part of the urban population	About 30% of urban population has access to clean water in major urban areas. About 45% has access to				Annual reports	To be determined	To be determined

JNPRDA Period Outcome Indicators	Baseline	Outcome Target Values			Data Collection and Reporting		
		2007	2008	2009/2011	Frequency of Reports	Data Collection Instrument/Method	Responsibility for Data Collection
Transport Infrastructure							
	pipd water						
2. Development of safe and environmentally sound solid and liquid waste management in selected cities	Approximately 10% of solid waste and 5% of liquid waste appropriately managed in Somaliland and Puntland				Annual reports	To be determined	To be determined
3. Sound waste management policies developed at central and municipal government levels	Waste management policies are extremely deficient				Annual reports	To be determined	To be determined
4. Improved road accessibility within major urban areas	All urban arterial and other roads in very poor condition				Annual reports	To be determined	To be determined
5. Standard of living of IDP improved	Approximately 400-500 thousand IDPs living in temporary accommodations in urban areas				Annual reports	To be determined	To be determined
6. Urban local environment improved in selected cities	Small-scale urban infrastructure				Annual reports	To be determined	To be determined

JNPRDA Period Outcome Indicators	Baseline	Outcome Target Values			Data Collection and Reporting		
		2007	2008	2009/2011	Frequency of Reports	Data Collection Instrument/Method	Responsibility for Data Collection
Transport Infrastructure							
	e in deteriorated and non- functioning condition in most towns						
7. Development of cross sector urban planning system in major urban centers	Very weak capacity				Not applicable	Not applicable	Not applicable

