

# Country Environmental Profile for Somalia



# Country Environmental Profile for Somalia

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## List of Abbreviations

ADO	Agricultural Development Organization
AP	Anti-personal Mines
CEP	Country Environmental Profile
CIA	Central Intelligence Agency
CITIES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CCRF	Code of Conduct for Responsible Fisheries
DLCO	Desert Locust Control Organization
EAAIA	Eastern Africa Association for Impact Assessment
EARO	Eastern Africa Regional Office
EC	European Commission
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agriculture Organization (of UN)
FEWS	Famine Early Warning System
FSAU	FAO-Food and Security Analysis Unit
GDP	Gross Domestic Product
GLTP	Good Local Governance and Leadership Training Programme
GNI	Gross National Income
GNP	Gross National Product
HADMA	Humanitarian and Disaster Management Authority
HDI	Human Development Index
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IGAD	Inter Governmental Authority for Development
IOTC	Indian Ocean Tuna Commission
IPCC	International Panel on Climate Change
ITCZ	Inter Tropical Convergence Zone
IUCN	International Union for the Conservation of Nature (now the World Conservation Union)
IUU	Illegal, Unregulated and Unreported
JNA	Joint Needs Assessment
KEPHIS	Kenya Plant and Health Inspectorate Services
MDG	Millennium Development goal
MEA	Multilateral Environmental Agreement
MPA	Marine Protected Area
NBSAPs	National Biodiversity Strategy and Action Plans
NEAP	National Environmental Strategies and Action Plans
NERAD	National Environmental Research and Disaster Preparedness Authority
NGO	Non Governmental Organization
NOVIB	Nederlandse Organisatie voor Internationale Bijstand
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
SACB	Somalia Aid Coordination Body
SEA	Strategic Environmental Assessment
SISAS	Strategy for the Implementation of Special Aid to Somalia
SMAC	Somali Mine Action Centre
SPAUS	Support to the Priorities in the Urban Sector
SUDP	Somalia Urban Development Programme
SWALIM	FAO-Somalia Water and Land Information Management Unit
TFG	Transitional Federal Government
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children Fund
UNCLOS	United Nations Convention on the Law of the Sea
UN-OCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United States Agency for International Development
UXOs	Unexploded Ordinances

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# EXECUTIVE SUMMARY<sup>1</sup>

## 1. Introduction

The Eastern African Regional Office of IUCN, the World Conservation Union developed this Country Environmental Profile (CEP) for the EC Somalia Operations Office. This CEP comes at an opportune time because:

1. The EC Somalia Operations Unit in collaboration with Member States and Norway is preparing its Country Strategy Paper (CSP) for Somalia, where the CEP provides arguments for the greater integration of environmental issues;
2. Somalia is entering a period of stability, where nation building will be the main focus. The CEP argues for the environmental goods and services as the basis for sustainable development; and
3. The Joint Needs Assessment (JNA) is carrying out a comprehensive assessment of all the needs of Somalia, and this CEP provides additional independent input on environmental issues.

The objective for Somalia's CEP is to "Provide environmental, social and economic information to the EC Somalia Operations Office and the Somalia Administrations to guide the identification of specific recommendations on environmental objectives and benchmarks for the EC Cooperation activities in its 2008-2013 indicative programmed for Somalia".

This CEP recognizes the importance of the environment for reconstruction, development, economic planning and to the achievement of the MDGs (Millennium Development Goals). The environmental goods and services are the foundation for sustainable development and long term planning. Evolving policies, laws and institutions, together with the international community, can integrate environmental concerns and issues in a positive manner. The CEP points out ways by which this can be done. However, in developing this CEP, there were constraints, which included difficulties of trying to work in the 3 areas of Somalia; it was not possible to hold an inception workshop in central and southern Somalia due to security concerns; and difficulties in accessing and validating many of the data sets, as much of the data is old (before 1990), and may have wide error margins.

A series of inception workshops were held (Nairobi, Hargeisa and Bosaso). Many of the recommendations from these workshops have been integrated, and have helped corroborate, or not, the data and perspectives found in the literature.

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<sup>1</sup> In addition to the executive summary, we have produced two tables – an environmental facts sheet for Somalia, and how the environment can be directly linked to the MDGs in Somalia. In addition while the recommendations are mainly targeted at the EC, they are more generic in nature for other agencies and institutions.

## 2. Overview of the Natural and Human Environment in Somalia

Somalia covers an area of 637,657 sq.km and comprise the areas known as Somaliland, Puntland, and Central and Southern Somalia. Somalia has the longest coastline in Africa (3,025 km), and has an estimated population of 7.7 million comprising 6 major Somali clans and other groups. The country is hot, arid to semi-arid with a rainfall of between 50-150 mm along the coast and up to 500 mm in the northern highlands. The land forms comprise flat plateaus and coastal plains. Highlands are only found to the north, where there are mist forests. There are two permanent rivers – the Jubba and Shabelle – which are shared with Ethiopia. The remaining water courses are ephemeral, but important as water sources (wells), and for their relatively richer vegetation.

Forests and woodlands cover about 23% of the country and are dominated by Acacia species. There has been significant, but localized, deforestation for agriculture, fuel wood, and charcoal. Trees are the most important terrestrial resource because of the goods they provide, particularly in dry times.

With the longest coastline in Africa, the marine environment is rich due to nutrient upwellings which supply important off-shore fisheries that are the subject of a lot of Illegal, Unregulated and Unreported (IUU) fishing by foreign vessels. There is an artisanal fishery, which is relatively low level as Somalia does not have a strong tradition of fishing. There are some fringing reefs and coral patches along the Gulf of Aden and near the Kenya border.

Livestock is the main economic activity for 50% of the population and over 40% of GDP (Gross Domestic Product). This is based on pastoralism which makes best use of wet and dry season grazing. There is some evidence of localized range degradation. Crop cultivation is mainly limited to the irrigated areas of the Jubba and Shabelle rivers. At present the land under irrigation is relatively small compared to the irrigation potential, but irrigation needs to relate to wider river catchment planning. Opportunistic rain-fed cultivation is widely practiced, in particular for sorghum and millet. Approximately 14% of the population is engaged with cultivation based agriculture.

Urbanization is increasing rapidly, and this places a greatly increased demand on the natural environment, particularly in the catchments of urban centres. Urbanization is exacerbated by returnees. The social indicators are amongst the worst in the world for health and education, while the Gross National Income (GNI) is the third lowest in the world. However large amounts of funds are remitted by the Somali diaspora.

### **3. Key Environmental Issues and Challenges**

The following areas constitute major environmental challenges – the effects of climate change, increased population pressures, natural resource based conflicts, increased urbanization, and the effects of decreasing remittances – all of which will impose further pressures on the environment. Degradation of catchments, range areas, agricultural lands and the marine environment, combined with illegal use are critical issues to address, though much of it is localized. All impact on the ability of people to meet subsistence needs, and enhance productivity to contribute to local, national and even international trade and economic growth. There are opportunities to short and long term resolution of environmental issues in Somalia, and the following areas are seen as critical to addressing environmental issues.

1. The environment is the foundation for sustainable development in Somalia, and underpins livelihood plans and strategies. This may be realized, but too easily assumed and not integrated into rural sector strategies, and so not recognized at sectoral or donor levels;
2. With respect to the socio-economic development of Somalia, the environmental goods and services need to be appreciated (economically, socially, politically) for the true values they provide to society (family, local, national, international);
3. Environmental issues are multi-sectoral and impact on all aspects of life, and call for “mainstreaming”. The development of, and agreement to environmental management plans and green indicators at sectoral levels will help, and could be linked to poverty reduction plans, as a basis for resource prioritization, allocation, implementation, and reporting;
4. The international community should support governance structures to combat illegal, usually unsustainable resource exploitation and export through policy support and capacity building. This includes the export of charcoal, IUU fishing and the dumping of waste in Somalia’s EEZ (Economic Exclusion Zone) or on land. Regional bodies (such as IGAD, PERSGA, the Arab League) can assist, but action is also required at the international level (UN, EU in particular);
5. Somalia’s permanent rivers (Jubba and Shabelle) are part of regional water basins. As Somalia is water scarce, these two rivers are critical assets to be managed sustainably, which will require integrated river basin management at the national and regional levels, where the role of regional bodies such as IGAD will be important;
6. Risk management and mitigation, combined with the enhancement of the resilience of natural resource systems are critical strategies on which Somalia land use was based upon. Many of these

systems have broken down, and need to be reconstituted (and re-understood), and combined with more “technical” approaches to early warning, for example through the Famine Early Warning System (FEWS) and FAO’s Food Security Analysis Unit (FSAU), FAO-Somalia Water and Land Information Management Unit (SWALIM) and the IGAD Climate Prediction and Application Centre;

7. Climate change predictions for the Horn of Africa indicate that the area will become drier. Adapting to an increasingly dry climate, with more extreme and frequent droughts and floods will be required. It is critical to investigate the potential effects, develop and test appropriate adaptation measures and ensure that they are mainstreamed.

### **4. Legislation and Institutional Context**

Policy and legislation with respect to the environment is weak and outdated, and would benefit from environmental input, in terms of assessing the potential impact of such policies on the environment, or how they could contribute to environmental conservation and livelihood improvement. A process of Strategic Environment Assessment (SEA) could be used as an important internationally recognized tool. SEA would identify, in all sectors, policies and laws where environmental issues are, or could be important. Somalia has signed a number of international agreements and Multilateral Environment Agreements (MEAs), although there has been little progress in implementation.

#### **Key Recommendations**

1. Mainstream the environment across all sectors and amongst civil society and the private sector;
2. Provide support to ensure that SEAs are carried out for existing and future policy and legislation so that environmental concerns and opportunities are recognized, understood and integrated into policy and law. While at a project level EIAs should be introduced as a mandatory requirement;
3. Develop capacity within Somalia to carry out SEA, and awareness amongst those concerned with policy on the importance of SEA;
4. Develop capacity in national accounting (including national statistics offices) and for evolving Poverty Reduction Strategy Plan (PRSP) processes so that environmental goods and services are recognized (economically, sectorally, nationally). Strengthen livelihood – environment linkages, which would include public sector expenditure reviews on the environment;
5. Given the level of risk (climatic, drought, floods) in Somalia, develop and support national capacity for risk management (early warning



systems, risk management, adaptation) that can react rapidly;

6. Identify the opportunities and constraints to increased growth based on the environment and natural resources, and assess the impact of the key productive sectors on the environment;
7. Create greater awareness in all sectors and agencies on the importance of environmental goods and services, how they can be integrated into agency and sector workplans;
8. Develop capacity to monitor the environment (for example with respect to climate change, land use, impact assessments of new activities) at different levels (village upwards) and be able to provide input on the achievement of the MDGs and poverty reduction strategies;
9. Develop the institutional and human resource capacity for environment and natural resource planning (e.g. integrated land use planning, water basin management, management of off-shore fisheries, and environmentally benign technologies for fuel) at various administrative levels (village to national);
10. Support Somalia to re-affirm its commitments to the international agreements it is party to, and ratify other important agreements, such as those on hazardous waste and UNFCCC; and
11. Assist Somalia to prepare for, and attend Conferences of the Parties of the various MEA's.

## **5. Governance and Peace Building**

Village based land use and environmental management planning combined with the decentralization of rights and responsibilities to the lowest appropriate level would appear to be the best policy option for overall and more integrated land use and environmental management. This needs to be integrated at district, regional, state and national levels. Government would have overall responsibility for the enabling policy framework and legislation, and retain the role of 'regulator of last resort'. Such an approach would enable pastoralist livestock movements to be negotiated for, create a context for agricultural (crop based) development, improve ways to manage risk (especially drought), adapt to climate change, and offer support for decentralization and greater equity. This will foster local level ownership, and make the links to water basin and catchment plans to promote overall improved natural resource and land management. The broad absence of (or very weak) governance structures and systems has allowed civil society and the private sector to take on many of the roles of government. Unravelling the thousands of land and property disputes emanating from the collapse of the State will be a major hurdle in reconciliation efforts. Women are the backbone of Somali society doing much of the labour required for survival, and play an important role in keeping the peace. Traditionally, women had no formal role in the clan based political processes, nor are they often involved in the decision making processes of

government and public bodies, and this has implications for the role of men and women in managing natural resources in Somali society.

## **Key Recommendations**

1. Support policy processes for devolved land use and environmental management planning as the foundation for wider land use planning and management. Such planning should be cross sectoral and cross-institutional, and owned at various administrative levels including the village level. It should be capable of integrating issues that go beyond the village level, such as pastoralist grazing patterns, access to water, exploitation of marine resources etc.;
2. Support devolved land use planning in projects. Lessons from practice in Somaliland are available as a basis, and a similar but adapted process could be used for small urban centres;
3. Support partnerships (Government-NGO, NGO-Private Sector, etc.) to build on the comparative advantages of the different sectors in development, environmental change, and nation building;
4. Support activities which promote the responsible devolution of rights and responsibilities to the lowest appropriate levels;
5. Develop capacity so that Somali people and their institutions can take on their rights and responsibilities both generally and with respect to the environment;
6. Study the reasons for natural resource (e.g. water, rich patch vegetation) conflict, how local communities manage conflict internally, and how such conflict management systems can be better understood and used;
7. In the longer term support processes to resolve, reconcile, negotiate, and in some cases restore land claims. This is central to long term peace, and the basis for sustainable environmental management;
8. A greater understanding (studies, empowerment) of the different gender roles women and men play with respect to the environment is required, and how these can be recognized and valued in development, land use and sustainable development; and
9. As women generally lack power and authority, increased support is needed for greater equity in all aspects of decision making and in society, but with particular respect to the environment.

## **6. Reduction of Widespread Vulnerability (Drought, Climate Change)**

Somalia lacks the capacity to deal with major disasters such as the tsunami, protracted droughts and El Nino floods.. Climate change is an acknowledged fact. There is little appreciation of the threats that climate change could place. Unless early action is

taken to adapt to climate change, the country may not be in a position to achieve any of the MDGs, and could have drastic effects on well-intentioned development efforts by the Government, local communities and international organizations.

### **Key Recommendations**

1. Support institutions to develop and implement short and longer term strategies for disaster management, and develop the capacity to do so;
2. Understand existing customary coping and risk management strategies, and what natural assets survive best through drought times, and integrate the importance of such coping mechanisms into land use and environmental planning;
3. Study and assess the impacts of climate change as reduced precipitation is likely, combined with a greater frequency and intensity of droughts and floods. Integrate the findings in risk mitigation and early warning strategies, and build them into land use planning;
4. Support processes to internalize early warning systems at different levels of government, amongst communities, and NGOs;
5. Support the development and implementation of specific drought intervention measures;
6. Identify how environmental assets could play an important role in mitigating the effects of climate change;
7. Test strategies for adapting to climate change, e.g. through the wider use of more drought tolerant grass and tree species, so that a greater proportion of the rainfall is absorbed. This can be supported by a greater understanding of what species survive well through prolonged periods of drought; and can continue to supply products; and
8. Enhance the ability of early warning systems to include the impacts of climate change and be able to offer more “real time” data and analysis to users. This should include the Famine Early Warning System (FEWS), FAO’s Food and Security Analysis Unit (FSAU), and IGAD’s Climate Prediction and Application Centre.

## **7. Rural Development and Food Security**

**Livestock** are the mainstay of people’s livelihoods strategies. Pastoralism has proved to be the best way to secure people’s livelihoods while maintaining fragile arid and semi-arid ecosystems.

### **Key Recommendations**

1. Considering the economic importance of the livestock sector, efforts need to be made to adapt traditional production systems to new challenges such as increasing population, resource scarcity, changing property rights, and the demand for better social services and living standards, while

conserving the biodiversity of fragile arid and semi-arid ecosystems;

2. Assess the impact of the commercial livestock trade and export on environment, and develop related mitigation measures at private and public sector level.
3. Integrate traditional pastoral land management systems into wider land use and environmental development and management of Somalia’s agro-ecological zones; and
4. Reliable and updated baseline data is needed to support sustainable land use planning and impact monitoring, with respect to, for example livestock numbers (seasonally and over a number of different seasons).

**Agriculture (cultivation based):** In the arid- and semi-arid conditions of Somalia crop cultivation is of limited potential due to aridity and water access, except for irrigation. As part of pastoralism, opportunistic rain fed agriculture can be integrated into pastoralist land management.

### **Key Recommendations**

1. Plan irrigated agriculture in relation to wider catchment and land use needs, e.g. access to dry season forage and water;
2. Further explore and promote agroforestry for improved use of cultivated lands, e.g. by combining fruit and multipurpose trees with crops, or producing forage for the dry season;
3. Improve the management of irrigation so as to be able to mitigate problems associated with, e.g. salinization, chemical pollution, and invasives; and
4. Support rain-fed farming that is environmental viable, given the implications of climate change, and is integrated into village land use.

**Forests and Woodlands:** Trees and woody species are the most important vegetation, and are particularly important in dry and drought times, where they are a critical component of pastoralists risk and drought management strategies. This needs to be reconciled with competing demands for trees and shrubs (for example the thresholds for sustainable fuel, charcoal, building timber, and fodder use and production) to achieve the sustainable management of natural resources.

### **Key Recommendations**

1. Carry out an inventory of Somalia’s timber and range resources with respect to distribution, species composition, use and degradation, and the potential for sustainable and productive use;
2. Develop appropriate management plans and related legal frameworks for sustainable exploitation of forests and woodlands;
3. Gain a better understanding and improve the management, production and marketing of

important non wood tree products, especially for henna, myrrh, frankincense etc.; and

4. Assess the existing and potential economic benefits (including being able to process, value add) of tree products as one basis for improved and sustainable rural economic growth.

**Energy:** Rural and urban energy needs are primarily wood and charcoal based, though there is an increasing use of oil based energy in urban areas. With increasing urbanization, combined with the return of the Somali diaspora, energy demands will increase. As an imperative for economic growth and nation building, sustainable sources of energy will be needed combined with more efficient use of existing energy sources.

### Key Recommendations

1. Continue to promote energy efficient cooking stoves and the use of alternative sources (solar, wind) which are environmentally appropriate and socially acceptable;
2. Promote strategies for a sustainable internal charcoal trade, including sustainable management of trees, improved means of charcoal burning, more efficient marketing systems with the appropriate controls in place;
3. Unless charcoal comes from sustainable sources, ensure that the charcoal export ban is enforced to control illegal cutting; and
4. Promote improved tree management (restoration, planting, management) both around the homes, on rangelands, and along rivers.

**Marine:** The rich waters off the long coastline contain important pelagic fish, all of which are taken by artisanal fisheries and offshore foreign fishing vessels (which operate illegally and provide little or no revenue to the country). The marine environment poses two major challenges of how to ensure a more sustainable and locally owned artisanal fishery, and how the IUU off-shore fishery can be controlled, and benefit the country. The first could be addressed through community based coastal seascape management, and the second requires strong international intervention.

### Key Recommendations

1. IUU fishing needs urgent address by government and the international community (UN, EU);
2. Improve the understanding of marine and coastal systems to assess what pressures they are under, and how they are being managed;
3. Develop fisheries management plans for sustainable fisheries, based on a comprehensive assessment and evaluation of pelagic and demersal stocks;
4. Give priority attention to protecting the coral reefs, islands and mangroves that stretch from Mogadishu south to the coastal border with

Kenya, and environments on the Gulf of Aden coast;

5. Under UNCLOS (United Nations Convention on the Law of the Sea), the EC could, under its Common Fisheries Policy, support EU member states (and others) to enter into partnership agreements with Somalia to create a more sustainable and nationally beneficial fishery; and
6. Marine Protected Areas (MPAs) in community fisheries management need to be stressed, as they provide sanctuaries to breeding stocks, and might be a basis for community conserved marine areas, which would both assist in conservation and sustainable fishery management.

**Conservation:** Somalia possesses important biodiversity with a high level of endemism. Many of these species and their habitats are threatened. There are a range of natural ecosystems that could form a basis for creating conservation areas, for example community conserved areas to integrate conservation and livelihood objectives. Conservation threats to natural ecosystems include climate change, uncontrolled land clearing for agriculture, deforestation, and overgrazing.

### Key Recommendations

1. Develop and implement strategies to reconcile the importance of conserving important areas of biodiversity with those of human use. This could include ways to integrate conservation with sustainable use, e.g. through the designation of community conserved areas (for forests, drylands, riparian areas or in the marine ecosystems);
2. Many country's have completed NEAPs (National Environment Strategies and Action Plans), and NBSAPs (National Biodiversity Strategy and Action Plans). There is an opportunity to take some of the key approaches and tools from these planning tools and make them relevant to Somalia, in a manner that supports national economic development and conservation;
3. Assess the scale and extent of invasive species together with the potential problems such invasives might cause;
4. When undertaking land use and environmental management planning, take into account the need to conserve (where they exist) and create (if possible) biodiversity conservation corridors to support connectivity in the landscape; and
5. Train and develop national capability in conservation, and re-enforce communal, clan or other traditional means of resource management.

## 8. Access to Social Services (including Education)

**Water:** The rivers (seasonal or perennial) are critical for people's livelihoods. The two permanent rivers (Shabelle and Jubba) are a source of seasonal flood recession farming and organized irrigation.

Understanding the centrality of water, and water management and its linkages to wider environmental management will be critical for future development, as Somalia is a "water scarce" country. In addition water and catchment conservation measures would improve water retention and vegetation cover – key tools for adapting to climate change.

### Key Recommendations

1. Assess and plan for the two permanent rivers in terms of potentially competing demands, and implement catchment wide approaches, including the need to address cross border issues, where IGAD could play a role;
2. Plan for the provision and development of potable water (e.g. from wells, boreholes, berkedes and balleys) in a wider landscape and environmental context to ensure that unplanned water development does not exacerbate degradation; and
3. Pay greater attention to improved water harvesting and water use efficiency, e.g. collection of rain water, improved urban water use efficiency and distribution.

**Health:** The environment is a key element underpinning health through both the goods (e.g. medicinals, fruits and drought time foods), and services (e.g. catchments being able to supply clean water). The impacts of HIV/AIDS could bring on changes in land use, as people have to rely on practices such as extensive farming and natural resource use that can be damaging. While waste disposal and sanitation are key health issues to address.

### Key Recommendations

1. Assess the importance of environmental goods and services to human health and well being (through e.g. clean water from well maintained catchments, use of nutrient rich wild foods and fruits, the importance of dry and drought time foods, importance of herbal remedies etc.);
2. Develop capacity at all levels so that the health sector acknowledges, understands and uses the importance of the environmental goods and services as a key asset in health service delivery; and
3. Support policies and programmes that promote safe waster disposal (all types, urban, rural) and improve hygiene and sanitation.

**Education:** As education curricula and schemes of work (all levels, including functional literacy) are evolving in Somalia, there is an opportunity to ensure that the importance of the environment is reflected. This is also important for Koranic schools, as the environment is important in the Koran.

### Recommendations

1. Support activities to integrate environmental education (relating to water and sanitation, pollution, land and marine use, endangered species, biodiversity conservation etc.) as part of primary and secondary school curricula and schemes of work, and for functional literacy programmes; and
2. Specific efforts are required to address gender issues (e.g. a greater understanding of gender, greater equity between men and women, empowerment of women), and ensure that the pastoralists and minorities (such as the Bantu population) receive equitable access to such education.

## 9. Economic Growth and Cooperation

The goods and services of the environment present a tremendous, yet largely unrealized opportunity for economic growth. Most of Somalia's GDP is based on the environmental good and services.

### Key Recommendations

1. Support environmental accounting (including economic valuations at all levels) so that evolving national accounts (together with data collection from a national bureau of statistics) reflect the real values of environmental goods and services;
2. Assess (sectorally) how the economic values of environmental goods and services contribute to that particular sector economy, e.g. the value of herbal remedies to health, the value of selling natural products for paying for school fees; and
3. Ensure that evolving poverty reduction strategies take into account the real contribution of the environment.

## 10. Urban Development

The urban environment is a cause of environmental degradation (e.g. waste management and pollution), as well as a consumer of environmental products – the most visible of which is fuelwood and charcoal, as well as food (fish, meat, agricultural products). Urban demands are increasing, and this is exacerbated by Somali returnees moving into urban areas. The impact of urban development, with respect to such issues as natural resource demands, consumption and emissions, effluents, waste and refuse, spillages and the dumping of hazardous products etc. need to be better integrated into overall land use and habitat planning.

## Key Recommendations

1. The ability of the environment to sustain and support urban development (e.g. provide water, fuel and other products on a sustainable basis) needs to be considered in the context of wider urban planning that integrates urban areas with their wider catchments (landscape, products, water etc.);
2. The impact of urban development (with respect to natural resource demands, consumption and emissions, effluents, waste and refuse, spillages and the dumping of hazardous products) needs to be assessed and mitigated; and
3. Study how to reduce and recycle waste, through introducing alternatives (e.g. paper not plastic bags), and cost effective and environmentally friendly technologies.

## 11. Donor and Regional Cooperation

The six Joint Needs Assessment (JNA) cluster reports provided a lot of data, but need to take a more strategic approach to environmental issues, which cut across all six clusters. The main recommendations could better embrace the overall importance of the environment and its goods and services. Given the importance of the environment, development support should ensure that all projects and programmes address environmental issues. Somalia is a “member” of IGAD and the Arab League, which should form a strong basis for improved regional co-operation, for example with PERSGA along the Red Sea, and IGAD to address issues relating to shared ecosystems.

### Key Recommendations:

1. Within each of the cluster reports the JNA should identify strategic environmental issues to be addressed, and ensure that actions and related environmental indicators are suggested to address them, and monitor impact;
2. Within each of the six clusters, demonstrate linkages between the specific cluster and the environment more clearly, and link it to specific actions and related environmental indicators to address them, and monitor impact; and
3. Support the Somalia Aid Coordination Body (SACB) to ensure that environmental issues are integrated into all different sectoral committees;
4. Support SWALIM to continue providing relevant information for decision making and action in Somalia, but with an increased emphasis on, and integration of environmental concerns;
5. Support processes to establish relationships with IGAD, the Arab League and PERSGA to implement activities along the Red Sea (PERSGA), with shared river (Jubba and Shabelle) basin management and wider shared land use systems (IGAD); and
6. Work with counterpart agencies (e.g. donor agencies in Ethiopia or Kenya with respect to

water or shared land use planning) to enhance the value added of regional programmes addressing environmental issues.

## 12. Environmental Integration into CSP and Project Cycle Management

This CEP has demonstrated the importance of environmental goods and services as a core asset in Somali life, and a key opportunity for future development, livelihood improvement and to the achievement of the MDGs. The CSP should ensure that its strategy for future investment by the EC and related donors takes into account the following:

1. Overall national level environmental and land/sea use planning is required that builds on community and district level planning to integrate the different aspects of sustainable land and sea use with respect to the wider environment;
2. The importance of integrating environmental goods and services into all the different sectors, policies and laws as a basis for mainstreaming, where SEA could be a key tool;
3. EIA’s need to be carried out in line with EC policy, at both project and activity levels;
4. Develop environmental management plans and monitoring indicators at programme and project level;
5. Better integrate environmental concerns and impact into urban planning;
6. Somalia and its people need the capacity and tools to manage the risks of, and be able to adapt to the reality of climate change;
7. Somalia will develop PRSP processes (Somaliland has already started) as a focused basis to the achievement of the MDGs. This forms a strategic entry point for the EC and other donors to address environmental concerns, degradation and unsustainable resource use in the context of poverty reduction and the achievement of the MDGs; and
8. The EC Somali Operations unit could promote improved environmental mainstreaming in all activities through the initiation of a call for proposals which could centre on, for example “Economic recovery and sustainable environmental management”. The EU’s other funding mechanisms for Somalia need to ensure that they also include the environment in an accountable manner.

Somalia does not yet receive direct budgetary support, nor are there any sector specific support programmes. In this respect Agency (multi-lateral or NGO) – Government partnerships could be fostered to build government capacity. Similar partnerships could be fostered with the private sector in order to “green” their work and test approaches for greater rural economic growth based on the sustainable

management and use of natural resources, including value-adding and improved marketing.

### **Key Recommendations**

1. In the longer term provide support to link sector and budgetary support with environmental concerns and opportunities;
2. Support “green accounting” through improvements in national accounting, statistical data gathering, and the setting of priorities for investment;
3. Ensure that all EC supported projects include a strong environmental component, adhere to EC environmental regulations, and have appropriate EIA procedures in place. At a minimum this should seek to “do no harm”; and
4. The EC and other donors should initiate longer term and more phased approaches for environmentally sensitive activities, for example rangelands, the marine environment, and land use planning as environmental issues are long term and often beyond 4-5 year donor funding horizons.

### **13. Suggested Impact, Outcome and Output level indicators for the Environment**

#### **A. Impact Indicators**

1. Contribution of Environmental goods to GDP especially at local and per person level.
2. Contribution of Environmental services to GDP especially at national levels.
3. Contribution of the environment (clean water, use of herbal remedies, wild fruits and foods) to nutritional and health status of people, especially children.
4. Overall awareness and understanding of environmental issues in Somalia and how they can best be resolved.
5. Improvements in the condition and sustainable management of the environment in Somalia.

#### **B. Suggested Outcome Indicators**

1. Policies and laws with accountable relevant and measurable environmental components and targets.
2. Reduction of IUU fishing and greater accrual of economic benefits from fishing locally.
3. Increased areas under sustainable natural resource management (fisheries, pastoralism).
4. National Environmental (for goods and services) valuation and accounting systems in place for all sectors and coordinated by the central planning ministries.
5. Education curricula and schemes cover, in a relevant and appropriate manner, Somalia environmental issues.
6. Compliance with, and enforcement of EIA and SEA recommendations.

7. Regional and international partnerships in, and support for natural resources management.

#### **C. Suggested Output Indicators**

1. Number of SEA's carried out for all policies and laws.
2. Number of EIA's carried out for all major projects and activities and findings implemented.
3. Number of Ministries and departments with dedicated budgets and support for environmental issues that affect them.
4. Number of villages (and districts) with Environmental and Land Use management plans developed and approved at the local level, and being implemented.
5. Area (Ha) under sustainable woodland and range management.
6. Number of areas under some form of conservation status (especially community conserved areas, but also more “formal” protected areas).
7. Number of regional and international forums (for MEA's and other regional and international agreements) with Somali representation.

## Somalia Environmental Facts, Opportunities and Issues Sheet<sup>2</sup>

<p><b>Land Area:</b> 637,657 sq.km. with longest coastline (3,025 Km) in Africa, and border Djibouti (58km), Ethiopia (1,600 Km) and Kenya (682 Km).</p>
<p><b>Climate:</b> Hot, arid and semi-arid. South has higher rainfall. Two wet seasons (April to June, and October to November) with approximately 500 mm in the northern highlands, 50-150mm along coast, and 300-500 mm in the southwest. With climate change, extremes (drought, flood) likely to increase in frequency and ferocity.</p>
<p><b>Land Forms:</b> Flat plateaus and plains, coastal plains, Jubba and Shabelle the main and only permanent rivers. Highlands to the north with important mist forests.</p>
<p><b>Land Use:</b> 13% country potentially arable (2001), of which 20-30,000 Ha irrigated, permanent pastures (dry and wet season areas) over 50%.</p>
<p><b>Forests and woodlands:</b> 12% of country, with an average deforestation rate of 0.97% per annum. Dominated by <i>Acacia</i> and <i>Commiphora</i> shrub and woodlands. Extensive areas riverine forests cleared for agriculture, and localized dryland forest clearance for charcoal. Mist forests in north only true forests and under threat. Increased pressures on forests for charcoal – especially for urban areas – huge demand, also export trade.</p>
<p><b>Biodiversity and Conservation:</b> 0.8% of the land protected (2000). National Conservation Strategy used to exist. Part of Conservation International Horn of Africa Hotspot which has over 60 endemic genera and over 2,750 endemic species. Part of Somalia-Masai region of plant endemism (Savannas and shrub lands). 24 important bird areas. Generally fauna depleted due to over and illegal use. Invasives (e.g. <i>Prosopis</i> spp. and the Indian House crow, <i>Corvus splendens</i>) important to address, though <i>Prosopis</i> could be used for charcoal.</p>
<p><b>Marine:</b> Fringing reefs and coral patches in Gulf of Aden, few mangroves; On Somalia Indian Ocean Coast, fringing and back reef lagoons from the Kenya border to Kismayu. From Kismayu onwards there are no reefs, because of nutrient rich deep water upwellings, which supply very important offshore fisheries (tuna). Artisanal fishing at low level, not a widespread tradition, but pressure has increased due to displacement of people from inland to coast. Traditional shark and ray fishing on Gulf of Aden coast for the salted/dry local (regional) market, but now shifted to shark fin export to Asia. Illegal, unregulated and unreported (IUU) fishing by foreign vessels now a critical issue. Commitment from local NGOs high; technical capacity for management needs building.</p>
<p><b>Water and wetlands:</b> 1,685 cu.m. per person per annum, but distribution very skewed. Water critical resource ultimately determining livelihoods. Jubba and Shabelle only perennial rivers, many seasonal streams. Historically water management integrated with livestock management. Now much unplanned for water supply construction (berked, balley, wells) individually owned – increases pressures on rangelands. Irrigation agriculture use to account for over 90% of water use.</p>
<p><b>People:</b> population estimated at 6.4 million (2001) and 7.3 million (2004), with 52.% female and 47.% male. Approximately 64% rural and 36% urban. Poverty levels high with nearly 80% of rural population living in poverty (less than \$2 per day), while a total 53.4% live in extreme poverty (less than \$1 per day). Six major clans – 4 are mainly pastoralist, 2 agricultural. Lack of clarity of land tenure and security of rights to land. There are about 10 people per sq.km and an annual growth rate of 2.8%.</p>
<p><b>Administration:</b> 18 regions; Somaliland in the north has its own self-declared Government, as does Puntland in the north-east but it is more closely linked to central and southern Somalia Administrations.</p>
<p><b>Social Services and Education:</b> Health indicators some of worst in Africa with high mortality rates. Estimated life expectancy at birth low, while average life expectancy of 47. Infant mortality is 115 deaths per 1,000 births. Infectious diseases, nutritional deficiencies and birth related problems are major health risks, and water borne diseases are on the increase. HIV/AIDS prevalence estimated at less than 1% (2001). Primary school enrollment is only 20.8% for boys and 16.9% for girls. The overall adult literacy rate of 25% for males, and 12% for females with the literacy in rural areas being extremely low. In addition to low education levels, there are been a great brain drain to other countries.</p>
<p><b>Gender:</b> Though over half the population, women have very little voice. But many civil society groups negotiating for greater equity in decision making. With increased democracy role of women likely to improve.</p>
<p><b>Agriculture:</b> Main food crops are sorghum, millet, maize, rice. Main cash crops were bananas, sugar, cotton. Crops limited mainly to irrigated areas, but an increase in high risk opportunistic rain fed cultivation removes land from livestock based systems. Emphasis on cultivation based agriculture as main vehicle for livelihood improvement. Indigenous crop varieties (sorghum, cowpeas) emphasized. 14% of the population are engaged with farming.</p>
<p><b>Livestock:</b> Pastoralism accounts for over 50% of the population, 40% of GDP, 65% of export earnings, and is the mainstay of the economy based on wet and dry season grazing/browsing of natural resources (grasses, herbs, browse, trees and shrubs). Most of country annual grasslands with shrubs and woodlands in wetter areas where they may also be perennial grasses. Trade with gulf states key to livestock industry. There is evidence of rangeland degradation as a result of strife and insecurity, but the scale and extent is difficult to validate. Private grass enclosures further alienating land from common property management.</p>
<p><b>Urbanization and Infrastructure:</b> Increasing rapidly (now about 36% of the population are urban), especially with returnees who can no longer fit into pastoral system. Urban areas not seen in context of greater landscape. Great demands on rural environments – charcoal, forage. Infrastructure under-developed – much destroyed during periods of insecurity.</p>
<p><b>Economics and livelihoods:</b> Livestock the main economic base for the country. Many natural products sold – especially Frankincense (used to be 4<sup>th</sup> largest foreign currency earner) and Myrrh (used to be worlds largest producer). Industry small scale, mainly service – but potential for processing and value adding on natural resources. Potential for Somali</p>

<sup>2</sup> The Sources for the data in this fact sheet are referenced in the main text of the overall CEP

<p>industrial fisheries and new artisanal fisheries development if IUU addressed. The GNP is \$200 per capita. There are large remittances (estimated at between \$300-\$500 million per annum), while donor support is estimated at about \$115 million per annum (2000 figures)</p>
<p><b>Natural disasters:</b> Tsunami best known, but effects of droughts and floods far more serious. From 1961-2004 18 floods killed 2,600 people, and 12 droughts killed 19,600 people. With land conversion (for irrigation, charcoal, urban needs), effects of drought exacerbated. Massive coral bleaching occurred worldwide in 1998 due to climate change and resulted in widespread coral mortality, which is likely to have impacted Southern Somalia and Gulf of Aden coast.</p>
<p><b>Impacts of insecurity:</b> Massive refugee movements. Breakdown in social fabric of country resulting in “free for all” in terms of land and natural resource use – meant that traditional land use systems no longer respected. Still many hundreds of thousands of land mines – especially in Somaliland and Puntland.</p>
<p><b>Governance, Policy and Law:</b> In terms of environment very weak. Somaliland and Puntland have better evolving policy/legal framework. No EIA’s except as donor requirement. Government signatory to number of international agreements – but not able to implement.</p>
<p><b>Environmental Opportunities in Somalia</b></p> <ol style="list-style-type: none"> <li>1. Extensive traditional knowledge about natural resources and their use – especially for livestock, but also in terms of human use (fruits, foods, medicines). Gender differences in knowledge systems.</li> <li>2. Detailed land management systems – wet, dry and drought season grazing areas with reciprocal rights for livestock movements, together with institutions for management.</li> <li>3. Detailed knowledge about managing risk and enhancing resilience.</li> <li>4. Livestock management (main economic activity) depends on conservation and sustainable natural resource management.</li> <li>5. Sustainable and locally focused fisheries a great opportunity to contribute to local livelihoods and economic growth, with the potential to develop new fisheries based on the diverse range of marine resources currently not, or under utilised.</li> <li>6. Conservation areas could be seen as part of natural resource management – importance of community conserved areas.</li> <li>7. Strong sense of awareness about environmental issues.</li> <li>8. Opportunity for environmental issues to be addressed in different sectors as part of mainstreaming, but need for accountable indicators.</li> <li>9. Locally based (village) land use and environmental management planning as tool for enhancing devolution, &amp; creating management planning systems that are integrated at local level (land suitability for different uses, taking into account local needs, pastoralist grazing, cultivation, making trade-offs). Use as basis for district and regional land use planning and ultimately at national level.</li> <li>10. Environmental goods and services are the livelihood basis for the people – so key to MDG delivery.</li> <li>11. Many natural resources (frankincense, myrrh, gum Arabic, henna, aloe etc.) strong potential for small scale industry and value adding. Also opportunity for sustainable fuelwood and charcoal production but has to be carefully managed.</li> <li>12. Donors, NGOs and government have opportunity to integrate environmental issues in responsible manner in all work.</li> <li>13. NGO-Government partnerships to make best use of advantages of both to deliver development. This can be an important development approach, through SACCB donor and NGO coordination.</li> <li>14. Diversifying and value adding in marine fisheries to develop new but sustainable marine resource based livelihoods.</li> <li>15. Water resources management – in terms of existing work on catchment conservation, and water source protection.</li> <li>16. Existing efforts in environmental sanitation management – solid waste management, and hygiene awareness promotion.</li> </ol>
<p><b>Environmental Issues, Concerns and Problems in Somalia</b></p> <ol style="list-style-type: none"> <li>1. Unsustainable tree use – clearing for agriculture, use for making charcoal both for local use and export, where the export should be made illegal. Charcoal burning is confined to certain areas (e.g. close to urban centres).</li> <li>2. Expansion of land for cultivation into areas inappropriate for cultivation.</li> <li>3. Irrigation resulted in clearing of riverine forests without concern for broader landscape management – though an old issue still needs to be linked into wider environmental management.</li> <li>4. Insecurity means that environmental issues not considered important.</li> <li>5. Lack of security in terms of rights to land and natural resources, and clarity in land tenure where the more powerful tend push out the weaker.</li> <li>6. Illegal dumping (oil, waste – some of which toxic) by international fleet, though evidence difficult to substantiate.</li> <li>7. Illegal and unregulated fishing by international fleet (especially trawlers from Asia and Europe), also at artisanal level.</li> <li>8. Charcoal export key issue to stop, as destroying many woodland areas to the south of Mogadishu, and in many of the woodland areas with easy access to the Gulf states.</li> <li>9. Unplanned private water development (especially for berkedes) increasing pressures on surrounding rangelands, exacerbated by increased use of private enclosures for grass which curtails grazing routes.</li> <li>10. Donor attention to environment not given seriousness and support needed – seen as mainstreaming, but need for accountable indicators to the environment in all such activities and so identification of priority intervention areas and sectors. Need to go beyond the rhetoric.</li> <li>11. Invasives need to be managed as could encroach and degrade the landscape – esp. <i>Prosopis</i> spp. around Hargeisa.</li> <li>12. Policy and legislative framework for environmental issues weak to non-existent.</li> <li>13. Biodiversity and conservation not seen as important for its own sake.</li> <li>14. Management of both energy and more broadly urban emissions as a result of expanding urbanization and effects on ground water, waste management, pollution.</li> <li>15. Soil Erosion – gully, wadi erosion.</li> <li>16. Trade on life plant and animal species from the country itself and elsewhere.</li> <li>17. Air pollution through urban and/or energy emissions.</li> </ol>



# The Millennium Development Goals, Somalia and the Environment

MDG	Target	In Somalia How Does, & How Could The Environment Contribute? – Some Ideas
1. Eradicate Extreme Poverty & Hunger	<ul style="list-style-type: none"> <li>Reduce by half the proportion of people living on less than a dollar a day</li> <li>Reduce by half the proportion of people who suffer from hunger</li> </ul>	<ul style="list-style-type: none"> <li>Livestock sector (which is based on natural browse &amp; forage);</li> <li>Sustainable fishing and marine resource use where benefits accrue locally;</li> <li>Potential for greater value adding in the livestock sector (hides, skins, milk products);</li> <li>International fishery supporting local development through fees and licenses;</li> <li>Use of wild foods &amp; fruits for subsistence &amp; as risk management strategy;</li> <li>Economically viable natural products (henna, frankincense, myrrh, gum arabic etc.) – rural economic growth – processing, marketing;</li> <li>Natural resources and environment valued &amp; accounted for in macro-economic planning and development;</li> <li>Integration of important indigenous trees on farm as part of agroforestry &amp; improved land use;</li> <li>Potential for green labelling;</li> <li>Clarity of tenure and resource access rights so that local institutions and people can take on their rights and responsibilities; and</li> <li>Opportunities for waste recycling and processing.</li> </ul>
2. Achieve Universal Primary Education	<ul style="list-style-type: none"> <li>Ensure that all boys &amp; girls complete a full course of primary schooling</li> </ul>	<ul style="list-style-type: none"> <li>Sales from natural products (livestock, other products based on natural resources) to provide cash for school costs (fees, buildings);</li> <li>Environmental education as part of schooling; and</li> <li>Schools as practical environmental learning centres.</li> </ul>
3. Promote Gender Equality & Empower Women	<ul style="list-style-type: none"> <li>Eliminate gender disparity in primary &amp; secondary education preferably by 2005, &amp; at all levels by 2015</li> </ul>	<ul style="list-style-type: none"> <li>Reduced time to collect fuelwood, water &amp; other important natural resources (so more quality time available for other activities, e.g. family), through tree planting, restoration and water provision;</li> <li>More efficient fuel use;</li> <li>Recognize &amp; value gender differences in natural resource management &amp; use;</li> <li>More girls can go to school, as natural resources help pay for costs; and</li> <li>Greater ability of women to manage, process, market and benefit from natural resource based enterprises.</li> </ul>
4. Reduce Child Mortality	<ul style="list-style-type: none"> <li>Reduce by two thirds the mortality rate among children under five</li> </ul>	<ul style="list-style-type: none"> <li>Improved catchments resulting in more clean water;</li> <li>Improved nutrition – fruits &amp; other wild (&amp; domesticated) foods contribute to nutrition &amp; food diversity through improved tree use, restoration and tree planting;</li> <li>Herbal remedies; and</li> <li>Improved control and management of waste.</li> </ul>
5. Improve Maternal Health	<ul style="list-style-type: none"> <li>Reduce by three quarters the maternal mortality ration</li> </ul>	<ul style="list-style-type: none"> <li>Nutrition, clean water;</li> <li>Less time spent on e.g. fuelwood &amp; water collection therefore better able to retain health;</li> <li>Herbal remedies; and</li> <li>Improved control and management of waste.</li> </ul>
6. Combat HIV/AIDS, Malaria & Other Diseases	<ul style="list-style-type: none"> <li>Halt &amp; begin to reverse the spread of HIV/AIDS</li> <li>Halt an begin to reverse the incidence of malaria &amp; other major diseases</li> </ul>	<ul style="list-style-type: none"> <li>Clean water, control of mosquitoes &amp; other vectors;</li> <li>Environment providing fruits &amp; foods which help provide a more balance diet (&amp; so stronger to be able to resist/manage disease);</li> <li>Environment as provider of natural remedies &amp; medicinals; and</li> <li>Improved control and management of waste.</li> </ul>
7. Ensure Environmental Sustainability	<ul style="list-style-type: none"> <li>Integrate the principles of sustainable development into country policies &amp; programmes; reverse loss of environmental resources</li> <li>Reduce by half the proportion of people without sustainable access to safe drinking water</li> <li>Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020</li> </ul>	<ul style="list-style-type: none"> <li>Village environmental &amp; land use management planning as both a practical and policy approach;</li> <li>Community based coastal and fishery management planning;</li> <li>Improved planning for, and regulation of the off-shore fishery;</li> <li>Clean catchments &amp; clean potable water – adopting river basin and catchment approaches which complement village land use planning;</li> <li>Improved fuel efficiency (including solar) for urban people (charcoal especially);</li> <li>Biodiversity more sustainably managed as foundation for the other MDGs;</li> <li>Potential to establish (or re-establish) network of protected areas that are part of lived in land- and sea-scapes, also national parks to conserve critical biodiversity;</li> <li>Risk mitigation and management strategies that build on existing knowledge systems of people – also as basis for climate change adaptation. Importance of early warning systems;</li> <li>Mainstreaming the environment across all the sectors; and</li> <li>Importance of capacity at different levels and across sectors to better understand and respond to environmental needs and sustainable environmental management, from policy to practice.</li> </ul>
8. Develop Global Partnership for Development	<ul style="list-style-type: none"> <li>Eight indicators are listed relating to such partnerships. See <a href="http://www.undp.org/mdg">www.undp.org/mdg</a></li> </ul>	<ul style="list-style-type: none"> <li>Partners integrate greater environmental issues &amp; concerns into on-going work, through SEA, EIA, and use of environmental indicators and activities;</li> <li>Support mainstreaming of environment in all sectors, &amp; in policy and practice; and</li> <li>Different sectors integrate environmental issues into the work plans as core component of their business.</li> </ul>

Map 1: General Map of Somalia

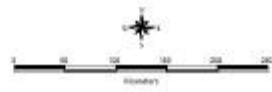


## Map 2: Land forms, Rivers and Administrative Boundaries in Somalia



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 Department of  
 Economic and  
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 Prospects: The  
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# 1. INTRODUCTION<sup>3</sup>

The Eastern African Regional Office of IUCN, the World Conservation Union developed this Country Environmental Profile (CEP) for the EC Somali Operations Office, Nairobi (Annexes 8-12). IUCN carried out a similar exercise in 1993 and subsequently implemented the EU funded Somalia Natural Resource Management Programme (Barrow et al. 2000). This CEP comes at a very opportune time for the following reasons:

4. The EU Somalia Operations Unit is preparing its Country Environment Strategy Paper (CSP) for Somalia, where this CEP provides strong arguments for the integration of environmental issues both in terms of mainstreaming and across the different sectors;
5. Somalia itself may be entering a greater period of peace and stability, where nation building and reconstruction will be the main focus for the coming years. Here this CEP argues that the environment, its goods and services are the foundation for sustainable development; and
6. The Joint Needs Assessment (a multi-agency assessment led by the World Bank and EU) is carrying out a comprehensive assessment of all the needs of Somalia. It is hoped that this CEP will provide additional independent input into this process.

In support of the Somali Administrations, the EC through the publication of a CEP will provide information on the status of prevailing environmental conditions, related national environmental policies and institutional frameworks. This will provide the authorities with the data that they need as a basis for future development, and the EC with a baseline to plan its investment through its country strategy support, and through the Joint Needs Assessment (JNA). Country profiles are summaries of the environmental, social and economic situations, and provide the following information:

1. Description of the natural and human environment;
2. Environmental policies and legislations, integration of environmental concerns into the main economic sectors, institutional structures and capacity, involvement of civil society and international development assistance;
3. An analysis of the main linkages between environmental issues, poverty and security in conflict and post-conflict situations;
4. Key areas and recommendations where environmental action is required; and
5. Over-view of monitoring, research and administrative capacity of country to address environmental problems.

The EC Somalia Operations Office is compiling its Country Strategy Paper (CSP) for Somalia, and it is a prerequisite that a CEP is prepared by the EC Somalia Operations Office in Nairobi in order to provide information on the current status of the environmental conditions in Somalia, the various national environmental policies, and the regulatory reforms and institutional frameworks that relate to the environment. In addition it will provide decision makers in the EC Somalia Operations Office and the ongoing reconciliation process of the Somalia Administrations with sufficient information and advise for future development cooperation activities with relation to the environment and to establish environmental safeguards for other activities.

The Objective for preparing Somalia's CEP is to **“Provide environmental, social and economic information to EC Somalia Operations Office and the Somalia Administrations to guide the identification of specific recommendations on environmental objectives and benchmarks for the EC Cooperation activities in the 2008-2013 indicative programme for Somalia”** (Annex 8-12). To fulfill this objective, the CEP:

1. Analyzes existing environmental, social and economic information as the basis for the CEP for Somalia, and the EC indicative programme for Somalia;
2. Assesses the environmental situation in Somalia covering key environmental issues, environmental policy and legislation, institutional structures and capacity, integration of environmental concerns into ongoing EC-funded interventions, involvement of civil society and private sector and EC cooperation and international development assistance;
3. Recommend priority actions for the 2008-2013 indicative programme for Somalia and ongoing EC-funded interventions; and

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<sup>3</sup> Annex 12 provides details on the terms of reference for the CEP, while Annexes 8-11 provide other administrative details. All the Annexes are compiled in a separate volume, to provide much needed additional detail with respect to the environment in Somalia.

4. Makes suggestions as to how the environment can be mainstreamed into ongoing national development and economic planning programmes.

Carrying out the CEP for Somalia is different from other countries. While challenging to implement, this CEP could help in greater recognition of how important the environment is for reconstruction, development, economic planning and to the overall achievement of the MDGs. More than many countries, the environmental goods and services are the foundation for sustainable development and long term planning in Somalia. Evolving policies, laws and institutions, together with the international community, have the chance to integrate environmental concerns and issues in a positive and constructive manner. There were constraints to the implementation of the CEP, which include

1. The difficulty of trying to work in 3 areas of “greater” Somalia, namely Somaliland, Puntland, and central and southern Somalia which do not yet have coherent political integration;
2. It was not possible to hold an inception workshop in central and southern Somalia, given the current insecurity there. Therefore it has not been possible to gain the opinions and inputs from Somalia Administration representatives and others from central and southern Somalia, except for those who attended the Nairobi workshop;
3. Because of the civil wars, and long periods of insecurity, it was difficult to access and validate many of the data sets. While data for Somaliland is generally quite good, there is very little recent data for central and southern Somalia. In the main it is not there, except at the level of project interventions or from remote sensing. Some data has been relatively easy to find, but many reports and publications have been difficult to find (lost, destroyed or archived); and
4. The compilation of a CEP is mainly literature based. Recognizing the difficulties of accessing all the literature (or even a significant part of it!), this CEP was allowed to hold a series of inception workshops (Nairobi, Hargeisa and Bosasso) to gain a greater level of local comment and input (Annex 5). Many of the recommendations from these workshops have been integrated into the CEP, and have helped corroborate, or not, the data and perspectives found in the literatures. Not being able to hold the inception workshop in Baidoa is a weakness.

IUCN believes there are many opportunities for the proactive integration of environmental issues in all areas of development – whether in terms of mainstreaming, sectoral address, or policy and legislation. We highlight the fact that the environmental goods and services are at the core of livelihoods and sustainable development, and represent a major area for managing risk and enhancing resilience in a risk prone and dry environment, where over 95% of the land is considered arid or semi-arid. We suggest that environmental issues need to be visibly integrated across the range of sectors and implementing agencies working in Somalia. The three inception workshops IUCN held re-enforce that perspective<sup>4</sup>.

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<sup>4</sup> Annexes 5.1., 5.2., and 5.3. summarize these three workshops, while Annex 1 highlights the main issues and recommendations that the participants at these workshops highlighted. Annex 7 summarizes the Inception Report that IUCN provided.

## 2. STATE OF THE ENVIRONMENT

### 2.1. *The Physical Environment*

Somalia occupies the tip of the “Horn of Africa”, a region which includes Ethiopia and Djibouti. Africa's easternmost country, Somalia has a land area of 637,540 km<sup>2</sup>, slightly less than that of France. Bordered by Kenya, Ethiopia and Djibouti to the west, Somali has the longest coastline in Africa of over 3,025km which ranges from the Gulf of Aden in the north to the Indian Ocean in the east and south, with coastlines of around 1,000km and 2,000km respectively. The country stretches for almost 1,550km from north to south between latitudes 12°00'N and 1°37'S, and 1,095km from west to east between longitudes 41°00' and 51°21'E. Somalia is for the most part a flat country, rising in the southern and central regions to a few hundred meters above sea level near the Ethiopian border (Annex 3.1. and 3.2.). The highest part of the country is along the northern coast where mountains rise to some 2,000 meters. Shimer Berris in Sanaag region is the country's highest peak (2,407 m.).

#### 2.1.1. Climate

The climate, which ranges from tropical to sub-tropical and from arid to semi-arid, is influenced by the Inter Tropical Convergence Zone (ITCZ). Apart from higher elevations in the north of the country, most of Somalia has a semi-arid to arid, is hot and dry throughout the year, with low and erratic precipitation. Droughts occur every 2 to 3 years and are often followed by devastating floods. Climate is the primary determinant for Somali life, and the timing and amount of rainfall are crucial factors determining the adequacy of grazing.

Somalis recognize four seasons, two rainy (*Gu* and *Deyr*) and two dry (*Jiilaal* and *Hagaa*). The *Gu* rains begin in April and last until June, and are the main rains with over 60% of the total rainfall. This is followed by the *Hagaa* dry period (July-September, which is followed by the short *Deyr* rains (October-November). Next is the *Jiilaal* period (December-March), which is the harshest season for pastoralists and their herds<sup>5</sup>. Most of the country receives less than 500 millimeters of rain annually, and a large area encompassing the northeast and much of northern Somalia receives as little as 50 to 150 mm. Certain higher areas in the north, record more than 500 mm a year, as do some coastal sites (Hughes & Hughes 1992). The southwest receives 330 to 500 mm.

Mean daily maximum temperatures range from 30°C to 40°C, except at higher elevations and along the Indian Ocean coast. Mean daily minimum temperatures vary from 20°C to more than 30°C. Northern Somalia experiences the greatest temperature extremes. Temperatures in the south are less extreme, ranging from about 20°C to 40°C. The hottest months are February to April, and the coast is usually 5-10°C cooler than those inland. The coastal zone's relative humidity usually remains about 70% even during the dry seasons.

#### 2.1.2. Land and Land Use<sup>6</sup>

Somalia's terrain consists mainly of plateaus, plains, and highlands. In the far north, however, the rugged east-west ranges of the Karkaar Mountains lie at varying distances from the Gulf of Aden coast. Physiographically, Somalia is a land of limited contrast. In the north, a maritime plain parallels the Gulf of Aden coast, varying in width from roughly 12 km. in the west to as little as 2 km. in the east. Scrub-covered, semiarid, and generally drab, this plain, known as the *guban* (scrub land), is crossed by broad, shallow watercourses that are beds of dry sand except in the rainy seasons. When the rains arrive, the vegetation, which is a combination of low bushes and grass clumps, is quickly renewed, and for a time the *guban* provides grazing for livestock. Inland from the gulf coast, the plain rises to the precipitous northward-facing cliffs of the dissected highlands. These form the rugged Karkaar mountain ranges that extend from the northwestern border with Ethiopia eastward to the tip of the Horn of Africa, where they end in sheer cliffs at Caseyr. The general elevation along the crest of these mountains averages about 1,800 meters above sea level south of the port town of Berbera, and eastward from that area it continues at 1,800 to 2,100 meters almost to Caseyr. The country's highest point, Shimer Berris (2,407 m.), is located near the town of Erigavo.

Southward the mountains descend, often in scarped ledges, to an elevated plateau devoid of perennial rivers. This region of broken mountain terrain, shallow plateau valleys, and usually dry watercourses

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<sup>5</sup> Source: <http://countrystudies.us/somalia/34.htm>, U.S. Library of Congress

<sup>6</sup> Sources: UNEP 2005b. The State of the Environment in Somalia - A Desk Study. United Nations Environment Programme, Nairobi ; and <http://countrystudies.us/somalia/34.htm>, U.S. Library of Congress, and see Annex 3 for a range of maps on Somalia

is known as the Ogo. In the Ogo's especially arid eastern part, the plateau, which is broken by several isolated mountain ranges, gradually slopes toward the Indian Ocean and in central Somalia it constitutes the Mudug Plain. A major feature of this eastern section is the long and broad Nugaal Valley, with its extensive network of intermittent seasonal watercourses.

The western part of the Ogo plateau region is crossed by numerous shallow valleys and dry watercourses. Annual rainfall is greater than in the east, and there are flat areas of arable land. The western area has permanent wells to which the predominantly nomadic population uses during the dry seasons. The western plateau slopes gently southward and merges into an area known as the Haud, a broad, undulating terrain that constitutes some of the best grazing lands for Somali nomads, despite the lack of appreciable rainfall more than half the year. Enhancing the value of the Haud are the natural depressions that during periods of rain become temporary lakes and ponds. The Haud zone continues for more than sixty kilometers into Ethiopia, and the vast Somali Plateau, which lies between the northern Somali mountains and the highlands of southeast Ethiopia, extends south and eastward through Ethiopia into central and southwest Somalia.

Southwestern Somalia is dominated by the country's only two permanent rivers, the Jubba and the Shabelle (Annex 3.4, and 3.5). With their sources in the Ethiopian highlands, these rivers flow in a generally southerly direction, cutting wide valleys in the Somali Plateau as it descends toward the sea, and the plateau's elevation falls off rapidly in this area. The adjacent coastal zone, which includes the lower reaches of the rivers and extends from the Mudug Plain to the Kenyan border, averages 180 m. above sea level. The Jubba River enters the Indian Ocean at Kismayu. Although the Shabelle River at one time reached the sea near Merca, its course has changed in prehistoric times. The Shabelle now turns southwestward near Balcad and parallels the coast for more than eighty-five kilometers. The river is perennial only to a point southwest of Mogadishu; thereafter it consists of swampy areas and dry reaches and is finally lost in the sand east of Jilib, not far from the Jubba River. During the flood seasons, the Shabelle River may fill its bed to a point near Jilib and occasionally may even break through to the Jubba River farther south. Favorable rainfall and soil conditions make the entire riverine region a fertile agricultural area and the center of the country's largest sedentary population.

Soils are generally calcareous, and the most fertile soils are found in the Jubba and Shabelle river valleys. These are deep vertisols ("black cotton soils"), which are the basis for irrigated agriculture. These soils and the dark grey and brown calcareous of the inter-riverine areas are also suitable for opportunistic rain-fed agriculture. The north-west of the country has some alluvial plains, where soils may be suitable for rain-fed agriculture. Many of the seasonal rivers have rich alluvial soils. Most of the drier parts of the country have thin and relatively infertile desert soils (World Bank 2006).

#### **2.1.2.1. Agriculture and Rangelands**

46% to 56% of Somalia is considered as permanent pasture dominated by natural vegetation and includes the savannah woodlands. Rangeland degradation affects certain parts of the country, particularly those close to urban areas, and such areas as the Sol plateau. This is exacerbated by prolonged droughts, insecurity and the charcoal trade, which cause localized degradation. A survey found Somalia's northern ranges to be the most seriously (as much as 50%) degraded owing to steep topography, large numbers of livestock, and proximity to ports for livestock export (World Bank 1987)<sup>7</sup>. Over much of the country, many areas around water holes and wells are degraded.

The loss of traditional grazing lands to private livestock enclosures, especially those close to urban centres<sup>8</sup>, as well as increased numbers of livestock and the lack of law enforcement force people to demand more and more from their rangelands and wood- and forest-lands. The issue of enclosures is contentious. On the one hand it is part of traditional Somali pastoralist natural resource management which integrated both wet and dry season grazing areas, with dry and drought time grazing reserves. Traditionally this was well respected and communal areas of reserved grazing existed, even if not fenced. But this has changed and many people now make their own private and often extensive enclosures, which both limits access to pasture and curtails the mobility of pastoralists during seasonal migrations. This has become a particular issue in Somaliland where the authorities and elders describe them as a continuous source of conflict and insecurity.

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<sup>7</sup> Note: Many things may have changed since that time

<sup>8</sup> Data on the extent and growth of enclosures is difficult to validate, especially those further away from settlements.

Arable land (rain-fed and irrigated) is estimated at 13% of the country in terms of land use potential although 20,000 to 30,000 Ha is irrigated. Larger areas of land are cultivated in drier and drier lands on an opportunistic basis which may yield crops, but is also a means of provide forage for livestock. In the Bay region, people do depend more on rain fed farming for subsistence and this is a cause of concern.

### **2.1.2.2. Forest and Woodlands**

The vegetation in Somalia is predominantly dry deciduous bush land and thicket dominated by species of *Acacia* and *Commiphora*, with semi-desert grasslands and deciduous shrub land in the north and along much of the coast (Annex 3.7. to Annex 3.11). The vegetation becomes denser towards the south, though many of the plains of the north-eastern part of the country are devoid of trees. Forest and woodland growth is limited by poor soils and low rainfall, and closed forest cover occupies only about 2.4% of the country (IUCN 1992). There is an annual deforestation rate of 0.97% of all types of forest and woodlands (FAO 2001). Over 60% of the country is covered by sparse savannah woodlands. These woodlands provide important browse resources and firewood, as well as material for house construction and livestock enclosures. Virtually all of the floodplain forest that once existed along the Shabelle and Jubba rivers has been cleared for agriculture and irrigation, except for a small patch set aside as a reserve at Balcad by the Somali Ecological Society. Only the poorly accessible Middle Jubba, with its predominantly saline, alkaline, impermeable soils has retained areas of relic floodplain forest. Compared with the surrounding woodland and bush, these floodplain forests are biodiversity rich (Madgwick 1989).

### **2.1.2.3. Urban Areas**

Although predominantly a rural based society, there are strong patterns of rural-urban migration. For a time during the war, this process was reversed as people fled the towns to areas from where their clans originated. Consequently the population of previously small regional towns such as Belet Weyne, Galkaayo, Baidoa, and Bosasso rose dramatically as people fled fighting in Mogadishu, the Lower Jubba, and the inter-riverine areas. There is no recent census data, so it is difficult to assess urban growth and rural – urban movements, except to say that it is high and exacerbated by returnees coming back to the towns and cities, especially in Puntland and Somaliland. It is suggested that urban growth may be as much as 10% per annum. Urban centres have, relatively, much better access to services (Table 1)

**Table 1: Rural – Urban Differences in Somalia**

<b>Service</b>	<b>National average</b>	<b>Urban</b>	<b>Rural</b>
Unemployment - %	47.4	61.5	4.7
Per capita income - \$	\$226	\$291	\$195
Extreme poverty - %	43.2	23.5	53.4
Adult literacy - %	19.2	34.9	10.9
Access to health facilities - %	54.8	62.7	36.4
Access to safe water - %	20.5	53.1	4.1
Access to sanitation - %	49.8	93.0	28.2
Radios per 1,000 people	99	139	78
Telephones per 1,000 people	15	36	5

Source: (World Bank 2006)

### **2.1.3. Water – Inland and Marine**

#### **2.1.3.1. Inland Water and Wetlands**

While Somalia is predominantly arid and semi-arid, the rivers that exist are critically important (Annex 3.3). The two main (and only permanent) rivers (Shabelle and Jubba) both rise in the mountains on the eastern side of the Rift Valley in Ethiopia and pass through eastern Ethiopian drylands before entering Somalia (Annex 3.4 and 3.5.). They are the source of seasonal flood recession farming and irrigation. There are plans to dam these rivers<sup>9</sup>, both in Somalia with the Bardere Dam Project which was launched in the 1980's but is currently "on hold" (Elmi 2002), and in Ethiopia, though it is difficult to validate such plans. There are few freshwater wetlands, apart from those associated with the two rivers, and some coastal/marine wetlands in the form of mangroves.

<sup>9</sup> <http://www.somwat.com/hydropolitics.html>



The wetland fauna is largely undescribed although much of the vegetation is known through the Flora of Somalia (Thulin Mats 1993, 1995).

### **2.1.3.2. Marine and Coastal Resources**

Somalia has the longest coastline in Africa (3,025 Km, (CIA 2005), and is split ecologically into the Gulf of Aden which encompasses the Somaliland and northern Puntland coastline, and the Indian Ocean coastline of northern Puntland, and central and south Somalia (Annex 3.6). Its marine resources are rich and varied, where a prominent feature is the seasonal upwelling which gives rise to high levels of biological productivity that sustain rich fishing grounds, most notably in the northern area between Ras Asir and Ras Mabber (TRAFFIC 1997). The bio-physical conditions of the two zones differ significantly. The Exclusive Economic Zone (EEZ) of central and south Somalia covers an area of about 520,000 km<sup>2</sup> and borders with the EEZs of Seychelles and Kenya. The narrow continental shelf and nutrient rich upwelling along this coastline mean that the offshore waters are one of the more productive regions in the Indian Ocean, and are an important breeding ground for many migratory fish stocks, especially commercially valuable tuna. Somalia has fringing reefs and patches of coral reefs along the Gulf of Aden coastline and in southern Somalia near the Kenyan border. Few studies have been conducted on these reefs but one off the northern coast east of Berbera highlighted extensive coral bleaching, with some reefs suffering almost total mortality (Schleyer & Baldwin 1999). A rapid assessment of the Saad ad-Din Islands in Awdal Region, Somaliland, close to the Djibouti border (McClanahan and Obura 1997) found highly diverse fringing and platform coral reefs with unique fauna representing a mix of Red Sea, Arabian Sea and Indian Ocean species. Fishing pressure on reef resources was negligible. Important turtle and bird nesting sites were documented, and mangroves including *Rhizophora* were found. This area has been proposed as a Marine Protected Area by PERSGA in their Strategic Action Plan (2003).

**Somaliland and northern Puntland (Gulf of Aden coastline)** has a relatively straight coastline of over 1,000 km comprising sandy beaches with occasional small rocky promontories, with low dunes and a coastal plain, both sparsely vegetated with xerophytic grasses and shrubs. To the east of Bosasso high mountains come close to the shore and bring seasonal rains. The marine environment is productive due to rich nutrient upwelling, high turbidity, and complex seasonal currents. This supports large numbers of pelagic fish (especially tuna) and cetaceans. The sub-tidal zone is dominated by relatively sterile shallow sandy substrata. Algal beds on hard substrata, both shallow and deep (>10m), with a diversity of species and high productivity are the most abundant habitat type, and these support an abundance of fishes. Coral reefs occur but are sparse with low diversity due to high sediments and upwelling, but with some exceptions, notably the Saad ad-Din Islands. An interesting mix of species from the East African and the Gulf of Aden/Red Sea communities are represented. Mangroves are limited to small seasonal creeks and generally comprise one species (*Avicennia marina*), though a significant mangrove forest occurs at the lagoon at Khor Shoor, and *Rhizophora* has been reported from the Saad ad-Din Islands. Coastal birds are abundant and diverse. Turtles were apparently abundant, but are taken in gill nets and eggs are harvested from nests and appear to be threatened.

**Eastern Puntland and Central and South Somalia:** The Western Indian Ocean coastline extends for around 2,00km (400km of Puntland and 1,600km of central and south Somalia) and is characterized by a narrow 15km wide continental shelf, and the strong Somali current (a significant component of the Agulhas-Somali Current Large Marine Ecosystem). It is assumed that due to cold upwelling there are no coral reefs; however this needs verification and scattered anecdotal reports suggest that corals abound in some areas. To the north around Haafun in Puntland the shelf widens to 80km and this area is renowned for its lobster fishery. South of Kismayu in the southern Somalia region of the Bajuni Islands and Ras Chiamboni, bordering Kenya cold upwelling are less prevalent, and coral reefs, seagrass beds and mangroves are prevalent (Lovatelli 1996). The islands are fringed with coral reefs and extensive flats dominated by *Acropora*, interspersed with large seagrass (*Thalassodendron* spp.) meadows, and mangroves (*Avicennia* and *Rhizophora*) in intertidal flats and channels (Carbone et al 1999). These reefs are renowned for their spiny lobsters (*Palinurus* spp) which are heavily exploited by artisanal fishers, largely for markets in Kenya.

#### 2.1.4. Mineral Resources

In 1988 the value of Somalia's mineral resources represented about 0.3% of total gross domestic product. The local geology suggests there may be valuable mineral deposits, but only a few sites have been located. Somalia has some uranium deposits in the Galguduud and Bay regions, and in 1984 work began to develop them. There are unexploited deposits of iron ore, tin, gypsum, bauxite, copper and salt (CIA 2005). There are good petroleum indicators, which have been known for sometime (Hersi 2000). Recent data suggests that oil could be explored for, though potential yields are not known (or available), and there are unexploited reserves of about 5.7 billion cu.m. of natural gas (CIA 2005). Other rocks and minerals are known to exist including tin (Majiyahan - Dhalan south of the Bosasso-Ceelayo coastal strip), sepiolites (Ceel Bur), and quartz, granite, marble, limestone and gypsum in different parts of the country (UNEP 2005b).

#### 2.2. Biological Environment

Somalia's biological environment is an important part of Conservation International's "**Horn of Africa Biodiversity Hotspot**" (Annex 4.1.). Endemism among plant and animal species is high in the Horn of Africa Region (Table 2), and is reflected in Somalia's biodiversity, which gives the biodiversity global importance.

**Table 2: Endemism data of the larger biodiversity hotspot of the Horn of Africa**

Taxonomic Group	Species	Endemic Species	Percent Endemism
Plants	5,000	2,750	55.0
Mammals	220	20	9.1
Birds	697	24	3.4
Reptiles	285	93	32.6
Amphibians	30	6	20.0
Freshwater Fishes	100	10	10.0

Source: [www.biodiversityhotspot.org](http://www.biodiversityhotspot.org)

##### 2.2.1. Biodiversity

The Horn of Africa was a renowned hotspot 5,000 years ago when the Egyptians sent expeditions to the "Land of Punt" to bring back unique natural commodities such as frankincense and myrrh. Somalia, with the exception of a small portion of the south-east (part of which falls into the coastal forests of Eastern Africa Hotspot), falls into Conservation International's recently designated Horn of Africa Biodiversity Hotspot (Annex 4.1., (Mittermeier et al. 2004). This hotspot includes coastal Eritrea, all of Djibouti, eastern Ethiopia and eastern Kenya, as well as stretching into Oman, Yemen and Saudi Arabia, and covers an area of nearly 1.7 million square kilometres with an estimated total of 10,000 species, of which there are estimated to be 60 endemic genera and 2,803 endemic species (Annex 4.1.). The dominant vegetation type is tropical and sub-tropical grasslands, savannas and shrub lands (*Acacia-Commiphora* bush land with about 30 species of *Acacia* and 50 species of *Commiphora* endemic). According to Conservation International only 5% (or approximately 83,000 sq.km.) remains in relatively "pristine" form. Only 8.8% (145,000 sq.km.) has any form of protected area status, though at present for Somalia that is on paper (Annex 4.3), and 3.1% (51,000 sq.km.) fits into IUCN Protected Area categories I to IV (Annex 4.2. (IUCN et al. 1994; Mittermeier et al. 2004). Almost all of Somalia lies within the Somalia-Masaai region of plant endemism marked by sparsely vegetated, arid and rocky plains but that also has thick bush land, wooded valleys and foothills and grassy plains in a generalised dry semi-desert context (Annex 3.12 (White 1983).

Somalia possesses important biodiversity, though it is not rich in absolute numbers of species, and particular care needs to be taken in their management. The 1993 assessment showed that apart from the 150 wild mammal and 645 bird species recorded, 3,000 species of plants are found, 518 of them believed endemic (IUCN 1993). There are 24 Important Bird Areas described for Somalia, twelve of which are wetland based. There is a history of resource over-exploitation of biodiversity, and large scale and relatively uncontrolled hunting in the early part of the 1990s depleted virtually all of the once great herds of wild animals (UNEP 2005b). The Somali maritime zone has one of the most important large marine ecosystems, the Somali Current Marine Ecosystem of the Indian Ocean (Fielding & Mann 1999). With no efficient protected area system and inadequate legislation and enforcement, over-use of natural resources continues. Under current conditions, the long term survival

of several wildlife species, especially fauna, is uncertain. Information gathered from the 2006 IUCN Red List (Annex 4.4. and 4.5) shows, from a total number of 230 assessed species of plants and animals, that there are 11 critically endangered and 11 endangered species (IUCN 2006). In addition, the Somalia red-listing highlighted a further 49 vulnerable species, 31 near threatened species, 53 species of least concern, and 75 data deficient species (IUCN 2006).

### **2.2.2. Management of Biodiversity resources**

There has been no effective formal protected area system since the breakdown of government in 1991. Annex 4.2. and 4.3. provide some analysis of both existing (since before the war) and proposed conservation areas (Kingdom 1990; Stuart & Adams 1990). The most serious concern is the lack of effective legislation concerning the management of protected areas, and the absence of a functioning conservation infrastructure, as wildlife conservation has a low priority in Somalia (World Resources Institute 2003). On paper, there are 14 protected areas, representing 0.8% of the total land area, with only one measuring more than 100,000 hectares, namely Lag Badana National Park (Annex 4.2, (IUCN 1992; Kingdom 1990)). Eleven wildlife areas have been declared since 1970, but only two were thought to be functional (IUCN & UNEP 1987). In reality, there has been no formal protection offered to any of these sites since at least the early 1990s.

The most important sites, based on conservation and biodiversity needs (though the data is dated) in need of conservation are Zeila, Las Anod-Taleh-El Chebet, Ras Hajun-Ras Gubah, El Nammure, Hobyo, Haradere-Awale, Jowhar-Warshek, Harqan-Dalandoole, and Lack Dere. Two mountain sites of particular interest are Gaan Libaax and the Daalo forest, which have important *Juniperus* forests. Priority wetlands in need of active conservation include Jowhar-Warshek, Har Yiblame, Eji-Oobale, Awdghegle-Gandershe, Arbowerow, the Boja swamps, Angole Farbiddu (which includes riverine forest) and lake Radidi (Stuart & Adams 1990). No wetland of international importance has been declared under the Ramsar (Wetlands) Convention, nor is Somalia a signatory to the Convention. In the marine environment four marine protected areas (MPAs) have been proposed: the Saad ad-Din Islands and Aibat in western Somaliland close to Zeila, a historic town; Maydh Island in Puntland with the neighboring Daalo forest on the mainland, and Gara'ad on the Indian Ocean coast of Puntland. The latter was declared as an MPA in 2005 by the local fisher association GARFISH. Saad ad-Din Islands and Maydh Island are important sea bird breeding areas. The coral reefs at Saad ad-Din Islands represent the most diverse and well formed reefs on the Gulf of Aden coast.

Invasives are an evolving concern. At present invasives may not seem to pose a threat, but unless invasives are managed and controlled early on, they can become a serious problem, as *Prosopis spp* already is. Several of the classic dryland invasive plants are known from Somalia (especially *Prosopis spp.*) and others (e.g. *Chromolaena odorata* and *Parthenium hysterophorus*) may be present. The invasive Indian House Crow is known from Somaliland (Berbera) and is likely to be in Bosasso, Mogadishu and Kismayu. Marine invasives should also be checked.

### **2.2.3. Biological Ecosystems**

All of terrestrial Somalia, Puntland and Somaliland is arid and semi-arid, with the exception of some small areas along the permanent rivers and in the south-east of the country on the border with Kenya. Given that, we describe the biological ecosystems under the headings of rangelands, forests and woodlands, wetlands and inland water ecosystems, and coastal and marine ecosystems.

#### **2.2.3.1. Rangelands**

Rangelands (mainly grass and herbs, including tree and bush-lands) are the most important ecosystem type in Somalia, and are the basis for pastoralism. In lower rainfall areas (below 400 mm) these rangelands are dominated by annual grasses and herbs. Such rangelands “bloom” after rain and constitute critical wet season grazing for livestock. As rainfall is unevenly distributed spatially and temporally, pastoralists move to make optimal use of the range, which can be very productive until the grasses and herbs set seed and die. Then the pastoralist’s herds move to dry season grazing areas (Annex 3.13). Perennial grasses are found in rainfall areas above 400 mm, though many such types of grassland are thought to be degraded and replaced by annuals. Critical to the sustainability of such ecosystems is allowing such grasses and herbs to set seed, and not over graze them beyond their regenerative ability. Perennial grasslands are often associated with open wood and bush lands, and constitute important dry season and reserved grazing area – so critical to the success of pastoralism.

### **2.2.3.2. Forests**

The mist forests, though they only represent a very small part of the country, of the Goolis mountains of along the north coast are the only true forest areas of Somalia and are important centres of biodiversity and species endemism. These mist forests, which trap moisture from the mist that form as the air comes in from the coast and rises above the plateau, are important resources for pastoralists during dry seasons and periods of drought. Local people are well aware of this importance, especially for grazing and water. Such rich patch areas, which can include other hill areas and richer riverine woodlands, are of critical importance in terms of dry and drought time fodder reserves for pastoralist and for risk management.

### **2.2.3.3. Wetlands and Inland Water Ecosystems**

In 1987 (latest figures available), agriculture accounted for 97% of all freshwater withdrawals, due mainly to irrigation in southern Somalia (World Resources Institute 2003). This corresponded with a withdrawal rate of only 8% of the country's actual renewable water resources. Neglect and abandonment of many of these schemes caused a significant decline in the amount of freshwater being extracted. By 1999 less than 19% of cropland in Somalia was irrigated, with about 25,000 to 30,000Ha in the Jubba-Shabelle area, and about 5,000 Ha elsewhere. But with peace and increasing stability, use of water for irrigation will increase (World Resources Institute 2003). A National Conservation Strategy for Somalia states that the country has adequate water resources to supply the population and sustain its major activities, but the problem is one of distribution (Government of Somalia & IUCN 1990).

Availability of water is a perennial problem for pastoralists, whose livestock migration depends on water access and fodder availability. As a result there are many constructed water sources (*Berked*, *balley*, and dug wells) which are owned by an individual or family. They hold the rights to its use and, as community custodian, control the distribution of water. But there is an ever increasing number of these surface storage tanks or '*Berked*' (cisterns), and relates to individual and community needs, but are not planned within the wider landscape, a point emphasized by UNICEF (1997) on water management in northern Somalia (p.19) – "*Extreme care must be taken in any program of construction of new water supplies and one needs to make sure that new water facilities are not realized without adequate consideration to the long term protection of the rangelands grazing potential. The water sector is to ensure that its evolution ... is sustainable socially, politically, financially and environmentally*" (UNICEF Somalia. 1997). This is particularly important for the siting and management of boreholes, as experience from other countries (e.g. Kenya) suggests that poorly planned and managed boreholes exacerbates environmental degradation. Here the old Somalia government had a policy on the location and management of strategic boreholes, which had to be located at least 40Km apart on known pastoralist grazing routes. This promoted better water distribution and mitigated against the environmental effects of ill planned water development.

### **2.2.3.5. Coastal and Marine Ecosystems**

The rich waters off Puntland and central and south Somalia contain an abundance of important large and small pelagic fish, all of which are taken by artisanal fisheries and offshore foreign fishing vessels. Detailed up to date information on the status of the marine environment is lacking. Some of the most recent biological data dates back to the late 1990s. Rapid assessment baselines are available from 1999 of 170 km of the Somaliland coast, east of Berbera, (Schleyer & Baldwin 1999), and from 1997 at the Saad ad-Din Islands (McClanahan and Obura 1997) when a biodiversity assessment was done. These provide data on cetacean sightings, diversity of species of coral, reef fish and algae. It was noted that threats were minimal, and that the state of the marine environment was virtually pristine except for the taking of turtles through by-catch and harvesting of eggs from nests.

The EEZ waters of the Indian Ocean are subjected to Illegal, Unreported and Unregulated (IUU) fishing by foreign fishing fleets, and this is a major concern, not least because potential revenue to the country is not realized. The magnitude of illegal fishing is likely to be enormous due to the civil war since 1991 and the complete absence of monitoring, control and surveillance. Anecdotal information from the Seychelles Fishing Authority confirms that IUU in Somali Indian Ocean waters is very high. Based on monitoring and surveillance survey work by the EC further south in the Indian Ocean in Tanzania's EEZ, these illegal vessels maybe EC purse-seines targeting tuna (yellowfin, albacore, bigeye) and Asian long-liners targeting tuna, swordfish and shark. However, there is little factual knowledge of the extent to which illegal fishing, much of which takes place at night, is having.

## **2.2.4. Biological resources of economic importance**

### **2.2.4.1. Forests and Woodlands**

Forests and woodlands are critical for pastoralist range management, particularly during dry and drought time. Wood is the main source of household energy and construction materials for most people, and as a revenue source. Important tree based products include frankincense from *Boswellia* species growing in the north-east, *Commiphora* (where *C.myrrha* is the preferred species), which produces myrrh, in the south-west, Gum Arabic from *Acacia senegal*, and *Cordeauxia edulis* (now endangered) which produces yicib nuts in the central regions. In 1985 Somalia was the world's largest producer of myrrh (over 2,000 tonnes). Frankincense used to be Somalia's 4<sup>th</sup> largest foreign currency export earner with an annual production of 12,000 tonnes. Due to their value, *Boswellia sacra* (the preferred species) are highly prized trees with associated tenure and management systems. But their natural regeneration is threatened by over-grazing. Other tree based products of potential economic value include henna (*Lawsonia inermis*), various fruits (e.g. Tamarind), as well as many trees which produce important medicinal products.

There are a wide range of other natural resources which have local and subsistence use, e.g. wild tree fruits, foods and medicines (e.g. *Zizyphus mauritiana*, *Boscia coriacea*, *Cordia sinensis*, *Balanites spp.*, *Dobera glabra*) which are often of immense importance in the dry, drought and stress times. All these products are opportunities for processing and value adding, shortening market chains, and ensuring that the value is trapped locally. VETAID is working with ethno-veterinary medicines, and others are working with the processing and marketing of non wood tree products.

### **2.2.4.2. Rangelands**

The rangelands are dominated by annual (in the drier areas) and perennial (in the wetter hill areas and along some of the rivers) grasses and herbs. All these natural grass and herb species are natural and are the foundation for the livestock industry, and the basis for the Somali people's livelihoods, as well as being the dominant export. Very little grass planting takes place, except in some of the enclosures. What grass planting does take place is from locally available wild collected sources.

### **2.2.4.3. Wildlife**

The terrestrial wildlife (fauna) have been decimated for over 40 years, and there is little chance that they could be of economic importance, whether for hunting (as was the case in the past), or for tourism, in the foreseeable future, and certainly not in the next 5-10 years. It may be possible to start re-constituting the protected area system, but in a more functional manner linked to both biodiversity conservation and sustainable livelihoods, through for example community conserved areas. In the marine environment one community marine protected area has been declared – Gara'ad in Puntland.

### **2.2.4.4. Fisheries**

There are 15-20 fishing communities scattered along the central and south coastline, where artisanal fishing contributes about 60% of the total fish production in Somalia, though this does not include IUU fishing, for which there is little data. Somali people are not traditionally fishers, and do not eat much fish, though this is changing. Historically, only small coastal communities engaged in subsistence or artisanal marine fishing which has a long tradition, though this has been carried out at a low level and focused on a narrow band of species. As a result, Somalia has one of the lowest fish-per-capita consumption rates in the world (Van der Elst 1997), with only 2% of protein intake coming from fish (World Resources Institute 2003). Following the drought of 1973-1974 the Government resettled large numbers of nomadic herdsmen along the coast and trained them as fishermen (Nur 1998). The Somali National Development Plan of the time attached high priority to the fishery sector, aiming for an annual growth of 23%. Twenty-one fishing co-operatives were established and a large number of vessels purchased or donated through foreign assistance, with over US\$100 million being spent from 1987-1990 to assist with the development of the artisanal fishery. By 1984 it was estimated that one million people lived on the Somali coast, and 10% of them were directly or indirectly involved in artisanal fishing (Bihi 1984). Today, marine and coastal resources continue to underpin local economies, and near-shore fisheries target a few key species, e.g. lobster and shark, both of which are over-fished, but are important. The lobster fishery along the east coast has been subjected to heavy fishing pressures, a trend which looks likely to continue, as former closed seasons are no longer respected. Here responsible private sector involvement could ensure that the catch size

is respected, so as to support more sustainable use. Apparently this is starting to happen with the lobster fishery. While commercial fishing in the past focused on crustaceans and fish, artisanal fishing of sharks now centres mainly on the production of dried shark meat and fins for export, and local use of shark liver oil for the maintenance of *dhow*s. Both the artisanal fisheries, if managed on a sustainable basis, and the off-shore fishery, if properly regulated, offer a great economic potential in future.

#### **2.2.4.5. Herbal Medicines**

Like many other countries in the region, herbal remedies from plants, grasses, herbs and trees are likely to be an important component of people's healthcare, though there is very little factual information on this. Herbal based medicines are important at the family level, and there is likely to be a significant internal trade in medicinals at both the local and urban centres. However there is very little data on this trade in terms of types of species, scale, and markets, as it is a relatively "hidden" part of the rural economy.

### **2.3. The Socio-Economic Environment**

Somalia has an estimated population of almost 7.3 million people (2004, (World Bank 2006), based on projections from the last official census in 1975 (3.2 million people, (UN 2002)). However these estimates vary and could be between 6.8 and 8.8 million<sup>10</sup>. With an average population density of 14.9 people per square kilometer, this is a sparsely populated country, and 67% of the people live in rural areas (CIA 2005), while approximately 55% of the people live close to, or along the coast. About 55% of the population is pastoralists or agro-pastoralists, 24% crop farmers, 1% fishermen. Of the remainder of the population 21% are engaged in the service industry, and 12% in light industry (World Bank 2006). The current rate of population growth is estimated at 2.8% (World Bank 2006) for the period 1995-2000 (compared with 4.1% for the period 1975-1980), while some urban centres such as Mogadishu and Hargeisa are growing at a rate of 10% per year (UNDP 1998) due to the influx of refugees. Somalia has the third lowest Human Development Index (HDI) ranking in the world of 0.221 in 1996. Somali household income (\$226) is lower than the GNI of Kenya (\$350) and Tanzania (\$280), but higher than Eritrea (\$190) and Ethiopia (\$100 (World Bank 2006). The total cumulative external debt at the end of the 2004 stood at \$2,580 million (World Bank 2006). It is uncertain as to the impact that overall population growth has on the environment. However the growth of urban centres has placed significant pressures on the catchment area (for fuel, food, water, livestock etc.) of the different urban centres.

#### **2.3.1. Administration, Ethnic groups and population**

The Cushitic populations of the Somali coast in the Horn of Africa have a long history, and were known by ancient Arabs as the Berberi. By the 7<sup>th</sup> century A.D., these people mingled with Arab and Persian traders who had settled along the coast. This led to the emergence of a Somali culture bound by common traditions, a single language, the Islamic faith and a clan-based social and political system. The Somali people comprise of six major clans (Annex 3.14, and 4.10). Four of these are predominantly pastoral (*Dir*, *Daarood*, *Isaaq* and *Hawiye*), and represent about 70% of the population, while the remaining two (*Digil* and *Rahanwayn*) are agricultural and comprise about 20% of the population. While 85% of the population are Somali, the balance of 15% comprise people of Bantu and non-Somali origins (CIA 2005). The main religion of the country is Sunni Islam. The Country is divided into 18 regions (Annex 3.2.). Somaliland and Puntland have their own government, and Somaliland held democratic elections in 2005.

About 60% of all Somalis are nomadic or semi-nomadic pastoralists and Somalia is home to the greatest national proportion of pastoralists in Africa. Less than 25% of the population are settled farmers, most of who live in the fertile agricultural zone sandwiched between the country's two main rivers in the south. The remainder of the population is urban based in the main centres of Mogadishu, Hargeisa, Burco, Berbera, Bosasso, Garowe, Galkaiyo, Kismayu and Baidoa. A strict, and respected, lineage underpins Somali society with divisions defined along clan and sub-clan lines. Within each clan, there are many sub-clans and sub-sub clans (Annex 4.6. (UNDP 1998). In Somali "Xeer", the customary code reflecting trust, used to regulate relations between clans. This has been routinely violated in various conflicts, but can form a basis on which to rebuild trust in future.

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<sup>10</sup> <http://www.who.int/hac/crises/som/en>

Much of Somalia has been troubled by internal conflict since before the fall of the Barre regime in 1991, and has been without a functional internationally recognized government since then, as the country was divided by fiefdoms, although recent actions have been taken to try and restore overall law and order. A Somalia National Reconciliation Conference, hosted by the Government of Kenya in 2002 under the auspices of the Inter-governmental Authority for Development (IGAD), resulted in a 275 member parliament being selected. With greater peace and security in Somaliland and Puntland, government policies and laws have evolved and this has also helped sustain peace. Administratively Somalia is part of both IGAD and the Arab League.

### **2.3.2. Poverty**

Over 50% of the population live below the extreme poverty line of \$1 per day, and a total of 80% of the population live below \$2 per day (World Bank 2006). Poverty rates are higher in rural than urban areas, where the benefits of remittances are felt more. The high rates of poverty are attributed to a combination of past insecurity, drought and the high costs of imported foods. Income inequality is significant and the poorest 30% of population receive only 7.8% of the total income. This is attributed to the political and economic chaos of the past decades which provides significant benefits to those with power (World Bank 2006).

Living and working conditions have deteriorated and this has implications on the state of the country's environment, as people turned to natural resource exploitation for income and survival. Annex 4.7 highlights some causes of food insecurity in Somalia. This has enabled survival through stress and conflict times, but it has come at a cost to the environment, a cost that is exacerbated by the charcoal trade, clearing of rich patch land for irrigation and agriculture, and by private enclosures.

The overwhelming dependence on livestock became a national crisis in 2000 when Saudi Arabia placed a ban on livestock imports from Somalia over concern for Rift Valley Fever. According to a joint report from the Food Security Assessment Unit (FSAU) and the USAID Famine Early Warning System (FEWS), the ban caused substantial loss of income at the macro and household levels which in turn limited the purchase of many goods including medicines and accelerated the depletion of assets for many affected households in Somalia (UN-OCHA 2001).

The food security situation has been worsened by the civil war and statelessness, and recurrent droughts, as farmers have lost access to agricultural inputs and services formerly provided by the state. The private sector has responded to a degree, but the lack of regulation might have led to misuse, and poor quality control. While industry can provide an increasingly important contribution to economic growth, it will be, for the foreseeable future, second to pastoralism and agriculture.

### **2.3.3. Gender**

There is a dichotomy of gender roles among nomadic and semi-nomadic pastoralist communities. Women have been the backbone of Somali society doing much of the labour required for the survival of the Somali family in a harsh environment. The division of labour requires that women milk the animals, processes the milk, feed the family, and care for and watch over the livestock. Women collect firewood, cooks, feed the children, clean the house, and wash clothes and utensils. Women have responsibility for building and dismantling the nomadic *aqal* (home) as they move in search of grass and water for their livestock. It is their responsibility to weave mats and do all the work from building the home to making the smallest milk pot. Before they start moving, women check and count all the animals and collect the other artifacts and utensils. When they reach their destination, it is again the women's duty to provide the family with food and drink, to erect a home, check the animals, and release the livestock for grazing. On the other hand, men's household duty is to decide where to move, arrange additional transport from other families if they are short of camels, and build animal pens, as well as providing security (Ibrahim undated).

Traditionally, women played an important role in keeping the peace between clans in times of conflict. Somali women served as "sacrificial lambs" when they married clan member whom their father, brothers and uncles had been fighting against in the past.

Women had no formal role in the clan based political processes, despite their numerical superiority and their crucial role in the family. Nor are they often involved in decision making processes of government and public bodies, though they have ways of influencing decision making processes. In many cases they are absent from the main branches of government (or evolving government) and other administrative structures. In 1997 women demanded representation in the Hargeisa Reconciliation Conference. Though technically permissible under the *Beel* (clan) system, it had never

happened before. Now women are creating umbrella organizations to articulate and negotiate for their demands at a political level. **Nagaad** is one such umbrella organization with a mission to advance the social, political status of the Somaliland women, and plays a role in encouraging women to take a role in both decision making as well as environmental management<sup>11</sup>.

There are many women headed households in Somalia, and women engage in a lot of small scale enterprises, especially in the urban areas, where there is a great opportunity to support women owned livelihood initiatives. For example the Asli Grinding Mills in Hargeisa is women led, and started with 60 employees in 1998 and now has over 400 jobs by 2006. The industry depends on the collection of *henna* and *qasil* leaves. In 2005 they exported 6 tons of locally collected and processed henna (*Lawsonia inermis*) leaf powder to the Body Shop in the UK<sup>12</sup>.

### **2.3.4. Social Services**

#### **2.3.4.1. Water and Sanitation**

The Human Development Report for Somalia estimates that Somalia's annual renewable freshwater fell from 2,500m<sup>3</sup> per capita per annum in 1950, to 980m<sup>3</sup> in 1990, with a prediction of 363m<sup>3</sup> by 2025 (UNDP 2001). But this contrasts with World Bank data who suggest that there is approximately 1,685 cu.m. of water available per person per year, although the distribution is very skewed to the major river areas (World Bank 2006). Why this has happened is not certain, but is probably due to a combination of population pressures, the breakdown of usable water sources, and an increased incidence of drought. While the two perennial rivers are the main sources of water in the south, boreholes (e.g. for Hargeisa) and wells are common water sources but the actual underground water reserves are not well known. There is little available data on water availability, but UNDP suggest that maybe less than 5% of the total population have secure access to water (UNDP 1998), though this has probably improved since then. An estimated 31% of the population have access to safe drinking water in the north-west, while in the north-east and southern part of the country the figures are 19% and 20%, respectively (UNDP 1998). Overall only 20.5% of the population have access to safe drinking water (World Bank 2006), but this is skewed in favour of the urban areas (53%), while it is only 4% for the rural areas. OXFAM assessments suggest that many pastoralists are forced to exist on one twentieth of the daily water supply recommended by minimum humanitarian standards, equivalent to 830 ml per person per day for drinking, cooking and washing<sup>13</sup>.

The level of sanitation services reduced since before the civil war and the coverage has not increased since the early nineties. At present 49%<sup>14</sup> of the population have access to improved sanitation, whereas only 28% of the rural and nomadic population have access, while about 93% of the urban population have access (World Bank 2006). During the late dry season many wells become saline, and cause diarrhea and other water-borne diseases. Since less than half of the population have sanitation or waste management, the risks to human health from poor sanitation are real. Human and household waste disposal sites are generally too close to dwellings and water sources. The years of insecurity resulted in the near complete break down of waste disposal systems, and accumulations of waste pose health and environmental risks. There is also a lack of garbage collection and proliferation of plastic bags. Seepage from waste dumping sites is a potential contaminant of ground and surface water resources. Near human habitations, especially in Bosasso, Berbera and Sailac, solid waste is dumped onto the shore and into the sea, causing damage to coastal and marine life.

#### **2.3.4.2. Health Services**

Health indicators are among the worst in Africa, with maternal mortality rates estimated to be as high as 1,600 per 100,000 live births, while the infant mortality rates are 122 deaths per 1,000 live births, (Economic Commission for Africa 2000). Under 5 mortality is a staggering 224 per 1,000 births, and there are 11-16 maternal deaths per 1,000 births (World Bank 2006). Life expectancy is 47 years. Women in Somalia on average have 6 children during their life time (Population Reference Bureau 2005). The prevalence of under-nourishment was 67% in 1990-1992, compared to 75% for 1996-98 (Economic Commission for Africa 2000), but is still extraordinarily high.

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<sup>11</sup> Source: [www.nagaad.org](http://www.nagaad.org)

<sup>12</sup> Source : JNA draft cluster report on Livelihoods and Solutions for the Displaced.

<sup>13</sup> Source: [http://www.oxfam.lk/what\\_we\\_do/where\\_we\\_work/somalia/index.htm](http://www.oxfam.lk/what_we_do/where_we_work/somalia/index.htm)

<sup>14</sup> <http://www.who.int/hac/crises/som/en>



Immunization coverage for measles and the Diphtheria/pertusis/tetanus vaccine is 28% and 27% respectively for the population<sup>15</sup>. The common causes of mortality and morbidity are diarrhoeal diseases (including cholera), TB, malaria and measles. In 2002, UNAIDS estimated a 1% HIV prevalence among adults, with about 43,000 to 100,000 living with HIV/AIDS. Even before the conflict, Somalia was one of the poorest countries in the World with the Gross National Product per capita of US\$200, the fifth lowest in the World, though this does not take into account the value of remittances which is likely to be the highest contributor to GNP, while the HDI is 0.221, the third lowest in the world (World Bank 2006).

#### **2.3.4.3. Education**

Somalia education indicators and rankings are the lowest in Africa (World Bank 2006). There has been a steady decline in both the standard and provision of formal education services, though there are significant improvements in Somaliland. The Adult literacy rates are among the worst in the world (36% for men, and 14% for women), and average 17.1% (World Bank 2006). Between 1980 and 1999, the number of functioning primary schools fell from 1,407 to 651 and the number of pupils from 271,000 to 148,000 (UNDP 2004). In the north local communities and donors are collaborating to rehabilitate primary schools and 10 secondary schools have been re-opened. But the primary enrollment is still very low at 13.6% (World Bank 2006). Vocational and private schools are opening to cater for the short fall in formal education institutions, and Koranic schools have helped fill the gap.

#### **2.3.4.4. Infrastructure**

The effect of over 30 years of strife, drought and other natural disasters is reflected in the sorry state of the country's infrastructure and service systems. Though this has improved in Somaliland and Puntland, it means that the basic living conditions of the people are minimal and in a very poor state. Somalia's transportation hub is poorly developed and often in poor state of repair. At independence, Somalia inherited a poorly developed transportation system consisting of a few paved roads in the more populated areas in the south and north-west, four undeveloped ports equipped only with light facilities, and few usable airstrips. By 2001 all-weather roads connected most of the important towns and linked the northern and southern parts of the country, with 21,850 Km of road in total of which 2,800 Km are paved (World Bank 2006). Three ports have been improved, and 8 airports have paved runways. The deteriorating security situation in the early 1990s, however, put an end to further investments and necessary maintenance.

#### **2.3.5. Productive Sector**

The mainstay of the economy has long been pastoralism (50% of the population) and crop production. This broad agricultural sector (livestock and cultivation based) generated 66% of GDP in the second half of the 1980's, whereas manufacturing was only 5%. During the second half of the 1980's, livestock and livestock products accounted for 51% of the agricultural value added (\$528 million), and crops 38% (\$393 million), forestry 9.5% (\$95.5 million), and fisheries less than 1% (\$10 million (World Bank 2006). Since then, the livestock sector has become relatively more important, as the crop value declined considerably as irrigation areas were abandoned.

##### **2.3.5.1. Crop production**

There has been a steady decline in per capita food production. Food aid constituted 20% of all food imports from 1970 to 1974 and 5% from 1980 to 1984. The difference between food produced and total food consumption (the 'food gap') changed from a surplus of 5% in the former period to a deficit exceeding 30% in the latter. This decline in food self-sufficiency occurred between 1960 and 1990 despite massive international investments in the rural sector. Among the reasons for this decline were:

- Rapid population growth, outstripping increases in food production in the 1980s;
- Rapid urbanization, which places a growing percentage of the population out of pastoral or agricultural food production;
- Changes in food consumption habits among urbanized Somalis who prefer wheat, rice and pasta over locally grown maize and sorghum;
- Inappropriate government policies and price controls in the 1970s which created disincentives for farmers to produce grain crops;

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<sup>15</sup> <http://www.internal-displacement.org/idmc/website/countries.nsf>

- Unintended impacts of large-scale annual and often poorly timed delivery of food aid, which depresses prices and drives farmers out of agriculture; and
- Alienation of portions of the country's most fertile irrigable land for cash cropping of bananas for export rather than grain.

Agriculture remains the second most important production system in Somalia. In the past, agriculture contributed up to 19% of GDP and accounted for some 20% of employment (IUCN 1997a). Southern Somalia's alluvial plains are the country's most fertile soils and, together with the inter-riverine area of Bay, used to account for almost 90% of agricultural production. But yields and areas under cultivation declined due to insecurity, while the livestock sector was not so badly affected (World Bank 2006). About 2% of the total land cover is deemed as arable land, and of this 18.7% is appropriate for irrigated agriculture (IUCN 1997a). Maize and sorghum are the main rain fed crops grown in areas with rainfall above 450mm per annum, with cow peas in the drier areas. Poor management practices on rain fed cropped and fallowed land is leading to lower levels of soil fertility and soil erosion which, in turn, translates into lower productivity and increased hardship for people living in such areas. Cultivation is an attractive option for development, improving livelihoods and rural economic growth, as a result rain-fed agriculture is being found in more and more risk prone areas. As an opportunistic production system to produce a harvest if the rains are good, or extra forage if the rains are poor, this can be acceptable. But if the livelihoods depend on the crops, then this is a risky strategy. Expanding rain-fed cultivation can remove valuable, often dry season grazing and browsing resources from the much larger pastoral land use system, and put the overall land use system at much greater risk.

### 2.3.5.2. Livestock Production

Pastoralism and livestock keeping are the mainstay of peoples' livelihoods and security, both in terms of daily subsistence and as the main source of export earnings. Goats and sheep are the most numerous (14 million in 1997 compared with 35 million in 1988), while more than 5 million cattle and 6 million camels are kept (UN 1998). The Somali pastoralists are knowledgeable land and resource managers with detailed time tested knowledge about the importance of their natural resources. Knowledge is general, and gender specific depending on the roles of men and women in land use. This is complemented by the many Somali customary institutions which are the basis for the

management of their lands and lives. Such institutions are the social foundations for sound land use planning in the country. For example different clans have put in place resource sharing techniques for both fodder and water. During periods of drought, competition increases and conflicts may arise. However Somalis were very competent in using traditional conflict resolution techniques.

Livestock will continue to be the mainstay of livelihood strategies in Somalia. Pastoralism has proved to be the best way for rural people to secure their livelihoods while maintaining fragile arid and semi-arid ecosystems which ensures that biodiversity and natural resource use is both sustainable and integrated into land use planning and development. Access to, and use of Somalia's wet and dry season rangeland areas are key to the success (or not) of pastoralism. The Keyn forest in Somaliland illustrates this well (Box 1, (Barrow et al. 2002; Barrow 1998).

#### Box 2: The Keyn Forest of Qalloa, Somaliland

The Keyn forest is an area of rich patch woodland vegetation of about 18 Km<sup>2</sup> lying between three villages - Qalloa, Idhan and Admaddoori in Somaliland. Important trees in the Keyn forest include *Acacia bussei*, *Acacia senegal*, *Acacia tortilis*, *Acacia zanzibarica*, and *Balanites aegyptiaca*. During colonial times and previous Somali governments, the Keyn forest was a communal natural resource, where tree cutting was prohibited. During the Somali Civil war, neighbouring farmers invaded the forest area to clear it for agriculture. When peace returned, the people re-organized themselves to resume the management of the forest. Thirty-one members were elected from the three villages to constitute a voluntary committee to agree on rules and regulations for the area. New farms which had been cleared in the forest were destroyed, and settlements were pushed back to a previous demarcation line of the colonial era. The Keyn forest is divided into three equal areas, and each zone is assigned to one of the neighbouring villages to manage and conserve. The committee is responsible for forestry issues, and has the power to ensure that the use of the forest by pastoralists from other areas is carried out in a sustainable manner. They can restrict or stop access if they think that the seasonal grass is not enough for their own livestock.

Isolation, remoteness and a past history of civil strife has created the impetus and need for the three villages to take greater control over such key resources as this Keyn forest. Institutional mechanisms have been developed because of the importance of the resource to the people's livelihoods.

Source: (Barrow et al. 2002; Barrow 1998)

Compared with other nomadic livestock systems, that of Somalia is market-oriented. Approximately 2.5 million animals are exported each year with livestock exports (including raw hides and skins) representing about 40% of GDP and 65% of foreign currency earnings (CIA 2005). Livestock exports from Somaliland in 1997 amounted to US\$121 million. Livestock exports, especially sheep, increase sharply during January and February, which coincides approximately with the Haj (USAID/FEWS 2003). This places temporal stress on localized grazing and watering points near main ports, as well as fuelling conflict over access rights to forage. Perturbed by the export bans placed on Somalia, the export of live and slaughtered animals is also hampered by the collapse of the public veterinary system and the lack of an animal health surveillance system in particular. Since the Saudi ban, the sector has been badly affected, and black markets flourish with the greatest importers being Yemen and the Arab Emirates.

### **2.3.5.3. Fisheries**

Fishing along the rich 1,300 Km coastline of Puntland is ranked as the second largest source of income for the region, but is significantly less than the potential yield (World Bank 2006). The fishing accounts for less than 1% of the agricultural value added (\$10 million, (World Bank 2006), though the IUU fishery is reported to be worth at least \$90 million per annum.

### **2.3.5.4. Manufacturing, Trade, and Industry**

The lucrative charcoal trade raises many concerns for the country's remaining forests. It is estimated that 30,000 tons of charcoal were being exported to the Arabian Peninsula, particularly the United Arab Emirates. Many species are felled to produce charcoal but *Acacia bussei*, a slow-growing hardwood is the preferred species. Usually a scattered species, it was formerly found growing in high densities in the plateau areas of Sanaag, Sool, Bari, Togdheer, Galbeed, Bay and Bakool – all regions where charcoal production was very high. Much has been written on the charcoal problem (Bird & Shepherd 1989; IUCN 1997b, 1999a, b; NOVIB 2004). At one level, charcoal is a necessity as an energy source, particularly for urban areas, while fuelwood is the rural energy source of choice.

In the period 1980-1984 charcoal consumption in Mogadishu alone was thought to range from 32,000 tonnes to 45,000 tonnes per annum, while consumption for the remainder of the country was estimated at 30,000-35,000 tonnes. Estimated annual inflow of charcoal to Hargeisa was 65,000 tonnes in 1999, with per capita charcoal consumption estimated at 206kg per annum, and a mean daily household consumption rate of 4.2kg (Oduori et al. 2006). This represents over 1.6 million trees (or about 4,000Ha). All charcoal consumed in Mogadishu and other main urban centres comes from sources several hundreds of kilometers away, as all sources closer had long been depleted (Bird & Shepherd 1989). Charcoal production and trade are of particular concern in the areas around Hargeisa and major towns in the north which used to take their charcoal from as far away as the Sool Plateau (Oduori et al. 2006), while most of the charcoal that supplies Mogadishu comes from the plains to the south of the city (Bird & Shepherd 1989).

Somalia's small industrial sector, based on the processing of agricultural and natural products, has largely been looted. Livestock, hides (some of which are processed as tanned leather), and charcoal used to be Somalia's principal exports. While sorghum and some maize is grown, various grain products (flour, pasta, rice) are imported along with sugar and other processed and machined products.. In general detailed economic data is scarce and not reliable except at the very general level for the manufacturing and industrial sectors.

Despite the conflict in many areas, Somalia's service sector has managed to survive and grow. Telecommunication firms provide wireless services in most major cities and offer the lowest international call rates on the continent. While the livestock and agricultural sectors are the main economic base in Somalia, it is clear that remittances from the Somalia diaspora are a hugely important income source, especially in Somaliland and Puntland where there is a greater history of movement. While figures are very difficult to find, it has been suggested that between \$200 million and \$500 million are remitted annually (CIA 2005), though others state that this may be between \$800 and \$1,000 million per annum, which is about \$113 per capita or about 60% of current GNP and about four times the total exports from the country (World Bank 2006). In the absence of a formal banking sector, money exchange services have emerged, which handle all these funds. Table 3 provides an indication (though subject to a wide margin of error) of exports based on natural products.

Consumption of *Khat* (*Catha edulis* – a plant with mild narcotic properties grown in the highlands of Ethiopia and Kenya) is nearly ‘unique’ to Somali culture, though also important in the Yemen, and most of the *khat* comes from either Ethiopia or Kenya, with some grown locally. It is extensively used and some people estimate that Somali adults in Hargeisa use up to \$5 of *khat* per day. Whatever the true value of the *khat* consumption in Somalia, it is very large and pervades society, and has a big impact on how cash is used, together with productivity as many people spend lengthy periods of time chewing *khat*. Recorded *khat* imports in 2003 were \$30 million, those this is likely to be an underestimate due to unrecorded imports and local production (World Bank 2006).

**Table 3: Somalia – Top Merchandise Export**

Natural Product	2000	2001	2002	2003
(US\$ millions)				
Live sheep and goats	55.2	5.7	28.4	27.5
Charcoal and fuelwood	10.8	12.3	6.7	8.3
Fish, crustaceans, mollusks	0.9	4.6	2.1	8.2
Hides and skins	4.5	6.1	5.6	5.4
Cattle (live)	16.2	2.5	5.3	8.2
Meat	2.2	0.7	0.04	0.01
Processed fish	0.5	3.0	0.5	1.6
Shellac, gums, resins	0.6	1.6	0.1	1.8
Milk products	0.05	0.3	n.a.	0.7
Live animals (including for zoos)	6.8	0.01	0.1	0.1
Chemical wood pulp	n.a.	3.9	19.7	4.7

Source: (World Bank 2006): Note: this data is subject to a wide margin of error and includes re-exports. In 2001 the livestock trade was hit hard by the export ban.

The charcoal industry reflects both the promise of the private sector in terms of being able to engage, organize and make it run reasonably efficiently (including international trade), and the failures of the private sector where short term profit taking are more important than longer term sustainable use. Many suggest that Somalia’s road to recovery is through both the private sector and through decentralized land use governance and management. But that has to be balanced with a practical and implementable ethos of sustainability, which is where the role of policy and legislation is important combined with ‘local ownership’ of both the process and management.

### 2.3.6. Tourism

Tourism is not likely to become a significant industry the foreseeable future. The reality is that there is little competitive potential for tourism in Somalia, except perhaps along the coral reefs of the coast, and the mist forests of the north. Tourism can only develop where there has been demonstrated peace. If tourism does develop it is likely to be relatively low level and eco-tourism in nature.

### 2.3.7. Energy and Emission

Somalia has long relied on fuel wood and charcoal, and imported petroleum to meet its energy needs. Throughout the country, there were about 80 ‘state owned’ oil-fired thermal and diesel power plants, which rely on petroleum. Now power generation is decentralized and private sector based. There is little or no data on emissions but given population densities and power use they are assumed to be small, and under 1 ton of Carbon Dioxide per person per year (World Bank 2005). In 1995 a total of 3,085 thousand tons of non CO<sub>2</sub> air pollutants (Sulfur Dioxide, Nitrogen Oxide, Carbon Monoxide etc.) were emitted, or 0.25% of the global emissions<sup>16</sup>.

Charcoal plays an important role in both the energy sectors and economies of Somalia, and provides a considerable amount of employment in rural areas but the scale has escalated to such an extent that environmental degradation has been reported from most parts of the country (NOVIB 2004), though this is difficult to validate at a national level. While fuelwood and charcoal are the main energy sources for most rural and urban dwellers, it is the foreign demand that drives the scale of charcoal production today in Somalia. A prohibition was passed in 1969 preventing the export of charcoal and firewood. In 1993, however, export oriented charcoal production restarted in the Bari and Sarang regions (at least) to the United Arab Emirates. In recent years, there has been a rapid expansion in charcoal production, much of which is destined for export to Saudi Arabia, Yemen and the United

<sup>16</sup> Source: <http://earthtrends.wri.org>

Arab Emirates all of whom have their own respective national bans on deforestation. Despite a 2001 ban being placed on charcoal export from Somalia, trade in this “black gold” may represent one of Somalia’s largest exports (Agrosphere 2004; IUCN 1997b, 1999b).

Charcoal will continue, at least for the foreseeable future, to be the main form of energy, especially for urban areas, as it is easier to transport and burns more efficiently than fuel wood. Annex 4.10 suggests some practical approaches to the sustainable management of trees for charcoal production. In urban areas there is greater scope for alternatives (e.g. solar cookers), and greater efficiency (e.g. improved stoves).

### **2.3.8. Cultural values**

Cultural values, knowledge and institutional systems play a fundamental role in Somali society, and are at the heart of Somali pastoralism. While many cultural values have a strong and positive role to play, others maybe more problematic for instance the lack of equity in the role of women and circumcision practices. Cultural values are strongest where traditional knowledge is detailed and long term, for example with respect to pastoralist production and nature resource use. In other areas where there is little or no traditional knowledge, for example the artisanal fishery, cultural values are weak to non-existent. In terms of environmental management, cultural values and traditional knowledge provide a sound foundation on which to base sustainable development and improved land use.

Cultural values have been both a basis for conflict (clan strife), and a means for resolving conflict (including natural resource conflict) through the variety of customary institutions that exist. The Somali clan system and its institutions is both the key cultural value in terms of land use and natural resource management for, e.g. pastoralist grazing and water management, and for managing natural resource based conflicts, e.g. access to water and critical grazing areas. At the same time the Somali clan system has been the basis for much conflict and loss of life!

### **2.3.9. Resource Tenure**

Land ownership and disputes are underlying causes to much of the conflict in contemporary Somalia. During the rule of the last regime (1969-1991), the Government increased its control over land previously owned collectively by rural communities (Gunn 1990). Sections of the 1973 Unified Civil Code abolished traditional clan and lineage rights of use and access over land and water resources (Hooglund 1993). The 1975 Land Law nationalized all land (Unruh 1995). This required mandatory land registration which traditional landholders resisted or were unable to fulfill, for example, by not having enough money to travel to Mogadishu to register their claims and pay the required fees.

As the state authorities lacked capacity to manage and control the nationalized land, land effectively became “no-man’s land”, with open access to its use or misuse. In a “free for all” system (Hardin’s ‘Tragedy of the Commons’ (Hardin 1968), customary institutions can no longer effectively manage such commons. An epidemic of land grabbing began in the 1980s with well placed civilians, civil servants and government officials registering large tracts of land in their names, even though such land might have been under the management of local communities for generations (Annex 4.8. (UNDP 1998). As a result, many of Somalia’s smallholders were transformed from subsistence farmers to landless or semi-landless sharecroppers and rural wage earners. The civil war and state collapse accelerated the struggle for land, replacing land deeds with semi-automatic weapons as the means for appropriation. In parts of the riverine zones, smallholder farmers were subjected to coerced sharecropping by militia overlords. The militia maybe used by powerful landowners to force villages to supply labour. On abandoned state farms, newcomers staked claims to plots without regard to the fact that the land had been expropriated from villagers. Clans that were more powerful also pushed their herds into pasture land of weaker groups, grazing their livestock on villagers’ ripening crops.

With increased urbanization the need to agree on rights to land is critical, as land is becoming a premium commodity, where the poor and less powerful are forced out. This is compounded by the influx of returnees mainly to urban centres. Security of rights to land is key to improved and more productive land use and sustainable natural resource management, and such rights may be individual, common property regimes, or a combination. VETAID and PENHA collaborated on the production of a draft land tenure document for Somaliland (VETAID 2005). This was developed as a participatory process involving many different people and represents a good start to the improvement of land administration.

While Somalia has an EEZ on paper, it is not able to enforce that zone in reality, as the IUU fishing trade demonstrates. There do not appear to be any traditional, individual, or community rights to areas of the sea, for example for artisanal fishing purposes.

### **2.3.10. Displacement, migration, and urbanization**

The Ogaden war of 1977-1978 provoked a massive refugee movement, forcing Somalis from the Ethiopian Ogaden region into Somalia. By 1981, refugees constituted up to 40% of the population of Somalia (Gundel 2002). The civil war (1988) caused further mass population movement, with more than 600,000 people fleeing to Ethiopia. Further escalation of the conflict caused a refugee flow of more than one million people from southern Somalia to neighbouring and distant countries. Refugees continued to leave southern Somalia in large numbers until 1995. Since then there has been a gradual process of repatriation and re-integration, with people resettling in Somaliland and Puntland in particular. By 2004, UNHCR had recorded the voluntary repatriation of some 476,000 refugees (UNHCR 2005). At the same time, a quarter of a million Somali refugees remain in camps in Kenya, Ethiopia, Djibouti, Yemen and other countries. Hundreds of thousands of other Somali refugees are scattered across the globe.

There are a large number of internally displaced people, particularly from central and southern Somali between 1991 and 1993, due to war, but also because of drought and food scarcity. By 1992 there were estimated to be between 556,000 and 636,000 displaced people in camps, of whom 50% were in Mogadishu. The overall trend since 1993 has been one of diminishing internal displacement. Now the vagaries of climate and economic hardship are the main causes of population movement. In 2000, there were estimated to be 300,000 internally displaced people, and such people account for more than 60% of those Somalis considered to be 'food insecure' (Gundel 2002).

Many of the ecosystems and natural resources have been impacted by civil conflict, but accessing and using these natural resources has been, and continues to be a direct source of conflict itself. This is due to overgrazing, strong demands for livestock, and exacerbated by poor and unpredictable rainfall. Limited access to resources such as water and grazing, especially for dry and drought times, as a result of the country's internal conflicts, coupled with rifts between different clans has fuelled internal conflict over access to, and the use of certain resources. There were traditional mechanisms and institutions for negotiating and resolving such conflict, but many of these have broken down due to the civil war and continued insecurity.

The civil strife and insecurity are one root cause for many of the environmental problems faced today with respect to the charcoal trade, expropriation of land, breakdown of social institutions responsible for land management, illegal fishing and waste dumping for example. To what extent such problems are a direct result of civil strife, or are attributable to, for example the lack of regulation, policies and institutions and means to sanction is difficult to differentiate. What is clear is that a lack of security exacerbates problems related to lack of regulation, weak policies and weak institutions.

### **2.3.11. Some Lessons from Post Conflict Situations - Afghanistan<sup>17</sup>**

Afghanistan's natural and human resources were greatly impacted by the combined pressures of warfare, civil disorder, lack of governance and drought. The people of Afghanistan, similar to the Somali people, depend on their land and natural resources for their livelihoods, which are vulnerable to natural disasters and food shortages. One of the major environmental issues that Afghanistan is currently facing is waste management (UNEP 2003). Although the country needs to develop a comprehensive set of waste management policies, it has undertaken recycling and composting measures, supported by UN-Habitat. Efforts are being made to recycle plastics, cans, clothes and paper, while composting will be introduced to provide fertilizer for farmers. Well-maintained septic tanks have provided a valuable short-term solution to severe sanitation problems. Somalia could put in place such measures in both the short and intermediate terms.

Afghanistan has faced similar problems in water supply and management as Somalia. Both countries lack sufficient hydrological and geologic understanding, combined with weak monitoring of supply and quality. WHO is working with the Ministry of Public Health in Afghanistan to improve water testing and monitoring capacities.

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<sup>17</sup> Source: (UNEP 2003)

Somalia depends on the rivers Shabelle and Jubba, whose sources are in Ethiopia, and a greater regional understanding of the two river catchments is required, so that the water needs of Ethiopia and Somalia can be rationalized. In a similar manner, Afghanistan has had water conflicts with Iran over a shared water ecosystem, and is currently undertaking high level discussions to resolve the dispute. Similar discussions and negotiations need to be undertaken between Somalia and Ethiopia to ensure cooperation in water management in future.

The collapse of the central government in Afghanistan resulted in a decrease in forest cover due to local fuel consumption and export. The Ministry of Agriculture and Animal Husbandry has proposed to establish a “Green Force” to prevent illegal timber harvesting. In conjunction with the US Government, the Afghanistan Transitional Authority has proposed to have an Afghan Conservation Corps which will be tasked to undertake nationwide re-forestation programmes (UNEP 2003). Some of these lessons could be adapted for Somalia. The government of Afghanistan has identified a strong role for local-level and community based environmental management. Furthermore the country lacks an EIA/SEA legal framework, similar to Somalia. The Afghanistan transitional authority has expressed interest in mainstreaming an inter-ministerial EIA task force which will develop a process for future reconstruction and development projects, an approach that could be considered by the Somalia Administrations.

The UNEP Post Conflict Environmental Assessment of Afghanistan (UNEP 2003) recommends that, as Afghanistan develops an environmental framework law, all sectoral ministries with environmental responsibilities as well as the public should be consulted. A participatory decision making process in natural resources management should be developed as well as employing economic incentives to encourage compliance. The report also recommends that the coordination of environmental monitoring should be the role of a central point, with actual data collection remaining as the responsibility of multiple ministries.

### **2.3.12. Human Vulnerability to Natural Disasters**

Somalia is no stranger to disasters, the most recent being the Tsunami event in December 2004 impacted on the Puntland coast around the Horn of Africa between Xaafun (in Bari region) and Garacad (Mudung region), and to some extent down the Indian Ocean coastline. Impacts included the death of approximately 300 people, loss or damage of boats and fishing gear, and houses, and salinization and pollution of freshwater supplies (UNEP 2005a, b). Eighteen thousand households were said to be affected (approximately 44,000 people), though FSAU state it was only 5,000 households. UNEP conducted a desk study in 2005 to identify both its impacts on the natural resources as well as possible environmental impacts which might pose a threat to human health and livelihoods (UNEP 2005a, b). Findings indicate that due to the lack of sufficient existing data, it is difficult to accurately analyze the effects of the Tsunami on natural resources. The UNEP study states that baseline surveys of the existing natural resources are needed, as well as assessments and mitigation measures to ensure sustainable management. Some of the identified natural resources that require detailed impact and risk analysis include mangroves, coastal vegetation and coral reefs. Furthermore, findings on the surface and groundwater sources indicate that many wells in coastal areas have been clogged, or buried by sand washed in by the tsunami waves, resulting in brackish and polluted water (UNEP 2005a, b). Seawater may have invaded porous rocks, and contaminated underground water and the long-term effects of this on drainage and water systems are still unknown. The Tsunami event brought in a lot of aid, however it is difficult to assess the impact of this support. As the tsunami came at a time when many parts of the country were recovering from 4 years of drought, the impact of the tsunami exacerbated problems of an already vulnerable population.

Droughts and floods, the effects of the Tsunami notwithstanding, are the main hazards in Somalia. Between 1961-2004, 18 floods were recorded in Somalia, killing 2,671 people and directly affecting the lives of almost 1.8 million others. In the same period, Somalia experienced 12 droughts which killed 19,671 people and affected almost four million people (Table 4). Drought is the most devastating and recurrent natural disaster to affect Somalia. Severe droughts interrupted by devastating floods occur frequently and result in large-scale starvation, and the death of thousands of people and livestock. As recently as March 2004, an estimated 200,000 pastoralists in the northern and central regions were threatened by drought, considered to be the worst in 30 years. By mid-2005, the UN reported that 500,000 people remain in a state of humanitarian emergency in drought-affected areas. Despite the good *deyr* rains of 2004-2005, which improved water availability and pasture, recovery was slow as pastoralists have been unable to fully benefit from the improved conditions due

to reduced herd sizes, excessive debts and widespread destitution. Recovery is also hampered by recurrent instability which limits access to markets, grazing and other resources. VETAID note that “frequent droughts, which have more recently been recurring in short cycles in the Horn of Africa, have weakened the resilience developed by pastoralists to shocks over many generations”<sup>18</sup>.

**Table 4 Top 10 Natural Disasters in Somalia**

Disaster	Date	Killed	Disaster	Date	Affected
Drought	1974	19,000	Flood	Oct-1997	1,230,000
Flood	Oct-1997	2,311	Drought	Jun-2001	1,100,000
Epidemic	Jan-1986	1,307	Drought	Dec-1964	700,000
Epidemic	Mar-1985	1,262	Drought	Jan-2000	650,000
Drought	1987	600	Drought	1987	500,000
Epidemic	Oct-1997	500	Drought	Dec-2001	500,000
Epidemic	Apr-2000	390	Famine	Mar-1999	375,000
Wave / Surge	Dec-2004	298	Drought	1974	230,000
Epidemic	Feb-1998	248	Flood	Jul-2000	220,000
Flood	Nov-1961	200	Drought	2004	200,000

Source: (OFDA-CRED 2005)

Somali people had well developed drought coping mechanisms and risk management strategies. Many of the coping strategies broke down due to lost access to riverine forest areas, removal of trees for charcoal, and a relative under-emphasis by development partners in pastoralism. There are exceptions, for example the provision of para-veterinary services, integration of pastoralist issues into environmental management, which is supported by the EC and others. Yet pastoralism and sustainable natural resource management (including the economic value of many natural products) will continue to be the main basis for livelihood security in the country. But externalities can severely impact on this, as the effects of the livestock export ban to the Gulf States has demonstrated, which resulted in an increase in the charcoal trade to meet subsistence needs in certain areas, while new way ways of marketing livestock were found through the Gulf countries.

Drought and contingency planning and early warning systems will be a central strategy for the long term sustainable use of the environment and natural resource base, and as a basis to be able to manage for, and adapt to climate change. This is a point supported by the World Bank who stress the importance of making long term strategic investments in drought mitigation and ensure sound cross sectoral coordination (Esikuri E.E. 2005). With the exception of early warning systems in place (FEWS, FSAU), there appears to be little integration of the necessity of risk management and adaptive strategies in both the short and long term development strategies. FEWS and local risk management and adaptation strategies need to be well integrated at a donor and functional levels. Drought does not just affect the livestock and natural resource base; it affects the very core of the social fabric of Somalia, and affects all aspects of livelihoods – health, water, education, food production, economic base, and security for example.

### **2.3.13. Security issues**

Another relic – but dangerous one – from the wars is land mines. The actual numbers of landmines deployed in Somaliland is quoted as between 1-2 million, although it maybe as low as 50-100,000, and for Puntland 25-50,000 (UNICEF 2000). In addition, during the Ogaden conflict, the Government of Somalia laid large numbers of mines along the Somali-Ethiopia border, many of which are still intact. There were for different objectives. The land mines along the Somali/Ethiopia border were laid to deter the Ethiopian army at the time, and those laid inland to deter hostile clans. There are no formal estimates for the south and central regions due to ongoing conflict. In addition, there are large numbers of Unexploded Ordinances (UXOs), which pose dangers due to surface contamination.

In Somaliland, the UNICEF contamination assessment undertaken in 2000 (UNICEF 2000), indicates that anti-personal mines outweigh anti-tank mines, and are a great threat to farmers, pastoralists and nomads, though overall accident rates are low. The UNDP-Somali Mine Action Centre in Somaliland and Puntland has conducted baseline surveys, impact assessments, mine awareness, and mine clearing, much of which was funded by the EC. The impacts are limited and confined largely to loss

<sup>18</sup> Source: <http://www.vetaid.org/somalia>



of livestock, and some limited reports of inability to be able to use some land (especially border pasture) and roads. But it is important to enhance awareness to include the need for proper landmine and UXO contamination surveying and impact mapping.

There has been progress on mine clearing through the Mine Action Centres in Somaliland and Puntland where over 1.3 million square metres of land have been cleared and handed back to local communities for productive use (UNDP Somalia 2006). Significant amounts of UXOs have been destroyed in Hargeisa and Berbera. The destruction of UXOs and land mines has been combined with capacity building, awareness raising and the establishment of the Information System for Mine Action (UNDP Somalia 2006).

Water scarcity, combined with access to critical areas of vegetation are a traditional source of social conflict in Somalia, for example when local supplies diminish, particularly during dry and drought periods, pastoralists negotiate for water access. But water scarcity can be exacerbated, when people move into an area and place an added pressure on an already scarce resource. This might follow the displacement of pastoralists by cultivators (or vice versa), or the return of refugees or internally displaced peoples.

The protracted civil strife in Somalia has disrupted all aspects of the fishing industry. The capacity to control foreign incursions into the EEZ does not exist. In the fisheries sector the absence of effective policy, access arrangements, operational management procedures and biological reference points for monitoring has resulted in serious overexploitation of certain species (e.g. tuna and lobster). Hundreds of fishing vessels from a variety of nations ply the waters off Somalia, most operating without any licensing. Some of these vessels have attacked local Somali fishermen and destroyed their boats and equipment. Illegal fishing by foreign interests represents a loss of much needed revenue for the Somalia Administrations.

#### **2.3.14. Dumping of Waste**

The world's main transport route for oil passes through the Gulf of Aden – 590 million tons of oil a year. The frequency of tanker movements poses a constant threat of oil spillage (UNEP 1987). Somalia has no capacity to deal with oil pollution, which is a concern given the volume of traffic and ecological importance of the area (UNEP 2005b). Technology and capability for cleaning up spills is lacking (World Bank Undated). The closest available equipment is in Djibouti (UNCTAD 1998). The absence of surveillance means that tankers routinely discharge oily ballast off the Somali coastline, and annual discharges were once estimated at 33,000 tonnes (UNEP 1982). Tar balls are regularly found along the Gulf of Aden part of the Somalia coastline. Sewage and discharge of solid wastes from marine vessels is also unregulated.

The tsunami highlighted the possible existence of hazardous and other waste, which the tsunami washed up – particularly on the beaches around the Hobyo (south Mudug) and Warsheik (north of Benadir) areas, close to the tip of the Horn (UNEP 2005a). Apparently toxic waste dumping has been occurring since the break-down of government. It would seem that the international community (or part of) has used the Somalia conflicts, lack of security and enforcement as a window for lawlessness with respect to IUU fishing by the international fleet, as well as a dumping ground for the discharge of oil ballast, and often toxic waste. Since 1998 the Indian ocean has experienced frequent cyclones and heavy waves, which has impacted the exposed beaches of Somalia (UNEP 2005a). While the actual events may be short term, such events, as the tsunami, may further expose the effects of illegal waste dumping and its potential impacts on the health of both the people of the area and its environment, and pose serious environmental hazards in future (UNEP 2005a). That such dumping occurs is not open to question, however the scale and sources are difficult to validate. This started in the 1980's and has only reduced in amount in the recent past. The issue of dumping waste in Somalia has both legal and moral questions, as the dumping violates international treaties in the export of hazardous waste. Then it is ethically questionable as to whether any nation should dump waste in the midst of a protracted civil war and factionalized government, as there was clearly no legal or waste management system to oversee such dumping.

There have been localized reports on toxic waste spills in specific areas in Somalia. Most recently, KEPHIS (Kenya Plant and Health Inspectorate Division) with financial support from UNDP undertook a study to assess a deserted pesticide storage area in the Ayaha Valley, 5 km south of the

Hargeisa<sup>19</sup>. This site was used by the Desert Locust Control Organization (DLCO), and was abandoned in 1991 after the collapse of the Central Government. A significant amount of pesticides including aldrin, dieldrin, hexachlorocyclohexane and fenitrothion were stored. This study indicated that there are high concentrations of organochlorine pesticides in the soil, which are persistent chemicals capable of being in the environment for a long time and can cause acute chronic diseases which can damage the nervous system in people. They recommended that no people should live in the area. WHO undertook a study to establish the reasons for the high prevalence of maternal related health problems in the area, but the results have yet to be published (World Bank 2006). Considering the size of the country, the present lack of manufacturing activities, and the population levels, hazardous waste probably has little or no impact at a national level, but it may be locally very important (e.g. the Ayaha valley). There is a risk of dumping, especially in the river systems, but there is no evidence of this.

### **2.3.15. Environmental Trends**

Insecurity and strife mean that environmental issues are ignored and subsumed into life survival strategies. Yet because of civil strife, and because of the importance of the environment to people, people, especially pastoralists, were able to survive such times of hardship. This further demonstrates the centrality of environmental goods and services as the livelihood basis. Unfortunately a combination of sectoral emphasis by development agencies and the past and present government structures where there was a relative lack of acknowledgment of the importance of the environment, has laid the basis for the degradation that is the reality now. Many of these problems stem from or have been aggravated by the prolonged civil strife which Somalia continues to experience on some of its territory, and known issues of particular concern are

- An almost complete breakdown of legislative and traditional controls governing use and access to natural resources;
- Deforestation near, but no longer exclusive to, populated areas;
- Over fishing of selectively targeted offshore and near shore marine species, though illegal fishing does not necessarily imply over-fishing;
- Desertification and soil erosion, inadequate water supplies and periodic drought, an inadequate and dysfunctional system of protected areas;
- An urban environment in disarray, and the effects of political and economic mismanagement of land tenure; and
- The challenges of a rapidly increasing population (especially in urban areas), increasing frequency of droughts (due to climate change), and the increasing impact of economic activities on the environment.

While the environmental trends appear to spell “doom and gloom”, there are real opportunities for reversing these trends such as

- There is a strong sense of awareness of the importance of the environment especially by pastoralists who are the dominant land users, though this has been impacted on by the spread of other forms of land use, for example rain-fed and irrigated agriculture, ill-planned water development and the charcoal trade;
- There is a strong body of customary knowledge and management institutions relating to the environment, again mainly pastoralist based;
- There is an increased recognition by all development partners of the importance of environmental goods and services; and
- There are opportunities to demonstrate the importance of environmental goods and services economically in terms of the MDGs and poverty reduction strategies.

### **2.4. Key Environmental Issues**

There are many issues relating to the environment, underlying the centrality of the environment to life in Somalia. Many of these issues relate to problems of degradation, over use of natural resources, and illegal use. Yet there are many opportunities to short and long term resolution of environmental issue. We highlight some of these key issues, with more sectoral detail in the sections that follow. The

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<sup>19</sup> Source : <http://www.reliefweb.org/rw/rwb.nsf/db900SID>

following seven broad issue areas are seen as critical to addressing environmental issues and mainstreaming the environment.

1. The environment is the foundation for sustainable development in Somalia, where environmental goods and services underpin the livelihood plans and strategies of the people. While this may be realized at the level rhetoric, it is assumed, and so not integrated into rural peoples' strategies, and not recognized for its importance at sectoral or donor support levels, and landscape (or seascape) environmental levels;
2. Environmental misuse is often caused by a breakdown in living patterns, caused by factors such as drought, war, population increase and urbanization which bring about the unsustainable use of resources. People may be well aware of the problems, but immediate needs take priority over longer term considerations. The marginal value of the environment at the present is high, and this is often the justification for unsustainable use and degradation;
3. Addressing environmental concerns in a more integrated manner will be central to any PRS process and to the achievement of the MDGs. One core component of this will be at the local (village) level so that the importance of the environment is fully appreciated at that level, and integrated into land use planning. This can form the basis for environmental and land use planning (combined with the means to implement) at higher (district and regional) levels that take into account local level use, as well as larger scale pastoralism land use, which may span many villages;
4. The environmental goods and services need to be valued (economically, socially, and politically) for the true values they provide society at all levels (family, local, national, international). Though economic figures are not available, this CEP has demonstrated that importance. Somalia, with a relatively "clean slate" can set in place national accounting systems (supported by data collection mechanisms from a national bureau of statistics) that do this, combined with a greater awareness of the value of the environmental goods and services at all levels;
5. Environmental issues are multi-sectoral and impact on all aspects of Somali life. This calls for "mainstreaming" (Section 2.4.1). Yet mainstreaming has been difficult to achieve anywhere with the result that the environment is not valued for the importance it deserves beyond rhetoric, and is lost in relatively low levels of sectoral prioritization. The development and agreement to environmental indicators (combined with means to measure, and agreed actions to achieve) at sectoral levels will help resolve this. Such indicators could be linked to poverty reduction plans, and be a basis for resource prioritization, allocation, and reporting;
6. The international community needs to actively support nascent Somali governance structures to combat illegal, usually unsustainable resource exploitation and export. This includes the export of charcoal, IUU fishing and the dumping of waste in Somalia's EEZ or on land. Regional bodies (such as IGAD, PERSGA, the Arab League) can support this, but action is also required at the international level (UN, EU in particular);
7. At a regional level, Somalia's only permanent rivers (Jubba and Shabelle) are part of regional water basins. As Somalia is a water scarce country, these two rivers are critical assets to be managed on a sustainable basis. This will require integrated river basin management both at the national and regional levels (especially with Ethiopia) to ensure sustainable management, where upstream-downstream goods and services are understood, negotiated and agreed upon. As an example, German Agro Action – Somaliland has developed an integrated water management plan for the Dur Dur catchment in Awdal region, through its EC funded Community Based Natural Resource Management in the Dur Dur Watershed project (Groundwater Survey (K) Ltd. 2006). This might also include payments for environmental services; and
8. In a risk prone arid environment that Somalia is, risk management and mitigation, combined with enhancement of the resilience of the land use natural resource systems are critical strategies on which Somalia land use was based upon. Many of these systems have broken down, and need to be reconstituted (and re-understood) to be of use now, and combined with more "technical" approaches to early warning, for example through FEWS. Early warning systems such as FEWS and FSAU are very important in terms of food security but they can also be of much greater importance to wider land use

#### **2.4.1. Mainstreaming the Environment**

Mainstreaming the environment refers to how the goods and services that the environment provides are integrated into different sectors which impact on, or are impacted by the environment. It goes beyond subsuming the environment into one, usually weak sector (department, ministry, authority), is

more holistic and proactive through the integration of environmental issues into policies, laws and plans, and is based on systematic analysis, and transparent and open procedures. Mainstreaming the environment is carried out through systematic analysis, and transparent and open procedures<sup>20</sup>. All sectors have an environmental footprint (positive or negative) to a greater (e.g. livestock, agriculture, industry, urban, water) or lesser (e.g. security, education, politics) degree. In Somalia, where the environment is the foundation for nation building and livelihood development, environmental aspects need to be integrated across all sectors. Mainstreaming refers not only to the government sector, with their policies, laws and procedures, but also, ideally with all the different actors in a country including CSOs and NGOs, the private sector, and, as appropriate partner (bilateral, multi-lateral, NGO, Foundation etc.) agencies. For Somalia there are two important levels to work with:

This cannot happen without a shift taking place to one of integrated, less sectoral planning, where interventions in one sector are planned in a wider land use context, and where the different sectors incorporate the principles of environmental assessment and accountable indicators. One tool in this is land use and environmental management planning at the most devolved practical level. Such planning can integrate and “mainstream” environmental goods and services at the local level, demonstrate the value and economic benefit for doing so, and form the basis for wider district and national land use planning. If the environment is also mainstreamed at a sectoral level, environmental concerns are likely to receive the attention they deserve in sectorally implemented projects and programmes, and rural (and urban) communities who are the main beneficiaries of such assistance and support.

### **Box 3: Strategic Environmental Analysis Methodology**

The tool's objectives are to

- Analyse the environmental context of human development, its potentials and constraints;
- Integrate environmental key issues with economic, social and institutional aspects of sustainable development; and
- Provide inputs for planning sustainable development policies and strategic action plans during the early stages of decision making.

SEAN is used for strategic planning, to carry out environmental or integrated analysis for developing an area based vision and strategic plan. To improve integration other (economic, social, gender) analyses are carried out in parallel. SEAN has been successfully applied for strategic planning at the sub-national levels (e.g. municipalities or districts), particularly to support ongoing decentralisation processes. SEAN was used to support governmental and non-governmental organisations to make their own strategic choices. Monitoring of indicators for sustainable development is a logical follow-up activity of any SEAN.

Strategic Environmental Analysis-methodology (SEAN) SEA tool developed to integrate environmental sustainability issues into development planning<sup>21</sup>. SEAN is a practical methodology to include environmental issues in development planning in a participatory manner (Box 3), and could be used in Somalia.

While the CEP supports the importance of ‘mainstreaming and integrating’ environmental concerns and issues into sectoral support, this has to be done in a manner that ensures that those very environmental concerns are actually addressed and are part of evolving policy and law, project design and practical implementation. Some examples help illustrate this:

- In water development (for example the construction of sub-surface dams, berkedes, and balleys, it will be critical to take a catchment approach to ensure that the water supply is more sustainable and cleaner. Such a catchment approach might need to include aspects of soil conservation, tree planting and sustainable range management, which can then be combined with for example pit latrines, solid waste management and greater environmental awareness;
- With respect to the construction of roads, simple soil conservation structures can be put in place up stream from the road to reduce the amount of water flowing under the road, which in turn would reduce the costs of drainage for the road construction, as well as downstream water flows from the road. In both cases such water harvesting can be used for tree planting and range use;
- In the health sector, it is well known that the underlying causes of many diseases lie in environmental misuse. In addition the importance of herbal remedies is consistently under played in favour of formal curative medicine. So to what extent can the health sector work with the sustainable use of herbal remedies (of which over 150 species of plant are used in Somalia) to

<sup>20</sup> Source: [www.worldbank.org/wbi/sdstrategies/mainstreaming](http://www.worldbank.org/wbi/sdstrategies/mainstreaming)

<sup>21</sup> Source : [www.seanplatform.org](http://www.seanplatform.org)

reduce the costs of formal curative health care which might be both unaffordable and distant from the people?; and

- In small scale industry and economic development to what extent can local level processing and improved marketing of natural resources improve local economic well being and ensure sustainable environmental management. There are a number of products which could be used, including myrrh, frankincense, gum arabic, henna, aloe. Such processing could be a driver for rural economic growth, but exploitation beyond the sustainable yield of the species could degrade the resource base.

#### 2.4.2. Environment and Poverty (MDG 7, Climate Change)

##### **Box 4 Environmental Fiscal Reform (EFR)**

To enable Somalia achieve its MDGs & mobilize revenue that can be invested in schools, health care, environment and the necessary infrastructure, there is need to put in place EFR-related approaches. EFR is a range of taxation & pricing instruments used to revise fiscal revenue, which can ultimately further the achievement of MDGs. EFR approaches & instruments can complement and strengthen the existent fiscal and environmental management measures currently being put in place.

EFR starts with a clear identification and understanding of environmental related issues, their impacts and causes in comparison with the view of a country's pressing needs & issues. There is need for an assessment of the mix of both the available fiscal and non-fiscal instruments that can be utilized in addressing the existing environmental issues from the perspective of fiscal reform and compensatory measures.

Source: (OECD 2005)

The environment provides virtually all the assets on which contemporary Somali life depends on. Somalia will, it is assumed, gradually evolve poverty reduction strategies (PRS) like most countries in the Horn of Africa. Here, Somalia has a great opportunity to learn from progress made in integrating the environment into the PRSP process from eastern Africa and more generally in Africa, and giving the environment the importance it requires in any evolving PRSP. At present external remittances, especially in Somaliland and Puntland provide more direct cash, especially in the urban areas.

Environmental Fiscal Reform (EFR) is another tool to ensure that the environmental goods and services are

properly reflected in macro-economic planning. EFR is a range of taxation & pricing instruments used to revise fiscal revenue procedures to better account for environmental assets (OECD 2005). Box 4 summarizes some of the attributes of EFR.

Managing and investing in the environment is a core component for addressing poverty, making people's livelihoods more secure, and a driver for rural (and urban) growth. In general investment in the environment cannot be separated from other aspects of development, except perhaps in defining conservation areas, though Somalia has a great opportunity to do that as part of a strategy for community conserved areas, as the Keyn Forest in Somaliland (Box 1), and the recently established community MPA in Gara'ad in Puntland demonstrate. Here sustainable use of forests and MPAs, together with locally accepted rules and regulation and the institutions for management, provide both for conservation and local benefit (forage, browse, fish etc.) as a basis for rural economic growth.

A key area is to understand the importance of the environment as a significant contributor to the PRS process in terms of addressing the overwhelming dependence of the poor on natural resources, making the poverty-environment linkages stronger, and ensuring that the environment is mainstreamed to achieve this (Bojo J. & Reddy C. 2002). This could include for example the range and woodlands which sustain livestock; the soils which enable agriculture to be practiced on a limited basis; the marine systems which can provide fish and other products; the trees and other natural resources which provide economically important products; the plants and trees which are a sources of medicines, and food for people and livestock; and water from the two permanent rivers and the many ephemeral stream as the basis for life. But this will require a better (and more economically focused) justification of the environment in terms of poverty reduction, attainment of the MDGs, and risk management. Good baselines (economic, environmental) will be needed combined with the setting in place of robust and simple to collect indicators to collect the data needed to measure change.

### **2.4.3. Environment and Socio-economic Impact**

#### **2.4.3.1. Production and Productivity**

Degradation of catchments, range areas, agricultural lands and the marine environment have been cited as critical issues to address in Somalia and reflect environmental abuse, though more evidence is needed, at least at the national level. All impact on the ability of the people to produce to meet both their subsistence needs, as well as being able to enhance productivity to meet and contribute to local, national and even international trade and economic growth. With simple improvements and approaches, such a situation can be turned around, though climate change could pose additional stresses, through for example

- Local level environment and land use planning to create greater local ownership of the environmental and land use values to local livelihoods, including security of land rights;
- Increased awareness and understanding (social, cultural, economic) of the importance of the environment to rural people, both in terms of sustainable use, and for subsistence and economic growth; and
- Approaches to land management and environmental restoration that are, at the local level, understandable and locally owned, and use approaches and technologies that are locally appropriate such as the restoration of naturally growing trees; locally (village) level approved rules and regulation for use and sanction; and water management that is holistic in terms of catchment approaches.

Such strategies, while relatively simple in concept, require significant social investment to realize – something which short term (e.g. 2 year or less) donor requirements may find difficult. Many of the successful programmes in eastern Africa, for example soil conservation in Kenya (Machakos, (Tiffen et al. 1994), forest and woodland restoration in Tanzania (Shinyanga, (Monela et al. 2005), and coastal fisheries management in Tanga, Tanzania (Wells et al 2006) had 15-20 year time horizons, though funding might have been in shorter (5 year) time horizons. This is key to long term success as such change has to be socially and politically owned, be economically viable, and not one subsumed to one of technology.

While localized rangeland degradation are obvious signs of over- and misuse, the underlying causes may be more insidious and relate to, for example charcoal burning – particularly for export, individual enclosures, spread of agriculture, removal of rich patch dry season grazing for other uses, and unplanned water development. All the above factors combine to reduce the available rangelands, particularly the critical dry season ones. This forces over use, and results in degradation.

The urban environment is a cause of environmental degradation (e.g. settlement, use of wood and other resources for construction, energy, water, waste management and pollution), and a heavy consumer of environmental products – the most visible of which is fuel wood and charcoal, as well as food (fish, meat, medicinals and wild fruits and foods). Urban demands are steadily increasing, and are exacerbated by Somali returnees moving into urban areas. With urban populations estimated to grow at a rate of 10% or more per annum (e.g. as is happening with Hargeisa), there is concern over the ability of the environment to sustain such development (e.g. provide water, fuel and other products on a sustainable basis). Plastic bags are also becoming a major environmental issue of urban areas.

#### **2.4.3.2. Trade**

The key issue relating to trade and the environment concerns the sustainability (or not) of the products traded. Somalia is not party to the EITI (Extractive Industry Transparency Initiative<sup>22</sup>) which aims to ensure that revenues from extractive industries contribute to sustainable development and poverty reduction, and there is a set of principles and criteria that establish how EITI should be implemented. Somalia would benefit by becoming part of this initiative, as it will help in promoting sustainable use and trade in such areas as the fishery (where EITI could be one tool to reduce IUU fishing), charcoal (to assist with the export ban), and ensure that trade in natural produces such as frankincense, myrrh, and gum Arabic are sustainable. It could also help in establishing fair trade agreements.

The international trade in charcoal to the Arabia peninsular is unsustainable as an arid and water scarce country should not have to deplete its fragile and valuable natural resource for export, in this

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<sup>22</sup> Source: <http://www.eitransparency.org/>

case to countries which already have tree felling bans in place. Charcoal could be produced on a sustainable basis for the local (urban) market (Section 2.3.5.4 and Annex 4.10), probably in combination with alternative energy sources. Banning the charcoal export could cause corruption and a black market unless there are alternative sources of income. Encouraging the sustainable use of charcoal locally (combined with alternatives) will require policy and legislative support, combined with strong sanction for illegal use through enforceable but locally owned rules and regulations for the sustainable production of charcoal. If the FLEGT (Forest Law Enforcement and Trade<sup>23</sup>) process can include the export of wood based products such as charcoal, then Somalia would benefit by becoming party to FLEGT. Given the importance of trees to Somalia, engaging (and being encouraged to do so) in the FLEGT process could help, in time, support the sustainable use and management of trees.

Current rates of extraction of Somalia's offshore fish stocks in the EEZ waters have the potential to provide large sums of revenue to the country's economy (figures are crude, but estimated at \$90 million per year). This revenue is not being realized because these fisheries are being exploited illegally. IUU requires international support (UN and EU especially) to ensure fishing licenses are purchased, catches are reported and regulated and Somalia is engaged in monitoring and managing these offshore fisheries. Somalia could become part of the FAO CCRF (Code of Conduct for Responsible Fisheries<sup>24</sup>) which states "*that the right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources*". Regional trade in coastal marine resources (e.g. between Egypt, Yemen, Ethiopia and Djibouti, in for example shark and lobster) is also occurring but lacks focused management plans which include catch monitoring (size, trends, species) combined with an adaptive management approach to regularly assess and revise permitted catches.

Other natural products are traded in what appears to be a relatively sustainable level. The livestock trade takes livestock off the rangelands for the Arabia state markets. Here the Saudi Arabia livestock ban had a serious negative effect on the environment, at least at the local level, by keeping the livestock that would have been traded on the land, and exacerbating the charcoal trade as people endeavored to meet their needs. The present trade in non timber forest products appears to be sustainable. As stability increases, a greater understanding of the growing, production, processing and trade of such products will be needed so as to ensure the conditions for sustainable use, ownership, and management are in place

The trade in natural resources offers great potential for economic growth, provided there is a greater understanding of the dynamics of the trading, benefit accrual at the producer level, and sustainable use, and the potential for fair trade (or organic or sustainable use) certification. At present such dynamics and market chains are poorly understood. Further trade and illegal fishing can be transboundary and so would also require regional address.

#### **2.4.3.3. Health**

The developing health services focus on palliative health care, and less on preventative. In both cases the centrality of the environmental goods and services to the health care of the people is broadly ignored, except at the local level. Yet the use of environmental assets could be (and probably is) a very important aspect to the health care of people, as well reducing (and probably quite significantly) the costs of formal health care. The provision of clean potable water (catchment conservation, clean storage) is obvious. Less clear, however, are the roles that herbal remedies play in the health of the people. Lessons from other countries (e.g. Kenya, Tanzania, South Africa, - (Barrow et al. 2002) suggest that the use of herbal remedies is very extensive – though hidden from formal view, important and a basis for sustainable local production and trade.

Other natural products (fruits, foods from trees for example) are an important, though poorly understood component of people's diets. This is particularly so in dry and drought times where a wide variety of wild foods and fruits are processed and cooked for consumption. The use of wild foods requires a greater understanding as to their importance overall and in particular during dry and drought times, as well as to the health of the people

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<sup>23</sup> Source: <http://www.dfid.gov.uk/eupresidency2005/flegt.asp>

<sup>24</sup> Source: [http://www.fao.org/figis/servlet/static?xml=CCRF\\_prog.xml&dom=org&xp\\_nav=2](http://www.fao.org/figis/servlet/static?xml=CCRF_prog.xml&dom=org&xp_nav=2)

#### **2.4.3.4. Sustainable Resource Use**

Sustainable use is difficult to prescribe for, as what is unsustainable in one set of conditions, may be sustainable elsewhere. While population is one issue that drives unsustainable use, population growth is mainly found in urban areas, which creates its own set of demands (charcoal and products for the urban market). So what was sustainable 30 years under more traditional management conditions, may no longer be so due to population increases which are estimated at 2.85% per annum (CIA 2005). Understanding what is, or can be sustainable use combined with the necessary management approaches is central to being able to promote natural resource use that is environmental sustainably and locally beneficial. A key focus for sustainable use relates to the landscape and catchments for all the urban centres, and how the urban supply of natural resource based products can come from sustainably managed sources. Village based and urban environmental and land use planning is one aspect of this, which also needs to be integrated with the principles of adaptive management where

- A better assessment of the situation is warranted, as there is little actual data available on the catch size of a marine species as a basis for an improved fishery (net size, number of boats, nets), or a local ban on certain areas of fishing to all the fish stocks to build up in number and size;
- Where perennial grasses start to disappear (due to over grazing), and trigger the implementation of rules to manage grazing pressures so that such species can recover and set seed. This would include the setting aside of areas for restoration;
- Where the reduction in the natural regeneration of certain tree species would trigger a process of local restoration rules; and
- Where an increased, whether real or perceived, drying up of river beds would trigger a river catchment approach (including the use of village planning) to restore the catchment functions.

Because there are so many variables in defining what sustainable use is including, for example the species, land use, climate, soil types and existing levels of use, it is difficult to prescribe conditions. Adaptive management principles (either generally or/and more species specific) need to be put in place at the local level and given policy support. Sustainable use can require that certain areas be set aside from use, to enable the reservoir of seed material and species to build up and allow restoration. This might be one condition for the establishment of conservation areas, where such areas are both based on biodiversity and conservation needs, but also on local resource use needs. Marine protected areas and dry season forage and browse reserves, which could be defined as conservation areas, but based on community management, benefits, and control are two examples of such integration.

#### **2.4.3.5. Vulnerability to Natural Disasters**

Risk management and resilience enhancement are two critical conditions for the sustainable use and management of arid and semi-arid lands – conditions well known to pastoralists. Increasing the risk, by, for example converting rich patch areas of vegetation for cultivation or as national parks, compromises the sustainable use and integrity of the overall much larger land use system. While reducing the resilience of the systems, by, for example excessive tree cutting and clearing of natural vegetation reduces the ability of the overall system to recover after a stress event, such as a drought.

Risk and resilience are critical components of any management reaction to reduce the vulnerability to natural disasters, especially in Somalia where famine (as a result of prolonged drought) is the main natural disaster (Table 4). Yet both these core components are poorly understood both from the species technical perspective, and from a more overall dryland management institutional perspective.

However there is good information (FSAU, FEWS) on climate monitoring and being able to predict stress based on rainfall patterns. However these data sets are not usually available to pastoralists, nor are they in real time, and not really at a scale that is appropriate for local level management decisions. Such information can be integrated into local natural resource management systems for improved risk management to, in particular drought. This will need to be complemented by national (or regional) level strategies to reduce vulnerability, for example having an emergency fund to buy and market (export) livestock, though this could be costly and difficult to manage, and developing practical means to adapt to dryness, droughts and climate change, for example ensuring the agriculture does not result in increased overall risk, or the planting or restoration of more risk tolerant tree species.



This is required now more than ever, assuming the climate change predictions for the Horn of Africa are true, and that the region will become drier and hotter, with more frequent extreme events. Being able to make adaptations to possibly an increasingly dry climate, with more extreme and frequent droughts and floods is critical to start investigating and testing now. Such testing could include improvements in catchment management resulting in improved water retentions, a greater emphasis on increasingly more drought tolerant species, and a reduced emphasis on cultivation in such already risk prone environments. While pastoralists have detailed knowledge systems about species and forage management, this could be used as a basis for a more formal understanding of risk and resilience. Reducing vulnerability might then involve a more strategic focus on livelihood options that are based on more drought tolerant species, e.g. the harvesting and trade in gums and resins, a greater focus on browsers (rather than grazers), as well as to diversify options for rural economic growth.

#### **2.4.4. Transboundary Environmental Issues**

Somalia is a part of the Greater Horn of Africa Hotspot, with many of its ecosystems and species shared with its neighbours, especially Kenya, Ethiopia and Djibouti. The two perennial rivers are regional water basins shared with, in particular Ethiopia, but also with Kenya. The overall basins need to be managed on a sustainable basis, which requires discussion, negotiation and agreement amongst the riparian states, and with the different interest areas, such as pastoralism, irrigated farming, and water abstraction for human and other uses. This can be achieved through a regional basin approach which in the case of Somalia would require the support of IGAD. Somalia's international partners can play a role in supporting IGAD, as well as supporting such processes in Ethiopia and other countries, while improved regional marine collaboration can be achieved with PERSGA.

While river basins are the main transboundary issues to address, a greater understanding of Somali pastoralists grazing systems would indicate that pastoralists regularly move across national borders in search of wet or dry season grazing or water, as part of their seasonal migration routes. This would probably be particularly important for the border areas with Ethiopia and Kenya as part of normal wet-dry season livestock herd movements and more especially during drought times, where there may be reciprocal customary rights of movement negotiated under traditional management conditions between different Somali groups in the different countries. Curtailing such regional movements could further increase risk which such land users face.

#### **2.4.5. Biodiversity and Conservation Issues**

The key issue is can active conservation measures, e.g. through various forms of protection, be integrated and become part of local land use? Somalia cannot afford to have islands of conservation areas (e.g. national parks) in a hostile and human influenced greater landscape. Local land use planning and traditional recognition of the importance of reserved grazing areas (e.g. the mist forests and the relics of the riparian woodlands) offer a way forward so that the conservation of biodiversity can be integrated with land and sea use (e.g. setting aside "no-use" zones). Discussion and trade-offs will need to be negotiated, but this would be a more positive outcome than the unilateral (usually by government) designation of exclusionary National Parks, so common a feature in Africa. It would also enhance sustainable resource use and be a positive force in risk management. In the long term such areas might also be a basis for ecotourism.

#### **2.4.6. Environmental Indicators**

Integrating environmental issues as a positive force in livelihood security and for local economic growth will require setting in place, and agreement of a variety of environmental indicators which could be measured at different levels (community, sector, national). Ultimately such indicators will need to be integrated into an evolving PRS process and become part of the national bureau of statistics (when functioning), and so become part of national reporting and accounting. There are no environmental indicators in place, at least not in a practical sense. Somaliland and Puntland are making attempts to address environmental concerns but these are often sectoral in nature, may be more project driven, and so lack the accountability needed to mainstream environmental concerns. We suggest a number of fairly simple and robust indicators that could be used based on the findings to date. We would hope that such indicators could, with the exception of some, be used at different levels (village to national). This list is not comprehensive, but includes:

1. Clean drinking water available (people and livestock) from sources that are sustainable, and, as appropriate, with catchment management in place;
2. Environmental assessments established, and used at different levels of detail for different types of activity, leading to the implementation of provisions of environmental impact assessments;
3. Land use and environmental management plans in place and implemented at village, district and regional levels as the primary tool for devolved and sustainable land use;
4. Status of fisheries and other important marine stock defined (in terms of species diversity, size of catch and size of the different species caught over time), and their sustainable use by people. The same also applies for, e.g. charcoal and overgrazing;
5. Incidence of illegal local and international fishing and illegal waste dumping along the coast reduced, which will require a means to monitor the international fishing fleet using Somalia waters and other international ships using the waters;
6. Environmental issues at a sectoral level integrated in a manner that is practical, measurable, accountable and relates to environmental issues for that particular sector, e.g. health or education;
7. Improved status of rangelands through community monitoring and surveys of rangeland species with a particular focus on those which indicate improvement in condition;
8. Establish the existing status of ground water availability, and use this to assess ground water abstraction for, in particular human and livestock use (e.g. the ongoing SWALIM work); and
9. River Basin management – which is already starting to happen through EC supported activities in the Jubba and Shabelle rivers.

### **3. ENVIRONMENTAL POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK**

#### **3.1. *Environmental and related Policies (include also pre-war colonial and post-colonial policies of relevance)***

##### **3.1.1. Environmental Policies**

The policy and legislative environment in Somalia is weak. In central and southern Somalia it has been absent due to continued insecurity. While in Somaliland and Puntland there has been much greater progress, as both areas have had a longer period of stability.

**Somaliland** has a number of policies in place including, for example policy guidelines for promoting animal health and production support services, and an education policy. There are a number of policies which have a bearing on the environment including the Ministry of Pastoral Development and Environment' Strategic Plan of 2002-2004, Range Policy (undated), Environmental Policy (undated), Forest Policy and Legislation (undated) and an Environmental Conservation Act and Proclamation of May 1998. In addition to the Ministry of Pastoral Development and Environment efforts to develop enabling policies, the Ministry of Water and Mineral Resources has developed a National Water Policy and a Draft Water Act. There is also a strategy for economic recovery and poverty reduction plan (2003-2005), which sets out the national strategy to be followed in formulating and implementing development programme. It has a section on drought mitigation and environmentally sustainable water development. Somaliland has also developed a Land Resources Tenure and Agricultural Land Policy in August 2002 (UNDP, 2004), while the Ministry of Pastoral Development and Environment is mandated to undertake all pastoral and environmentally related issues. However it lacks both the institutional and technical capacity to support its mandate. The current structural arrangements within the Ministry of Environment are not clear. However for the Ministry of Fisheries, a clear organogram and lines of responsibility have been developed. There appears to be little real environmental coordination at a policy or regulatory level.

**Puntland:** The Puntland Ministry of Fisheries, Ports and Marine Transport recently endorsed a "Fisheries/Marine Policy and Strategy in 2004 and this stressed sustainability issues. The Ministry's concerns about the destruction of the State's marine environment are underlined in a position paper.

**Central and south Somalia** has very little in the way of formal policies and legislations except for those which were in place from before the civil war. Those policies could form a basis for reconstituting both the policy and legislative framework, in a more integrated and mainstreamed way. The old policies tended to be sectoral in nature with little real integration of environmental needs.

##### **3.1.2. Other policies with environmental relevance**

**Somaliland:** Of interest in Somaliland, is the recent formation of the National Environmental Research and Disaster Preparedness Authority (NERAD). NERAD is an autonomous entity formed by a presidential decree in July 2003 to deal with disaster and formulate disaster management policies and strategies. There main area of focus is to reduce and tackle recurrent droughts. NERAD developed a draft disaster preparedness and management policy, a three year (2004-06) strategy and national contingency plan. NERAD could evolve into a National Environmental Management Authority. There are weaknesses with the institutional and policy arrangements in Somaliland. The mandates of government ministries with regard to NERAD are unclear, combined with overlapping government structures with regards to environmental management. In addition there is an unwillingness of most International NGOs and UN-agencies to fund government institutions due to the unclear international legal status, and a more general declining of donor support.

**Puntland:** In Puntland, the Ministry dealing with the environment is the Ministry of Agriculture, Livestock and Environment. Lack of mainstreaming of environmental issues is evident even within this Ministry. Following the footsteps of Somaliland, Puntland has established a similar disaster management authority like NERAD known as HADMA (Humanitarian and Disaster Management Activities). But HADMA is not directly involved in environmental related activities, though it does plan to launch a drought mitigation programme, which would look at rangeland management and control of soil erosion and water catch management. Puntland has a Ministry of Planning which has a 5 year development plan covering livestock, agriculture and the environment. The plan has not yet been published and this process is being supported by the UNDP Somali Project Watch Brief.

### 3.1.3. Government Approaches to Key Multi-lateral Environment Agreements

Somalia has signed a number of important international conventions relating to natural resource use and management, including (UNEP 1996):

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Convention on the Conservation of Migratory Species of Wild Animals;
- Jeddah Convention for the Conservation of the Red Sea and the Gulf of Aden Environment (managed by PERSGA);
- Protocol concerning Regional Co-operation in Combating Pollution by Oil and other Harmful Substance in Cases of Emergency;
- The International Convention of the Law of the Sea (1982)
- South West Indian Ocean Fisheries Commission (FAO) (2004)
- Indian Ocean Tuna Commission (1967) (UN)
- International Convention for Straddling and Highly Migratory Fish Stocks (UN)
- Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern Africa region;
- Protocol concerning Co-operation on Combating Marine Pollution in cases of Emergency in the Eastern African region; and
- Convention for the protection, Management and Development of the Marine and Coastal Environment of the Eastern Africa Region (Nairobi Convention).

At the same time, Somalia has signed a number of other major international and regional agreements but has failed to ratify them:

- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water;
- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space including the Moon and other Celestial Bodies;
- African Convention on the Conservation of Nature and Natural Resources;
- Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa;
- Convention on the rights of the child (1989); and
- Treaty Establishing the African Economic Community.

Additional more human rights based conventions that Somalia has ratified include<sup>25</sup>:

- International Convention on Elimination of all forms of racial discrimination (1966);
- International Convention on Economic, Social and Cultural Rights (1966);
- International Convention on Civil and Political Rights (1966);
- Convention against Torture, and other Cruel, Inhuman or Degrading Treatment or Punishment (1984);
- Convention on Elimination of Forced and Compulsory Labour (1930, & 1957); and
- Convention on Elimination of Discrimination in Respect of Employment and Occupation (1958)

Somalia has not signed the United Nations Framework Convention on Climate Change (UNFCCC) or the Kyoto Protocol, although it did sign the Vienna Convention of 2001<sup>26</sup>. Based on various IPCC (International Panel on Climate Change) findings, climate change is likely to be a major challenge for Somalia, as it is for the rest of Africa, and will require actions to be taken. Nor has Somalia signed or ratified the Basel Convention on Hazardous Waste<sup>27</sup>. Given the perceived importance of hazardous waste in Somalia, it would seem to be in the country's interest to ratify this convention and be able to gain the support that the convention provides such countries. Somalia is party to FAO's South West Indian Ocean Fisheries Commission and should play an active role on this commission to halt IUU. Another forum Somalia to address this is the Global Task Force on IUU on the High Seas, which also targets EEZ waters. The Indian Ocean Tuna Commission (IOTC) can also be asked for support.

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<sup>25</sup> Source: (UNDP 2004)

<sup>26</sup> Ratified on 1<sup>st</sup> August 2001, [http://ozone.unep.org/Treaties\\_and\\_Ratification](http://ozone.unep.org/Treaties_and_Ratification)

<sup>27</sup> As per May 2006; [www/basel.int/ratif/frsetmain.pht](http://www/basel.int/ratif/frsetmain.pht)

While there is need to revise the country's national legislation with regards to the use and management of natural resources, it will – like so many other issues facing this sector – require considerable effort and co-operation to make it happen. While multilateral environment agreements are important commitments, without national policy and legal support, and practical implementation of the action plans agreed, such commitments are no more than rhetoric. However there is the opportunity in evolving policy and law, and its practice to pro-actively integrate the multilateral environment and other international agreement commitments at a policy and legal level, but more importantly in terms of practice at the different levels. There are a number of regional and international bodies who can assist such a process, especially IGAD.

### **3.1.4. Government Approaches to Key Regional Environment and Development Agreements**

Somalia is part of IGAD (the Inter-Governmental Authority for Development), though that cannot be fully formalized until national governance structures are internationally recognized. IGAD can provide a forum for the development and harmonization of policies that promote trans-boundary interventions such as in trade, and the use of trans-boundary ecosystems. For Somalia this is particularly important for the livestock industry, regional trade, and the shared water resources of the Jubba and Shabelle rivers. There is need for regional harmonization for shared water catchments and ecosystems, to assist in food security, environmental management, peace and security, economic cooperation, and social development. In the past IGAD's focus in Somalia has been on conflict resolution and peace mediation. With increased security in the Horn of Africa, Somalia will be able to explore improved trade opportunities, and ensure that the wider environment is well conserved and sustainably managed.

Government administrations (whether recognized internationally or not) are evolving, and Somaliland has a number of policies and laws which relate to the environment. The Somalia administration in the centre and south is still developing its structures since they only moved back to Somalia recently. It is hoped that this CEP can provide guidance on how environmental issues can be integrated into emerging administration structures and policies. There are a wide range of NGOs active in Somalia, particularly within the post-war relief sector, rural development, and some of these cover environmental sectors. However, available funds for environment related work are generally small.

### **3.2. Environmental Legislation**

The legislative environment is very weak. While policies may have been developed and approved in Somaliland and Puntland, this has yet to be translated into legislation. There are a number of policies in Somaliland relating the environment including the Ministry of Pastoral Development and Environment's Strategic Plan of 2002-2004, Range Policy (undated), Environmental Policy (undated), Forest Policy and Legislation (undated) and an Environmental Conservation Act and Proclamation of May 1998. But only a few of these, for example the Forest Legislation and the Environmental Conservation Act, have laws in place. The situation in central and south Somalia is even worse, and the only laws are those which predate the civil war. However these do form a basis for reconstituting a legal framework.

### **3.3. Institutional Framework**

Policy and legislation in Somalia is often dated (from before the war), and is presently in a state of revision and updating – in particular for Somaliland and Puntland. Some policies, for example the fishery policies of Puntland, have been developed but need to be implemented. Somalia has no Environmental Impact Assessment (EIA) policy or legislation, procedures or guidelines, and these need to be established. However, the IUCN EIA guidelines, developed by the Somaliland Natural Resources Management Programme are still used and referred to (IUCN - The Eastern Africa Regional Office 1997; IUCN-Eastern African Regional Office 2000).

While the private sector has thrived, public sector institutions are generally weak, under-staffed and without the capacity to carry out their mandates (World Bank 2006). This is to be expected as there has been a training hiatus for the past 20 and more years, though governments (especially Somaliland and Puntland) are putting in place training programmes to cater for this shortfall. Public sector remuneration is a fraction of that paid to the private sector, and government expenditures are almost entirely related to its workforce and come mainly from customs taxes. There is hardly any development budget (World Bank 2006). This is in part due to the lack of security, where donors focused on supporting agencies (international, NGO) to carry out development activities. As a result

many of the public services are now quite effectively catered for by the private sector and NGOs (World Bank 2006). This augurs for a government institutional structure that requires significant support and capacity building, not to implement, but to facilitate development, set policy and law, and act as the regulator of last resort.

EIA has been carried out on *ad hoc* basis for example the recent Rapid Environmental Assessment carried out by UNEP in 2005 to assess the effects of the tsunami at the coastal line of Somalia (UNEP 2005a). Currently, if EIAs are undertaken, then it is done as part of donor policies not those of the country. However lessons from donor implemented EIAs can form a basis for developing national and local level EIA capacity and policy. EIA and Strategic Environmental Assessment (SEA), are important planning and decision-making environmental management tools to assist in the making of informed decisions that ensure sustainable development, improved environmental health, good governance, gender balance, equity, cost and benefit sharing, etc in natural resource use and development (Dalal Clayton & Sadler 2005; Woods 2003). EIA is carried out at the project level, while SEA is plan, policy or program specific (Woods 2003).

There are established global, regional or national Environmental Assessment networks that could assist Somalia in the establishment of such systems. An example of such a network is the Eastern Africa Association for Impact Assessment (EAAIA), whose objective is to support EIA capacity building in Eastern Africa through exchange, networking and strengthening EIA policies and practice in the sub-region. Many bilateral and multi-lateral organizations and NGO's have EIA procedures, and these provide a strong basis for ensuring that environmental impacts of activities become part of policy and practice in Somalia. As an example, the EC funded an EIA of seven proposed sand storage sub-surface dams for Somaliland (Earth Water Ltd. 2006), where the EIA identified the lack of strong policies and laws, as one serious impediment for the EIA process, and also made the important linkages between water conservation and management with wider catchment conservation, through for example reforestation and broader restoration, soil erosion control, and improved agro-forestry practice. These are tools to promote improved water conservation and are also core components of wider land use planning.

At an urban municipality level, both Borama and Hargeisa have produced statistical abstracts, as well as summaries of issues in their respective municipalities. Unfortunately there is very little relating to the environment, except for instance in terms access to potable water and waste management. Efforts are underway in Somaliland and Puntland, through the establishment of NERAD and HADMA, to develop disaster management policies, strategies and action plans. However unless there is support from sectors (e.g. Health, Water, Agriculture and livestock) in the form of policy and legislative support, then such well intentioned approaches are unlikely to be successful.

Somaliland has a strategic plan for Agricultural Rehabilitation and Development (2001-2003), where the problems of environmental degradation and the increasing number of sedentary agro-pastoralists are recognized. This strategic plan recognizes the issue of charcoal and firewood production which exacerbate soil erosion, and has a thematic area of natural resource management, but this focuses mainly on improvement of soil and water management systems through soil erosion control and improved water harvesting.

In a similar manner the Somaliland Health Plan (1999-2000) focuses, as it should on the health of the people. However, nowhere are the environment or natural resource assets mentioned. Yet those very natural resources underpin a healthy people through, for example the provision of clean water from well maintained water points and catchments, improved diets based on pastoralism and the greater use of fruits and other crops, recognizing the importance of traditional herbal remedies in the health services, where it has been reported that over 100 – 150 species of plant are used to treat a range of ailments.

From an environmental perspective the major institutional gaps are two-fold:

1. Lack of EIA and SEA capacity at both the policy and legal levels, but also with respect to the implementation of activities and projects; and
2. Lack of institutional capacity for overall environmental management and oversight, and to ensure that the different sectors mainstream and be accountable for environmental aspects of importance to the sector.

## 4. THE EC AND OTHER ENVIRONMENTAL DONOR COOPERATION

### 4.1. EU Co-operation

The EC has supported the reconstruction and development efforts since the early 1990's, and most recently through its 2002-2007 strategy for the Implementation of Special Aid to Somalia, or SISAS

#### **Box 5: Some Key Lessons from the SNRMP Village Environment Management Planning Process**

1. Positive, and constructive village level response;
2. Importance of capacity building and local ownership of the product (empowerment);
3. Linking planning with implementation of some agreed to activities. The Villages were very happy with the product and have successfully used their plans to get some of the activities funded and implemented;
4. The Plans are useful tools to present to agencies for funding some of the activities, as well as for future revision and updating;
5. Length of the process took longer than people expected, but this helped to build ownership and a means for implementation;
6. Gender differences were managed for and integrated, and the process was not overly dominated by the leaders as many people from the village were involved;
7. The planning process demonstrated the importance of the greater landscape, and being able to integrate pastoralist livestock movements;
8. Power issues were discussed in a reasonably open manner, based on power analysis; and
9. Government interest in this as part of potentially larger scale land use planning.

(EU 2002). However direct engagement with environmental concerns has been weaker, though there are several natural resource management type projects (e.g. Dur Dur, Bay and Bakool and river management), and EIA is increasingly being used in environmentally sensitive situations. The two phases of the IUCN implemented Somalia Natural Resource Management Programme was, perhaps their most important area of support, and this ended in 2001 (IUCN - The Eastern Africa Regional Office 2001). Since then the EU has taken the position that environmental concerns and issues should be mainstreamed in all their areas of support. While this approach may have worked in some cases, it has been difficult to identify exactly what sorts of environmental activities were supported with what results, as environmental indicators have been difficult to find within supported projects. However it is clear that development programmes and projects try and adopt a "do no harm" to the environment stance, even if only a few

EIA's have been carried out (Earth Water Ltd. 2006). While EIA's are not an indicator of environmental impact, they are an indication of how important the environment is (or might be) with respect to an intervention and set the scene for the more strategic integration of environmental concerns into a particular development activity.

There has been significant effort in for example tree planting and energy efficiency (including alternatives). But often such activities are carried out in relative isolation from the rest of the landscape, and could be better integrated with for example water improvement (Berked, balleys), as a basis for more sustainable wood use, and as part of more integrated landscape planning, where Berked and Balley catchments, could be a basis for catchment management, sustainable use and conservation.

#### **4.1.1. The SISAS 2002 to 2007<sup>28</sup>**

The EC Strategy for the Implementation of Special Aid to Somalia (SISAS) is the mechanism for the funding and implementation of projects in Somalia. Having such a special strategy is necessitated by the uncertain political situation in Somalia, as Somalia did not ratify the fourth Lome Convention and has no functioning National Authorizing Officer. Rightly, the overall long-term objective of the Commission Strategy is to "contribute to the alleviation of poverty and to the implementation of a more peaceful, equitable and democratic society". While the intervention logic is "to support sustainable improvement of the livelihoods of the Somali people – by enhancing food security and economic growth – and their improved access to basic public and social services as well as the establishment of good governance". Page 6 highlights the effects poor management has on the "Somali economy, and its few unguarded natural resources. The ongoing destruction of the country's rangelands, fisheries and forests are all unsustainable practices that threaten the loss of the precious finite resources". The following environmental issues are highlighted:

<sup>28</sup> Source: (EU 2002)

- Water scarcity and the destruction of water infrastructure, where it is estimated that only 5% of the population had access to clean water;
- Destruction of riverine forests for irrigation and for charcoal;
- Dwindling vegetative cover and overgrazing contributing to increased soil erosion; and
- Off-shore toxic-waste dumping.

Environmental issues are highlighted in some of the sector specific areas, for example with respect to unregulated fishing (p.8) and in the macro-economic overview (“*the ongoing destruction of the country’s rangelands, fisheries and forests*”, p.6). The intervention logic of the programme supports a multi-sectoral approach, which implies environmental mainstreaming. Environmental mainstreaming is mentioned as necessary under Article 8 of the ACP-EC Partnership Agreement, but no direct activities are included in the SISAS as to how this should be done in practice. In general the EU is “*committed to halting biodiversity loss in Europe and significantly reducing the rate of loss worldwide*”, while nature and biodiversity are one of the priorities of the EU’s sixth environment action programme from 2002-12.<sup>29</sup>

Within the context of vulnerability, one area of intervention relates to “improving skills and knowledge for sustainable and effective management of natural resources”. Here emphasis is to be placed on farming and pastoral communities being training in land use planning, farming and natural conservation techniques. However it is uncertain as to the extent this has actually happened, except for the IUCN SNRMP which was implemented prior to 2002, and the German AgroAction Somaliland implemented (and EC funded) Community Based Natural Resource Management in the Dur-Dur Watershed Project.

There are many opportunities in the existing SISAS for more environmental and natural resource engagement, but it is uncertain as to how this has been put into practice. In some cases environmental activities, such as tree planting are add-ons. The 2002-2007 SISAS focuses on the following four clusters of interventions:

1. Enhancing good governance;
2. Reducing widespread vulnerability;
3. Accessing social services; and
4. Economic growth and diversification

While these four areas of intervention could all contain important areas of environmental activities, only one area mentions the environment– namely reducing widespread vulnerability through improved skill and knowledge for the sustainable and effective management of natural resources (p.20). However the SISAS does note that the “*years of continuous conflict combined with extreme climatic conditions have eroded the coping mechanisms of the population*”. Activity areas here do contain some environmental support, for example through improvements in the agriculture and livestock sectors, and emergency preparedness. It would appear that the SISAS has focused more on livelihood (agriculture, livestock, health etc.) than on the underlying foundation which support those livelihoods, namely the goods and services of the environment and the means to manage and benefit from them. It is also clear that efforts at mainstreaming the environment in the project portfolios has only been of limited success.

#### **4.1.2. Implementation of EU interventions in the period 2000 to 2005**

The European Union is the largest donor in Somalia. Figures for 2000 show that the European Union contributed a total of \$54.9 million (over 47% of the total for 2000, (EU 2002). While Annex 4.11 summarizes the overall EC investment during the present SISAS period with a total of 132 projects implemented by 64 agencies (10 multi-lateral and 54 NGOs) with an overall investment of over €153 million<sup>30</sup>. The EC is the largest donor for Somalia, but there are very few (if any) direct EC implementation activities. The EC works with and supports other agencies to carry out implementation. This is done through either multi-lateral agencies such as the UN, or NGO’s (normally international NGOs of EU member states) who will work in partnership with national NGOs. In addition the EC supports both ECHO (which is a part of the EC), and SACB operations. There is very little direct EC support to government sectors, as the Somalia Administrations are not internationally recognized, and their capacity for implementation is very weak. A rapid assessment of

<sup>29</sup> Source: <http://ec.europa.eu/environment>

<sup>30</sup> Source: EC Somali Operations Unit Project Fact Sheets, Nairobi



the EC Somalia Operations Unit Project facts sheets (Annex 4.11) shows that the following areas of environmental related activities are implemented (and one project may implement more than 1 activity area):

Agroforestry, soil conservation and integrated pest management (8) Irrigation (12) Pastoralism and livestock products (13) Gender (2) Veterinary (7)	Water and sanitation (14) Urban environment (2) Environment – information and general (3) Energy (1) Demining (1) EIA and CEP (2)
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It is difficult to assess the detail, focus and level of implementation with respect to environmental related activities without a more detailed appraisal of all the 132 projects.

**Degree of implementation of the environmental relevant sectors:** The EC views the environment as a cross cutting issue to be mainstreamed. SNRMP was the only “environmental project” funded, and produced much information on a range of marine and terrestrial issues, as well as piloting four village environmental management plans in Somaliland. As a result of treating the environment as a cross cutting issue, implementation of environmental activities has not had the strategic focus it requires, given its importance, though mainstreaming shows that the environment is important for all sectors, and not just as a sector itself. Some projects implement environmental activities, however many projects could have a much stronger environmental component.

**Food Security and Rural Development:** Projects have been supported (for instance VETAID<sup>31</sup>) with respect to pastoral food security aimed at improving the well being of pastoralists, build capacity and explore opportunities for agricultural improvement in Somaliland and Puntland. Soil conservation has been supported to improve land management on the Sool Plateau. Interestingly VETAID is working with pastoralists to improve the dairy industry both in terms of quantity and quality, as well as initiating the processing of dairy products – an important aspect in value adding. On the other hand, Terra Nuova is implementing veterinary and livestock related projects.

In terms of agricultural projects, the EC has supported a number of agencies, including FAO, DHV Agriculture and Natural Resources BV, Agrosphere, CEFA, CARE – Nederland. This support has been in the main to try and restore the irrigated agriculture systems in the south for crops and cash crops, where there has been a focus on supporting the restoration of the irrigated banana plantation, with over €8.7 million being committed to five projects implemented by FAO, Care and DHV from the EC Banana budget line (SFA 2004). Most of this work focuses on rehabilitation of irrigation schemes. Here agroforestry might be an important tool to help diversity production and even produce dry season forage for livestock. The Dur-Dur project has already been mentioned, and GTZ is implementing a large agroforestry project in the Bay and Bakool regions.

**Water Sanitation and Infrastructure:** SWALIM has been on the main vehicles for EU support in the water sector. The Somalia Water and Land Information Management Programme (SWALIM, funded by the EC and implemented by FAO) supports Somalia to restore and re-establish data collection networks to enable decision makers and donors support the sustainable management of water, land and agriculture in Somalia. SWALIM’s objectives are to collect and analyze data needed to manage and develop water and land resources; and build capacity in Somalia. SWALIM has mapped water sources (boreholes, berkads, shallow wells, etc), rehabilitated the national rainfall and river flow data collection network, initiated a flood warning system, evaluated the potential for rain water harvesting, irrigation systems surveys, mapping land resources, evaluating land suitability and assessment of land degradation (SWALIM 2006).

**Civil Society and Governance:** Much of the support in the Governance and Civil Society sector are focused on peace building and reconciliation, building up the capacity for de-mining and wider civil society capacity building. A large amount of support has been provided to the urban sector especially through UN-HABITAT (Section 4.2.2). Very few of these projects have strong environmental components, though peace and wider capacity building are two important prerequisite for improved environmental management.

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<sup>31</sup> Source : <http://vetaid.org>

**Humanitarian Assistance (ECHO):** ECHO Flights are used to transport humanitarian workers and essential cargo to otherwise inaccessible areas in the Horn of Africa. Somalia has been a great beneficiary of this support, as ECHO flights have provided a vital link to crisis zones in the region since 1994<sup>32</sup>. In 2004, ECHO provided over € million to Somalia focusing on improved access to health, proper nutrition and clean water. In addition it supported activities to minimize the effects of drought (ECHO 2004), through its work on emergency and recovery activities, which has helped reduce the impacts of destitute people on the environment in order to survive.

**Degree of integration of environmental issues in PCM of EC programmes and projects:** There does not appear to be a strategic way by which the C ensures that environmental issues are mainstreamed into its project support and portfolio. SACB coordinates the overall development for Somalia and the sector committees are supposed to coordinate environmental concerns, with varying degrees of success. EC overall policy on the environment is quite strict, and projects and programmes are obliged to adhere to them, especially in the case of sensitive environmental issues.

## **4.2. Cooperation funded by other agencies**

### **4.2.1. Somalia Joint Needs Assessment<sup>33</sup>**

At present the Joint Needs Assessment (JNA) is the main vehicle for future planning for Somalia. The JNA is comprised of UN agencies, the World Bank and the EU, and is 80% funded by the EU. It is sectorally based with a coordinating secretariat. The JNA operates in the form of six main clusters namely Governance, Security and the Rule of Law, Macroeconomic Policy and Data Development, Infrastructure, Social Services and the Protection of Vulnerable Groups, Productive Sectors and Environment, and the Livelihoods and Solutions for the Displaced clusters. The JNA has been compelled to work with often un-reliable data, and unsubstantiated opinion, but have now produced draft reports for each of the clusters. It is envisaged that the outputs from these clusters will support the planning and implementation of the Somalia Reconstruction and Development Programme.

In the Productive Sectors and Environment Clusters report, two themes emerged a). the importance of environmental destruction and the urgent need for restoration; and b). the importance of economic growth for employment, income generation, and poverty reduction (UN and World Bank 2006). The assessment report emphasizes that urgent action is required to reverse the environmental degradation in all areas, and restore and better managing the existing lands and sea areas, and highlight the following areas for action:

- Enforce the charcoal export ban, and intensify reforestation;
- Complete a thorough “State of the Environment” report;
- Investigate the alleged toxic waste sites south of Gara’ad, and clean up the chemical contamination at the former Desert Locust Control Organization site in the Ayaha Valley;
- Investigate chemical contamination at the former missile site in Berbera and if necessary draw up a plan for and implement a de-contamination program;
- Establish a broad-based National Environmental Co-ordination Committee;
- Evaluate management and marketing strategies for livestock in northern and central areas with the objective of making more effective use rangelands and more effective risk management as the rangelands have become less resilient due to drought because of the removal of most tree cover;
- Control the tsetse fly from the Shabelle and Jubba valleys and the control of epizootic livestock diseases should be funded and started as soon as possible; and
- Enforce the licensing of all boats fishing in Somali territorial waters, and establish a coastguard with jurisdiction over all Somali territorial waters to monitor licensees and their fishing practices, and to eradicate piracy.

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<sup>32</sup> Source : [http://europa-eu-un.org/articles/en/article\\_1332\\_en.htm](http://europa-eu-un.org/articles/en/article_1332_en.htm)

<sup>33</sup> Note : As the JNA cluster reports are still in draft form, we have not formally referenced them in this report

The Livelihoods and Solutions for the Displaced report acknowledges that 80% of rural livelihoods in Somalia are dependent on natural resources (pastoralism, cultivation and fishing as well as the importance of other environmental products), and that a major challenge is to both sustain the natural resource based for livelihoods and expand it to improve nature resource management as well as means to value-add. Emphasis is placed on the importance of the natural resources to people's livelihoods – in terms of cultivation, pastoralism and the importance of other natural resource products (gums and resins, honey, vegetable oils, henna etc.). This acknowledged importance of the natural resource and environmental base to people's livelihoods now requires a much stronger strategic integration (e.g. in macro-economic planning, mainstreaming) as well as within the different sectors.

The Infrastructure report acknowledges the importance of wood based energy for over 87% of the population, and provides a good analysis of the potential for alternative energy sources in Somalia, such as wind and solar energy with suggestions as to how such technologies can be integrated into the overall energy system. The report highlights the importance of the ensuring the environment and social safeguards are applied to infrastructure development. However while the report notes the importance of wood as the dominant fuel, most of the recommendations relate to alternatives. Suggestions could be made on the sustainable use of wood based fuels – on their own or in combination with other energy sources. Emphasis is rightfully placed on the importance of water, especially for the rapidly growing urban areas, but this is needs to be linked to wider urban catchment issues both for water and other needs. Urban waste management is becoming as critical issue both from a social and environmental context, and is exacerbated by rapid urban population growth. The report suggests a range of waste management interventions, and re-cycling should be included as one important tool to reduce the amount of waste.

The Social Services and the Protection of Vulnerable Groups draft report should offer great potential as to how environmental issues can be better integrated into other sectors (e.g. health, water, education) and as an approach to reducing vulnerability. This should come out more strongly given the importance and impact of droughts and risk management, the importance of the environment in subsistence and poverty reduction and the potential the environment offers in terms of small scale enterprise to lift people out of poverty. Integrated water management is suggested as one strategy, but this needs to be better linked to wider catchment management. In the health sector great emphasis is placed on the “formal” health care system, yet the importance of the environment (and its goods and services) should be a strategic part of health care. The report acknowledges the importance of community driven development as an important entry point for addressing environmental issues, and to integrate important cultural values and knowledge systems of the Somali people.

The Macroeconomic Policy and Data Development report does not acknowledge the overall importance of the environmental goods and services in macro-economic development, except in the context of tax (on livestock, fish, fruits, vegetables etc.) and an increasingly high export tax on charcoal as one means to curb the international trade. The JNA advocates for the imposition of off-shore fishing rights, yet the means to enforce and monitor this needs to be described. This report suggests devolution to the district levels. This needs to be harmonized with the Livelihoods and Solutions for the Displaced report which proposes Community Drive Development participatory approaches to empower local people to be decision makers in resource utilization. Such approaches need to be linked with the recommendations of the Governance, Security and the Rule of Law draft cluster report which highlights the importance of developing governance structures that would enable the recovery of livelihoods through local governance and community-led initiatives and partnerships. Here there are a number of opportunities for including environmental governance, and this CEP makes suggestions as to how this can be done.

While the JNA reports provide a lot of data, though much of it needs substantiation, with respect to Somalia on a wide range of areas, it has not been as successful in terms of environmental data (and it is hoped that this CEP might be of assistance here). Environmental issues and the importance of environmental goods and services are mentioned in all the cluster reports. Indeed they are often well analyzed in the description sections. Yet this does not always translate into related actions. Given the importance of the environment in Somalia, a more strategic (within each of the cluster areas) approach to addressing environmental issues is required, for example on mainstreaming, and devolved (village level) environmental and land use planning. At present more curative type approaches to the environmental problems and issues are taken, rather than being more strategic and address root causes. Community driven development approaches offer one mechanism to being more strategic, but

this needs to be linked to a greater economic and social understanding of the importance of environmental goods and services are for Somalia, which can then be linked into macro-economic development policy and poverty reduction strategies.

#### **4.2.2. Other Agency Cooperation**

FAO, as part of the Tropical Forestry Action planning process in the 1980's funded a Tropical Forestry Action Plan for Somalia with a focus on trying to ensure that the forestry (forests, woodland, tree goods and services) are seen as a key component of national development and economic growth. This is as true now as it was then, where tree based products are a critical livelihood resource (timber, fuel, browse, medicinals etc.) yet are to a great degree unrecognized. More recently FAO have become involved in the marine sector, and with irrigation.

UN-HABITAT has played a lead role in the urban sector in Somalia since the 1990s, and focus on sustainable urban development through participatory approaches in urban governance (Tukstra 2005; UN-HABITAT 2005, 2006). A wide variety of urban issues have been addressed through the Good Local Governance and Leadership Training Programme (GLTP) and the Support to the Priorities in the Urban Sector (SPAUS) Programme, which supported urban law reform, municipal finance and assets management, urban planning and development control, as well as land management, property registration and the development of urban land information systems. The SPAUS programme ended in 2005, and has been replaced by the Somali Urban Development Programme (SUDP), an umbrella programme for all urban related interventions in Somalia' urban sector. SUDP was initiated in 2005 with support from the EC, UNDP and the Government of Italy (UN-HABITAT 2005, 2006). The programme consists of i) urban governance, including legal and institutional reforms, strengthening municipal governance and the role of civil society; ii) urban management, including strategic planning, land management, municipal finance, delivery of basic services and local economic development; and iii) the implementation of projects. A number of initiatives have been undertaken in support of urban planning and capacity building in Somalia through these programmes (UN-HABITAT 2005, 2006), but environmental issues are not a major focus except in the context of urban waste management and plastic bags.

UNICEF<sup>34</sup> has executed a wide range of water and sanitation activities in Somalia over the years, funded by the EC and others. In particular UNICEF has supported schools to ensure that the students have access to clean water and safe sanitation, but also works closely with local communities, water authorities, and NGOs. In 2004 nearly 200,000 more people drank clean water and over 137 shallow wells were dug or rehabilitated. Having safe and clean water supplies, and safe sanitation are both environmentally important. But there would be value added in being able to link the provision of clean water to improved catchment and watershed management.

UNDP has been an important player in the reconstruction of Somalia and has a total of 48 activities (funded by the EC and others) in six broad areas, as well as more generic operations support. They have a programme on governance (with respect to civil society and women's participation), which should address environmental governance. In addition they support programmes related to mine removal, urban development, and river management in Jowhar. Of particular relevance to the CEP is their work with respect to drought mitigation and sustainable livelihoods, where they are supporting community based programmes to rehabilitate water sources and protect ecologically fragile zones.

There has been a long history of World Bank, USAID and GTZ support to rangelands in Somalia, and lessons can be learnt from the work done, but in a manner that is more integrative with other sectors. The Central Rangelands are efficient but fragile production systems, where the challenge is to maintain its productivity in the face of pressures to increase stocking rates and expand the coverage of enclosures (UN and World Bank 2006). Two World Bank projects in the Central Rangelands, co-financed by a number of donors, reviewed range management issues from 1979 to 1991.<sup>35</sup> Substantial work was started, but was not completed. However the experience of these large initiatives needs to be assessed in terms of present day needs.

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<sup>34</sup> Source: [http://www.unicef.org/somalia/wes\\_95.html](http://www.unicef.org/somalia/wes_95.html)

<sup>35</sup> World Bank. "Central Rangelands Development Project", Phases I and II (Credit Nos. 906-SO and 1957-SO). Other agencies contributing to the first credit were IFAD, USAID, GTZ, WFP and ADAB (now AUSAID). The second phase of the project was closed after only 1 year in January 1991 because of the political circumstances.

### **4.2.3. Donor co-ordination on environment**

SACB (Somalia Aid Coordination Body) is the main vehicle for aid and development assistance to Somalia. It is voluntary and provides a framework to develop a common approach for the allocation of international aid to Somalia<sup>36</sup>. It comprises donor, UN agencies and international NGOs and emphasizes the need for peace, security and the existence of Somalia authorities at local and regional levels (SACB 2004). SACB has a mandate to

- Provide policy guidance and practical assistance to implementing agencies on issues of policy, security and operational constraints;
- Provide policy and operational coordination for rehabilitation and development activities particularly at the sector level;
- Develop recommendations for the allocation of resources to different regions; and
- Provide a base for possible resource allocation.

SACB operates through a network of committees, and the sectoral steering committee is comprised of the chairs of the five sectoral committees which are Food Security and Rural Development, Health, Education, Water, Sanitation and Infrastructure, Local Administration committees. The Sectoral Steering Committee provides guidance and coordination on technical and programme issues that arise from field operations. In comparison with the other areas that the SACB supports, the environment is treated as a cross cutting issue, to be part of all the sectoral committees. There is a fishery working group (as part of the committee on food security and rural development). However it seems as though environmental issues are not given high priority in these sector committees.

### **4.3. Role of NGOs, CSOs, the Private Sector and the Environment**

The evolution of Somalia civil society organizations has been slow, though progress has been more rapid in Somaliland and Puntland. Returning professionals and intellectuals have formed NGO's, and many international and regional NGOs now work in Somalia. Many of these work in partnership with local NGOs, and employ Somali staff. Especially in Somaliland, NGOs partner with Government agencies to implement projects and activities. This may be driven by necessity, as it may be difficult for some donors to channel funds directly to government agencies. However such partnerships should be supported in future as one viable means of service and project delivery.

Between 1993 and 2002, IUCN was the only NGO working directly with environmental issues (marine, energy, and village based environment management planning). Since then very few NGO's have taken a direct focus on environmental issues, though many have integrated, with varying degrees of success, environmental concerns in their activities. Horn Relief has done so, and others are introducing stronger environmental components to their work, for example the NGO Agricultural Development Organization (ADO). While the German Red Cross and the Somali Red Crescent have used EIAs to assess the impact of sub-surface dams on the environment (Earth Water Ltd. 2006). German Agro-Action supports community based natural resource management in the Dur-Dur watershed, and integrated food security with pastoral and agricultural communities in S. Togdheer and West Sol. Both of these projects have a core component of community based natural resource management.

OXFAM has been involved in Somalia since the mid 1960's with a particular focus on rural water and sanitation as part of their drought response and pastoral development, as an integral part of their wider regional pastoralist programme in the Horn of Africa<sup>37</sup>. This support includes public health and water (shallow wells and piped water systems), and an interesting "cash for work" programme to enable destitute people reconstitute their herds and re-enter the pastoral life, as well as meeting basing needs. MERLIN a UK based NGO provides healthcare and medical relief for vulnerable people affected by natural disasters, conflict and healthcare system collapse<sup>38</sup>. In Somalia they have activities relating to communicable diseases, HIV/AIDS and Malaria.

The private sector in Somalia has played a vital role in the delivery of goods and service since the collapse of the central government in 1991. Prior to the conflict the private sector mainly focused on livestock and crop production. Their current role extends to the delivery of essential services such as

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<sup>36</sup> Source: <http://www.sacb.info/>

<sup>37</sup> Source: [http://www.oxfam.lk/what\\_we\\_do/where\\_we\\_work/somalia/index.htm](http://www.oxfam.lk/what_we_do/where_we_work/somalia/index.htm)

<sup>38</sup> Source: <http://merlin.org.uk>

electricity, water and waste disposal, as well as business. Prior to the collapse of the central government there were laws and regulations that managed and controlled the use of natural resources from land to wildlife. With the collapse of the government came the collapse of compliance to environmental laws and policies, and the means to curb the degradation of natural resources. With the relative void or weakness of state institutions, the private sector has grown impressively in recent years, especially in service activities, the industrial sector and trade (World Bank 2006). There has also been large scale private sector investment by the Somali diaspora (accounted for in remittances), though little of this is environment related, except for fishery equipment. What is clear is the need for a public and private investment policy that provides an enabling environment to encourage growth and diversification of the private sector, but which would stress the importance and role of the private sector to the sustainable management of the natural resources. One avenue that could be explored in the short term is the strengthening of the chamber of commerce in the three regions.

Issues relating to trade and environment are exacerbated by the lack of adequate legal and regulatory frameworks. Somalia lacks expert evaluation on the adequacy of prevailing investment and business legislation. Overall, the existing weak capacity of the regional governments to evaluate investment proposals that use natural resources continues to be the major obstacle in ensuring a positive relationship between trade and the environment (World Bank 2006).

## **5. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1. Key Messages from the CEP**

The natural resources (trees, wood and grasslands, and the water and marine resources) are the basis for people's livelihoods and for economic growth in Somalia. Pastoralism is the dominant livelihood combined with some agriculture, while fisheries have a great potential to be more important. Ultimately the environmental goods and services are the basis for livelihood security and development, and have to be the foundation for national economic growth and development. With evolving governance structures and policies, Somalia has great opportunities to mainstream the environment in a manner that recognizes the importance of the environment to security and development, and be the basis for demonstrating the importance of the environment to Somalia's achievement of the MDGs. There are six key messages coming through this CEP:

1. The environmental goods and services are the foundation for the rebuilding and reconstruction of Somalia. Pastoralism is the main livelihood strategy best suited to such risk prone environments, while fisheries, if regulated and managed can become an important livelihood strategy. Conversion of pastoralist best lands undermines the sustainability of pastoralism, which is exacerbated by unsustainable charcoal production. Reversing such trends through integrated land use management and planning, and being prepared to negotiate more sustainable trade-offs, will help in the restoration of such lands;
2. The people of Somalia possess a rich and detailed knowledge base about their environment and how best to manage it. This knowledge is particularly rich for pastoralist land use and includes detailed information about species and ecosystems, as well as the various institutions for management in a very risk prone land. Synergies between customary knowledge and institutions and environmental management should be encouraged;
3. Climate change is a reality and the Horn of Africa will become drier with more frequent and extreme droughts and floods. The traditional risk management and resilience enhancement strategies will be a critical basis for adapting to, and managing climate change. At present, little effort has been made to incorporate risk management and adaptation (for climate change) into development, which could undermine the very developments being promoted;
4. Environmental issues are cross sectoral, though overall policy support, guidance and regulation of last resort are needed. All the different sectors need to recognize and integrate the importance of the environmental goods and services in their mandates, incorporate appropriate accountable indicators, and establish the necessary regulatory framework for the environment;
5. The basis for sound environmental management is land use planning. The linkages between the sustainable and improved use of the environment and improved and more secure livelihoods need to be clear. Village based land use and environmental management plans can promote integrated land use, and recognize (and negotiate for) trade-offs amongst different forms of land use. Such planning can be up-scaled to district and regional levels which would serve to ensure that pastoralist migration movements are incorporated, and that catchments needs are negotiated and agreed upon, together with the trade-offs that may need to be made; and
6. There are other activities which impact on the environment that go beyond the local level, e.g. roads, industry, and river basin and ecosystem management. Village based management is the best starting point to gain local ownership, but this also needs to be linked to wider catchment and ecosystem management.

### **5.2. Legislation and Institutional Context**

Policy and legislation with respect to the environment is weak and outdated. Existing policies and policies in development would benefit from environmental input, in terms of assessing the potential impact of such policies on the environment, or how they could contribute to environmental conservation and livelihood improvement. The reality at the local level is that customary laws, rules and regulations remain the backbone for local land use management, and for resolving disputes, including those related to management of local resources. One of the main challenges for such rules and regulations is how to harmonize them with modern laws and policies.

## 5.2.1. Environmental Mainstreaming

### Box 6: General benefits of SEA

1. Meets needs for integrated and balanced decision-making
2. Potential to relieve burden of assessment at project level
3. Enables decision makers to develop policies and strategies based on sound understanding of their sustainability options
4. SEA is proactive, enabling decision makers to avoid the costs and missed opportunities that are associated with inadequate information and limited choices
5. Application of SEA in a flexible, consultative, transparent and iterative process helps identify best practicable options for achieving positive outcomes and minimizing adverse effects in accordance with sustainability principles.
6. SEA should be applied at the highest level possible in planning or decision making to focus on the 'source' of environmental impacts rather than addressing their symptoms later on.
7. The results of SEA can cascade down the decision making hierarchy and streamline subsequent, lower-level decisions.
8. When used systematically at a high level, SEA facilitates early integration of environmental and socio-economic concerns.
9. SEA can identify specific measures to mitigate potentially adverse effects of implementing policies, programmes and plans, and can establish a framework for subsequent project-level EIA.
10. SEA helps strengthen and streamline project EIAs, particularly when the results of one approach can be tiered to the conduct of the other.
11. There are opportunities for time- and cost-saving, particularly when SEAs of policies and plans initiate, or set a framework for specific projects that are subject to EIA.

Source: (Dalal Clayton & Sadler 2005)

The different sectors in Somalia need to integrate environmental issues in sectoral policies and laws. Given the importance of the environment, environmental oversight should be vested with a strong ministry, such as planning and finance, or the Presidents office. A process of Strategic Environment Assessment (SEA) could be used as an important internationally recognized tool (Box 6, (Dalal Clayton & Sadler 2005)). SEA would identify, in all sectors, policies and laws where environmental issues are or could be important. Somalia can draw lessons form other countries, and avoid pitfalls made elsewhere in centralizing environmental issues in one, often weak, ministry or department. This will help ensure that the environment goods and services are recognized for the importance they deserve in the different sectors and as part of overall economic planning and development.

### Recommendations

1. Review Environmental Impact Assessment (EIA), and Strategic Environment Assessment (SEA) tools and approaches, both from other countries and from experiences in Somalia to provide a broader analysis and assessment of the importance of the environment both within sectors and at a national level.
2. Provide support (including studies where necessary) to ensure that SEAs are carried out for existing and future policy and legislation in the different sectors so that the importance of the environment to a particular sector is recognized, understood and integrated into policy and law;
3. Link future support to a particular sector on the extent to which the particular sector integrates the findings of the SEA into their mandate, goals, objectives and activities, and as a tool for the implementation of sectoral policies;
4. Develop capacity to carry out SEA within Somalia, and awareness amongst those concerned with policy on the importance of SEA;
5. Develop capacity in national accounting (including national statistics offices), evolving PRSP indicator (and means to measure) processes so that environmental goods and services are recognized (economically, sectorally, nationally), and strengthen the livelihood – environment linkages. This would also include the environment being integrated into national accounts, and undertaking public sector expenditure reviews on the environment;
6. Support and raise awareness about Environmental Fiscal Reform within the evolving Government Administrations through workshops and meeting to place the environmental issues as an important country agenda, and set the stage for multi-stakeholder processes;
7. Given the level of risk (climatic, drought, floods) in Somalia, develop national capacity for risk management (early warning systems, risk management, adaptation) that can react rapidly in times of risk as well as making the long term strategic investments needed, and strengthen existing structures for drought and risk management;
8. Ensure that appropriate EIAs are carried out for activities likely to have an environmental impact, as this is an EC (and other donor) requirement;
9. Link mainstreaming activities and outcomes to the devolution of natural resource and land use management through local level planning and decision making, and land and environmental management (local empowerment);
10. Identify the opportunities and constraints to increased growth based on the environment and natural resources, and asses the impact of the key productive sectors on the environment and natural resource base;



11. Create greater awareness across all sectors and agencies about the importance of the environmental goods and services, how this can be integrated into agency and sector workplans and activities; and
12. Develop capacity to monitor the environment (for example with respect to climate change, land use, impact assessments for new activities) at different levels (village upwards) and be able to provide input to the achievement of the MDGs and poverty reduction strategies; and
13. Develop capacity for integrated land use planning, water resource and basin management, management of off-shore fisheries, environmentally benign technologies for fuel.

### **5.2.2. Multilateral Environmental and Other International Agreements**

Somalia has signed a number of international agreements and MEAs. There has not been much progress in implementing international agreements and MEAs.

#### **Recommendations**

1. Support Somalia to re-affirm its commitments to the various international agreements it is party to, and ratify some of the other important agreements for Somalia, such as on Hazardous waste and UNFCCC, which are of particular relevance to Somalia;
2. Support processes to appoint national focal points for the MEAs so as to implement (and report on) the MEA action plans and provisions in collaboration with other sectors;
3. Assist Somalia to prepare for, and attend Conferences of the Parties of the various MEA's it is party to; and
4. Identify and support activities (through projects at present) to demonstrate that Somalia is implementing the provisions of various international agreements.

### **5.3. Governance and Peace Building**

#### **5.3.1. Village Land Use and Environmental Management Planning – the Foundation for Livelihood Improvement and Security**

Village based land use and environmental management planning combined with the devolution of rights and responsibilities to the lowest appropriate level would appear to be the best policy option for overall and more integrated land use and environmental management as it will support local level ownership and be part of a rights based approach to environmental management. Except for urban areas, people are organized in “villages” with a rural landscape that they depend on. Government would have overall responsibility for the enabling policy framework and legislation, and retain the role of ‘regulator of last resort’. This would also form the basis for district and regional based land use planning. Village Land use and Environmental Management planning has been successfully piloted in Somaliland by IUCN (Barrow 1998; Barrow et al. 2000; IUCN - The Eastern Africa Regional Office 2001; S.J. Younis & A. I. Abdillahi 1999; S.J. Younis & H.A. Abdillahi 1999). Such an approach would enable pastoralist livestock movements to be negotiated for, create a context for agricultural (crop based) development, improve ways to manage risk (especially drought), adapt to climate change, and offer support for decentralization and greater equity. This will foster local ownership, and link them to wider water basin and catchment plans to promote overall improved natural resource and land management. Proper land use and good soil management will be key to future agricultural, range, and woodland development of Somalia.

#### **Recommendations**

1. Policy decisions should be taken to support devolved land use and environmental management planning to the level of the village as the foundation for wider land use planning and management;
2. Such land use planning should be under the overall responsibility of one key ministry which has the authority to implement such a planning process over time, for example the Ministry of Planning and Development (or its equivalent);
3. Such planning should be cross sectoral, but owned at the village level and be capable of integrating issues that go beyond the village so as to include pastoralist grazing patterns, access to fisheries;
4. Donors should support such devolved land use planning in their project activities whether as the major activity or as part of other activities. Lessons from existing practice in Somaliland are available as a basis;
5. Assess existing land use management systems and their overall potential as support for the village based land use and environmental planning;

6. Projects being implemented on the ground should be encouraged to engage in this process, even if their focus is narrower and more sectoral; and
7. A similar but adapted process could be used for small urban centres, and UN-HABITAT are using such urban planning tool in their work (UN-HABITAT 2005, 2006).

### **5.3.2. Governance and Civil Society Participation**

As governance structures are evolving and developing, there is a great potential to take on broad environmental concerns at all levels. Somalia can learn from how other countries have done this, and build on their own experience. The broad absence (or very weak) of governance structures and systems has allowed civil society (NGOs, CSOs, customary institutions) and the private sector to take on many of the roles of government. The Somali people, their knowledge, institutions and management systems are the foundation for national reconstruction and development, so it is important that the people of Somalia are a part of the solution, and not the continuing problem. Unraveling the thousands of land and property disputes emanating from the collapse of the State has been near the centre of every peace process since 1991, and will be a major hurdle in reconciliation efforts.

#### **Recommendations**

1. Support and build capacity for partnerships (Government-NGO, NGO-Private Sector, etc.) to build on the comparative advantages of the different sectors in development, environmental change, and nation building;
2. Support activities which promote responsible devolution of rights and responsibilities to the lowest appropriate levels;
3. Develop capacity at all levels so that Somali people and their institutions can take on their rights and responsibilities both generally and with respect to the environment;
4. Carry out studies and assessments (where needed) to better understand the reasons for natural resource (e.g. water, rich patch vegetation) conflict, how local communities manage conflict internally, and how such conflict management systems can be better understood and acted up at higher levels;
5. Support existing customary institutions to assist with the mediation and resolution of natural resource related conflicts, for instance to water or to rich patch grazing areas;
6. Ensure that natural resource conflict management and mediation is a key component of any land use planning and development;
7. Improve the understanding of Somali customary institutional arrangements and how they can be promoted and integrated into contemporary development strategies;
8. Recognize at all levels (within the country, in donor assisted projects and programmes) the importance of gender and equity, and support activities that help achieve equity.
9. In the longer term support processes to resolve, reconcile, negotiate, and in some cases reconstitute land claims. This is central to any long term peace, and is the basis for sustainable and improved environmental management where security of rights to land, whether individual, communal or in combination is fundamental.

### **5.3.3. Gender and Equity**

There is a dichotomy of gender roles in Somalia among the nomadic and/or semi-nomadic pastoralist communities. Women are the backbone of Somali society doing much of the labour required for survival, and play an important role in keeping the peace. Traditionally, women had no formal role in the clan based political processes, nor are they often involved in the decision making processes of government and public bodies. This gender dichotomy has implications for the role of men and women in managing natural resources in Somali society.

#### **Recommendations**

1. Interventions designed to manage natural resources need to take cognizance of gender roles and mainstream them;
2. A greater understanding (studies, empowerment) of the different genders roles women and men play with respect to the environment is required, and how these can be recognized and valued in development, land use and sustainable development;
3. The role of women as natural resource managers needs to be better recognized and respected, and built into project activities; and

4. As women generally lack power and authority, continued and increased support needs to be provided for greater equity in all aspects of decision making and in society, but with particular respect to the environment.

#### **5.4. Reduction of Widespread Vulnerability**

##### **5.4.1. Vulnerability to Natural Disasters**

Somalia, in general, lacks the capacity to deal with major disaster events such as the tsunami. The tsunami (and other relatively “one-off” natural disasters) notwithstanding, drought is the main natural disaster in Somalia. Droughts are often followed by floods, for which already weakened communities and their livestock are totally unprepared for, and this results in further suffering and misery. Early warning systems are in place (FEWS) based on climate modeling, but the ability to react to such early warning systems does not seem to be there, or else drought events would not proceed to famines. Natural disasters, such as droughts and floods, are a fact of life in such risk prone environments, and need to be integrated into all sector policies and planning, and rural development strategies so as to be able to manage and mitigate their effects. Lastly, insecurity creates the space for the powerful to usurp or ignore customary institutions for resolving conflict. Peace and recognition are key prerequisites. Though conflicts are likely to continue, and indeed natural resource conflicts (over water, season grazing access for example) are a fact of life, it has to be managed for, so that such conflicts do not escalate.

##### **Recommendations**

1. Support and strengthen the institutional and human capacities for disaster management in both the short and longer terms for both existing and evolving institutions;
2. Undertake a thorough site assessment to establish and validate the impacts of contamination to both the soil and water resources as a result of the tsunami so that accurate remedial action can be undertaken;
3. Create greater understanding (studies and awareness) about existing customary coping and risk management strategies, what natural assets survive best through drought time.
4. Ensure that such coping strategies are integrated in planning and policy through focused support to such programmes as FEWS, FSAU, and SWALIM;
5. Specific drought intervention measure may be required, such as a national effort to buy (and export) livestock before they are weakened (though this may be expensive), and having drought time forage reserves in place (for example along rivers, on mountains).
6. Support processes to internalize early warning systems at different levels of government, amongst communities and NGOs.
7. Establishing an institutional-level unit to coordinate activities through multi-level stakeholder participation into effective, harmonized mine-awareness campaigns and clearance operations.

##### **5.4.2. Climate Change – A Reality to be Managed for**

Climate change is an acknowledged fact, and it is likely that the horn of Africa will become drier with more extreme and frequent droughts and floods, even though the factors causing climate change are beyond the borders of Somalia, as the country has a small carbon foot-print, Unless early action is taken to adapt to climate change, the country may not be in a position to achieve any of the MDGs. At present there is little appreciation of the threats that climate change pose, even though there are drought early warning systems in place, and the Somali people have time tested risk management and resilience enhancement strategies. Unless adaptation measures are planned for, this could have drastic effects on well-intentioned development efforts by the Government, local communities and international organizations.

##### **Recommendations**

1. Support existing processes and institutions for improved disaster management capacity;
2. Recognize and integrate the importance of existing traditional coping mechanisms and build this into land use and environmental management planning and into other early warning and risk management strategies;
3. Planning at all levels needs to incorporate a strong sense of risk mitigation, resilience enhancement, and adaptation;

4. Study how environmental assets could play an important role in mitigating the effects of climate change, where restoration with appropriate species and methods can improve risk mitigation and create greater resilience;
5. Ensure that the findings of such studies are integrated in climate change mitigation and disaster preparedness;
6. Enhance the ability of existing early warning systems (for example FEWS, FSAU) to cater for the impacts of climate change, and be able to offer more “real time” data and analysis to users. This needs to be linked into IGAD’s Climate Prediction and Application Centre.
7. Test Strategies for adapting to climate change, for example through the wider use of more drought tolerant grass and tree species, so that a greater proportion of the rainfall is absorbed and does not run-off through the use of various forms of water harvesting (e.g. micro-catchments, larger forms of water harvesting). This can supported by a greater understanding of what species survive well through prolonged periods of drought and can continue to supply products (browse, food etc.).
8. The EC as one of the biggest supporters of development in Somalia can play a proactive role in preparing Somalia for climate change through supporting a better understanding of how the existing risk management strategies work and could be adapted for climate change.

## **5.5. Rural Development and Food Security**

### **5.5.1. Livestock**

Livestock are the mainstay of rural people’s livelihood strategies in Somalia. Pastoralism has proved to be the best way for rural people to secure their livelihoods while maintaining fragile arid and semi-arid ecosystems which ensures that biodiversity and natural resource use is both sustainable and integrated into land use planning and development. Access to, investment in (financial, physical and human capital), and use of Somalia’s wet and dry season rangeland areas is key to the success (or not) of pastoralism. and water access, yet agricultural development receives inordinate emphasis.

#### **Recommendations**

1. A greater understanding of the importance of the livestock sector is needed as justification for greater investment in pastoralism, livestock production and marketing, and greater economic incentives for livestock management;
2. Support is required so that Somali pastoralist products (mainly livestock based) are of the quality adequate to compete in the international market, and so be a more important foreign exchange earners, for example leather and milk products, tanning, milk processing, and processing other natural (usually tree based) products from the pastoral system;
3. Carry out detailed assessments of the current status of the rangelands;
4. Asses pastoralist land management systems (wet/dry season grassing, water/salt access, social institutions responsible for management) after years of insecurity, and suggest how pastoralism can be a key part of wider land use and environmental planning;
5. Policy (at different levels) needs to actively acknowledge the role of the livestock sector and pastoralism as the mainstay of the country. This needs to be reflected in donor investment;
6. Assess the role of enclosures both from the traditional pastoralist management perspective and the more “modern” uses of enclosures, and make recommendations that can be included in both policy and local level planning; and
7. Reliable data is required with respect to livestock numbers, internal and international livestock trade, values of the livestock sector (both local and in terms of foreign exchange), though it might be better to assess livestock numbers over space (spatial and seasonal movements), and time (tracking numbers over a number of different seasons).

### **5.5.2. Agriculture (cultivation based)**

In the arid- and semi-arid conditions of Somalia crop cultivation will always be of limited potential due to aridity and water access. As part of pastoralism, opportunistic rain fed agriculture can be integrated into pastoralist land management.

#### **Recommendations**

1. Irrigated agriculture needs to be planned in the context of the wider catchment and take into account other land uses and other forms of water use, for example access to dry season forage and water;

2. Agroforestry opportunities should be further explored and promoted to make optimal use of cultivated lands, e.g. by combining fruit and multipurpose trees with crops, or producing forage crops for the dry season;
3. Support small scale micro-enterprises and marketing processes based on livestock, livestock products and other natural (often tree based) products;
4. Assess “oasis” type areas in Somalia which are critical to the livelihood strategies, and their importance from the perspective of broader land use management;
5. Plan for the management of irrigation to mitigate problems associated with salinization, chemical pollution, and invasives, for example;
6. Build on village land use and environmental management plans to identify areas appropriate for dryland farming and better integrate rain-fed farming into broader land use; and
7. Promote low fertilizer and chemical cultivation so as to integrate the principles of organic farming which is environmentally more benign, e.g. indigenous species and varieties

### **5.5.3. Forests and Woodlands**

Trees and woody species are the most important vegetation of the country, and are particularly important in dry and drought times, where they are a critical component of pastoralists risk and drought management strategies. This importance needs to be reconciled with competing demands for trees and shrubs (for example the thresholds for sustainable fuel, charcoal, building timber, and fodder use and production) to achieve the sustainable management of natural resources.

#### **Recommendations**

1. Carry out an inventory of Somalia’s timber and range resources with respect to distribution, species composition, level of use and degradation, and the potential for sustainable;
2. Gain a better understanding of, and seek means to improve the management, production and marketing of important non wood tree products, especially for henna, myrrh, frankincense etc.;
3. Provide further support to enable people to produce high value marketable products which are based on the sustainable and improved management of those natural resources;
4. Assess the existing and potential economic benefits (including being able to process, value add and make sure that as much of the value is trapped locally) of tree products as one basis for improved and sustainable rural economic growth;
5. Understand the economic value of trees and rangelands in relation to the goods they supply and the fact that they are the basis for pastoralism and the livestock industry; and
6. Streamline the export of tree based products to ensure that they come from sustainable sources.

### **5.5.4. Energy**

Rural and urban energy needs are primarily wood and charcoal based. With increasing urbanization, combined with the return of the Somali diaspora, energy demands will increase. Livelihood enhancement and improvement will place further demands on energy sources. As an imperative for economic growth and nation building, sustainable sources of energy are needed combined with more efficient use of existing energy sources, which for the foreseeable future will be wood-based.

#### **Recommendations**

1. Continue to promote energy efficient cooking stoves and methods and the use of alternative energy sources (solar, wind) which are environmentally appropriate and socially acceptable. The use of coal could be explored, but the emissions from coal would be a concern;
2. Alternative energy sources require greater assessment, investigation and investment in. Solar energy could be an important asset given the right policy and economic incentives – especially at the household and small scale levels of power need. Wind power is another alternative which could have a long term potential, particularly along the wind blown coast lines;
3. Promote strategies which will result in a sustainable internal charcoal trade, including sustainable management of trees, improved means of charcoal burning, more efficient marketing systems with the appropriate controls in place;
4. Unless charcoal comes from sustainable sources, ensure that the export ban is enforced, as production needs to be under stricter control to control illegal cutting and enforce regulations; and
5. Promote improved tree management (restoration, planting, management) both around the homes, on rangelands, along freshwater and marine ecosystems and catchments.

### **5.5.5. Marine**

The marine ecosystem off Somalia contain an abundance of important large and small pelagic fish, all of which support artisanal fisheries and offshore foreign fishing vessels which operate illegally and provide little or no revenue to the country. Since the development of Somalia's own offshore fishing fleet is not foreseeable in the near future, the "sustainable" fishing of Somalia's EEZ by foreign fishing vessels should be seen as business opportunities providing a vital source of income to rebuild the country. Fishing by foreign fishing vessels also creates conflict with artisanal fishers and there are apparently armed battles between these two fisheries. The marine environment poses two major challenges of how to ensure that the artisanal fishery becomes more sustainable and locally owned, and how the IUU off shore fishery can be controlled, made sustainable and benefit the country. The first could be addressed through community based coastal seascape management, while the second will require strong international intervention and monitoring (UN, EU).

#### **Recommendations**

1. IUU (Illegal, Unregulated and Unreported) fishing needs urgent address by both government and the international community. At the international level action could be taken through the various trading grouping, the UN, and other international organizations;
2. An improved understanding of the marine and coastal systems is needed to assess what pressures they are under, and how they are being managed;
3. Some policies have been developed (for example for Puntland), which need to be implemented, enforced through legislation, and learnt from so as to develop more embracing marine and fishery policies;
4. Develop fisheries management plans for sustainable fisheries, based on a comprehensive assessment and evaluation of pelagic and demersal stocks;
5. Give priority attention to protecting the coral reefs, islands and mangroves that stretch from Mogadishu south to the coastal border with Kenya, and on the Gulf of Aden coast;
6. Under UNCLOS, the EC could, under its Common Fisheries Policy, support a process for EU member countries (and others) to enter into partnership agreements with Somalia to create a more sustainable and nationally beneficial fishery. This has been successful in agreements between the EC and Guinea-Bissau and Mauritania where fisheries contributed up to 30% of government revenues in Guinea-Bissau (IFREMER 1997);
7. Four MPAs are either proposed or in place and now require management capacity to be built within government, NGOs and local communities, so that they become operational, with sustainable financing mechanisms developed for their long term implementation;
8. Stress the role of MPAs in community fisheries management, as they provide sanctuaries to breeding stocks of threatened species, and might be a basis for community conserved marine areas being designated which would both assist in conservation and sustainable fishery management;
9. Carry out a review of the catch, processing and export management mechanisms to regulate over fishing and improve the efficiency and retail value for marketable products which would include better economic valuation of the overall marine sector;
10. Develop poverty alleviation programmes for fishing communities, small land-holders and others who might have to abandon activities such as charcoal making. This should include basic training, provision of equipment and provisional support through alternative income generating activities which would not destroy natural resources.

### **5.5.6. Conservation**

Somalia possesses important biodiversity with a high level of endemism for plant and animal species. Many of these species and their habitats are threatened by drought, insecurity, overgrazing, deforestation and poaching. There are a range of natural ecosystems that could form a basis for creating conservation areas, which need not be strict national parks, but could be some form of community conserved area. The protected and wildlife areas on land and sea that have been proposed since 1970 represent starting points for conservation efforts. Conservation threats to natural ecosystems include climate change (as the climate will generally become drier), uncontrolled land clearing for agriculture (conversion), deforestation (of especially for areas of important natural forests), and overgrazing. If key representative examples of the natural heritage are to be conserved, a great increase in public awareness is needed, together with solutions to encourage traditional range and land management systems to actively integrate conservation as a core element.

## **Recommendations**

1. Assess conservation threats to protected areas and natural ecosystems including climate change, uncontrolled land clearing for agriculture, deforestation, and overgrazing;
2. Design and implement strategies that reconcile the importance of conserving important areas of biodiversity with those of human needs and use. This could include ways to integrate protection with sustainable use, e.g. through the designation of community conserved areas (whether for forests, drylands, riparian areas or in the marine ecosystems);
3. Update the flora and fauna inventory for Somalia, much of which is out-dated. Such an update would assess the status, abundance, distribution and socio-economic relevance of each taxon;
4. Many countries have completed NEAPs (National Environment Strategies and Action Plans), and NBSAPs (National Biodiversity Strategy and Action Plans). There is a great opportunity to take some of the key approaches and tools from these planning processes and make them relevant to an evolving Somalia, in a manner that supports national economic development and conservation;
5. Re-assess the existing (on paper) system of protected areas as to its viability, species composition and conservation status. This could form a basis for re-defining Somalia's protected area network and integrating it into wider land use and environmental planning;
6. Assess the biodiversity in terms of IUCN's Red List of endangered species;
7. Assess the scale and extent of invasive species together with the potential problems such invasives might cause, as, at present, there is very little data available on invasives;
8. When undertaking land use and environmental management planning, account should be taken of the need to conserve (where they exist) and create (if possible) biodiversity conservation corridors to better create connectivity in the landscape, which could serve both pastoralism and conservation; and
9. Develop national capability and capacity in conservation, and emphasis should be placed on re-enforcing communal, clan or other traditional means of resource management.

### **5.6. Access to Social Services (including Education)**

#### **5.6.1. Water**

The rivers (seasonal or perennial) are critically important for people's livelihoods. The two permanent rivers (Shabelle and Jubba) rise in Ethiopia, and are a source of seasonal flood recession farming and organized irrigation. Understanding the centrality of water, and water management and its linkages to wider environmental management and to the overall land and water management of the country (agriculture, livestock, urban etc.) will be critical for future development, as Somalia is "water scarce". In addition water and catchment conservation measures would improve water retention and vegetation cover – one key tool for adapting to climate change. This can be combined with improvements in rainwater harvesting and use of sub-surface dams on the seasonal rivers to improve the overall water balance, and mitigate the effects of dry times on people and livestock.

## **Recommendations**

1. Assess and plan for the two permanent rivers in terms of potentially competing demands. To achieve this, a more catchment wide approach should be strived for, including the need to address cross border issues relating to the wider catchment, where a role for IGAD would be important.
2. Assess the wetlands which would benefit from historical and current research on human use, water relations and biodiversity status;
3. Rainfall and run-off water resources are much better understood than groundwater resources but there is a need to improve meteorological data collection as a basis for future modeling and prediction;
4. Study and model the impacts of climate change as reduced precipitation is likely combined with a greater frequency and intensity of droughts and floods. The findings need to be integrated in risk mitigation and early warning strategies, and into land use planning;
5. Carry out an integrated regional hydrological assessment of the two permanent rivers and make recommendations for their sustainable use, taking into account the needs along the whole of the river basins and how the rivers can be used for different purposes;
6. Plan for the provision and development of potable water (e.g. from wells, berkeds and balleys) in a wider landscape and environmental context to ensure that unplanned water development does not exacerbate degradation;
7. Water development should take into account wider catchment management; and

8. Greater attention needs to be paid to water efficiency, e.g. collection of rain water, improved urban efficiency and distribution.

### **5.6.2. Health**

The environment is a key underpinning for health through both the goods (e.g. medicinals, fruits and drought time foods), and services (e.g. catchments being able to supply clean water). The impacts of HIV/AIDS could bring on changes in land use, as people have to rely on practices such as extensive farming and natural resource use that can be damaging.

#### **Recommendations**

1. Study the extent of use of herbal remedies (species and amounts used, what ailments they are used to treat), and assess the extent this contributes to overall healthcare in the country both economically and practically;
2. Assess the importance of environmental goods and services to human health and well being (through for example clean water from well maintained catchments, use of nutrient rich wild foods and fruits, the importance of dry and drought time foods etc.);
3. Ensure that the health policies and programs on HIV/AIDS and other health problems and their impacts (positive or negative) on the environment are informed by the complex and diverse realities of women, men and children's lives and how they use their environment;
4. Support programmes to integrate important environmental issues in an accountable manner, such as the role of herbal remedies, recognition of customary healers, importance of a clean environment delivery clean water etc.; and
5. Build capacity at all levels so that the health sector acknowledges, understands and uses the importance of the environmental goods and services as a key asset in health service delivery.

### **5.6.3. Education**

As education curricula and schemes of work for education (all levels) are evolving in Somalia, there is a great opportunity to ensure that the importance of the environment is properly reflected. This is also important for the Koranic schools, as the environment is important in the Koran.

#### **Recommendations**

3. Support activities to integrate environmental education (relating to water and marine, land use, important species, conservation etc.) as part of primary and secondary school curricula and schemes of work, and for functional literacy programmes; and
4. Specific efforts are required to address gender issues, and ensure that the pastoralists receive equitable access to such education.

## **5.7. Economic Growth and Cooperation**

The goods and services of the environment present a tremendous, yet largely unrealized opportunity for economic growth. Most of Somalia's GDP is based on the environmental good and services.

#### **Recommendations**

4. Carry out economic valuations of environmental goods and services to demonstrate the value of the environment at household and higher levels, and how this competes with other forms of land use;
5. At a sectoral level, assess the economic values and contributions of environmental goods and services to that particular sector, for example the value of herbal remedies to health, the value of selling natural products for paying for school fees;
6. Ensure that evolving poverty reduction strategies take into account the real contribution of the environment. But this needs to be linked to sustainable use, markets, and economic incentives for sustainable management; and
7. Support responsible environmental accounting and national accounts to ensure that the real values of environmental goods and services are trapped.

## **5.8. Urban Development**

The urban environment is a cause of environmental degradation (e.g. waste management and pollution), as well as a consumer of environmental products – the most visible of which is fuelwood and charcoal, as well as food (fish, meat). Urban demands are increasing, and this is exacerbated by Somali returnees. The impact of urban development, with respect to such issues as natural resource



demands, consumption and emissions, effluents, waste and refuse, spillages and the dumping of hazardous products etc. need to be better integrated into overall land use planning. Urban centres need to be seen as part of wider social and environmental landscapes. Improved urban planning and development will reduce the impacts on the wider environment.

### **Recommendations**

1. With urban populations estimated to grow rapidly there is concern over the ability of the environment to sustain such development. This needs to be assessed and planned for in the context of wider urban planning that integrates the urban areas with their wider catchment areas (landscape, products, water etc.);
2. Integrate the impacts of urban development (with respect to such issues as natural resource demands, consumption and emissions, effluents, waste and refuse, spillages and the dumping of hazardous products etc) into overall land use planning;
3. Encourage recycling, reducing and re-using plastic bags, combined with the use of alternatives such as traditional baskets or *danbiil*;
4. Equip urban centres with proper waste collection, handling and safe disposal facilities as this is both part of a cleaner environment and an imperative from a health perspective
5. Improve urban planning and policy development, and implementation to reduce the impacts on the wider environment; and
6. Studies are needed to assess how recycling of waste (for example making posts and shoes from waste plastic), introduction of alternatives (for example paper not plastic bags) can both be cost effective and be environmentally friendly.

## **5.9. Donor and Regional Cooperation**

### **5.9.1. The Joint Needs Assessment**

The JNA draft reports provided a lot of data on a wide range of areas. However, it needs to take a more strategic approach to environmental issues, which cut across all the six clusters. This will involve going beyond a more curative type approach, and address root causes. The main recommendations coming from the six draft JNA cluster could better embrace the overall importance of the environment and its goods and services.

### **Recommendations:**

1. Within each of the cluster reports the JNA should identify the strategic environmental issues which need to be addressed, and ensure that actions are suggested to address them;
2. Within each of the six clusters, the linkages between the specific cluster and the environment should come out more clearly and be linked to integrated and specific actions that might be required; and
3. The JNA needs to ensure that environmental concerns receive the attention they deserve in its overall recommendations for future action and support.

### **5.9.2. Strengthening co-ordination at programming and operational level**

Given the importance of the environment, development support should ensure that all projects and programmes address environmental issues.

### **Recommendations**

1. Support SACB so that environmental issues are integrated into all different sectoral committees;
2. Donors and implementing agencies should agree on the importance of the environment in Somalia and that it should be mainstreamed; and
3. The EC Somali Operations unit should promote improved environmental mainstreaming in all activities through the initiation of a call for proposals which could centre on, for example “Poverty Reduction and Environmental Management”.

### **5.9.3. Regional Cooperation**

Somalia is a “member” of IGAD, the Arab League, and PERSGA which should form a strong basis for improved regional co-operation, for example with PERSGA along the Red Sea, and IGAD to address issues relating to shared ecosystems (river, rangeland, marine), and implementing regional projects. This requires the active engagement of the international community to put this into practice.

## **Recommendations**

1. Support processes to establish functional relationships and programmes with IGAD, the Arab League and PERSGA for instance along the Red Sea (PERSGA), with shared river (Jubba and Shabelle) basin management and wider shared land use systems (IGAD); and
2. Work with counterpart agencies (e.g. the donor agencies in Ethiopia or Kenya with respect to water or shared land use planning) to enhance the value added for regional programmes to address regional environmental issues.

### **5.10. Environmental Integration into CSP and Project Cycle Management**

This CEP has demonstrated the importance of environmental goods and services as a core asset in Somali life, a key opportunity for future development, livelihood improvement, and to the achievement of the MDGs. Correctly the environment is a cross cutting issue that requires to be mainstreamed across all the sectors. The CSP should ensure that its strategy for future investment by the EU and related donors takes into account

1. Integrating in a responsible and measurable manner the importance of environmental goods and services into all the different sectors, policies and laws. Here SEA could be a key tool;
2. Initiate a process of village based environmental and land (and sea) use planning as a tool to integrate the different aspects of land use with respect to the wider environment so as to ensure that use is sustainable. This can be the basis for district and regional level planning;
3. Build capacity so as to prepare for, and adapt to the reality of climate change;
4. Somalia will develop PRS processes as a focused basis to the achievement of the MDGs. This forms a strategic entry point to address environmental concerns, degradation and unsustainable use in the context of poverty reduction and to the achievement of the MDGs; and
5. Establish funding windows, for example “Poverty Reduction and the Environment” to ensure that EC funded projects and programmes integrate environmental concerns and opportunities in a responsible manner. The EC’s other funding mechanisms for Somalia need to ensure that they also include the environment in an accountable manner

All the donors for Somalia implement their work through projects and programmes. Somalia does not yet receive direct budgetary support, nor are there any sector specific support programmes. Probably for at least the next five years, much of the donor assistance will be channeled in the form of projects and programmes to international (and national) agencies and NGOs. This will probably also include increasing support to Government implemented projects. In this respect Agency (multi-lateral or NGO) – Government partnerships could be fostered as one approach to building government capacity. Similar partnerships could be fostered with the private sector in order to “green” their work and test approaches for greater rural economic growth based on the sustainable management and use of natural resources, including value-adding and improved marketing.

## **Recommendations**

1. In the longer term provide support to link sector and budgetary support with environmental concerns and opportunities;
2. Support “green accounting” through improvements in national accounting, statistical data gathering, and the setting of priorities for investment;
3. Ensure that all EC supported projects include a strong environmental component. At a minimum this should seek to “do no harm”; and
4. Support projects which are longer term (even if in phases). Environmental issues, by their very nature, are long term and often beyond the 4-5 year donor funding horizons. The EC and other donors should initiate such a longer term and phased approach for their activities, for example rangelands, the marine environment, and land use planning.

The CEP was, in addition, asked to highlight some indicative indicators for the environment at the levels of impact, outcome and output. These are highlighted in Table 5. It is hoped that such indicators will assist planners in Somalia and partner countries in ensuring that environmental concerns are fully integrated at all levels.

**Table 5: Suggested Impact, Outcome and Output Indicators for the Environment in Somalia**

<b>A. Suggested Impact Indicators</b>
<ol style="list-style-type: none"> <li>1. Contribution of Environmental goods to GDP especially at local and per person level.</li> <li>2. Contribution of Environmental services to GDP especially at national levels.</li> <li>3. Contribution of the environment (clean water, use of herbal remedies, wild fruits and foods) to nutritional and health status of people, especially children.</li> <li>4. Overall awareness and understanding of environmental issues in Somalia and how they can best be resolved.</li> <li>5. Improvements in the condition and sustainable management of the environment in Somalia.</li> </ol>
<b>B. Suggested Outcome Indicators</b>
<ol style="list-style-type: none"> <li>1. Policies and laws with accountable relevant and measurable environmental components and targets.</li> <li>2. Reduction of IUU fishing and greater accrual of economic benefits from fishing locally.</li> <li>3. Increased areas under sustainable natural resource management (fisheries, pastoralism).</li> <li>4. National Environmental (for goods and services) valuation and accounting systems in place for all sectors and coordinated by the central planning ministries.</li> <li>5. Education curricula and schemes cover, in a relevant and appropriate manner, Somalia environmental issues.</li> <li>6. Compliance with, and enforcement of EIA and SEA recommendations.</li> <li>7. Regional and international partnerships in, and support for natural resources management.</li> </ol>
<b>C. Suggested Output Indicators</b>
<ol style="list-style-type: none"> <li>1. Number of SEA's carried out for all policies and laws.</li> <li>2. Number of EIA's carried out for all major projects and activities and findings implemented.</li> <li>3. Number of Ministries and departments with dedicated budgets and support for environmental issues that affect them.</li> <li>4. Number of villages (and districts) with Environmental and Land Use management plans developed and approved at the local level, and being implemented.</li> <li>5. Area (Ha) under sustainable woodland and range management.</li> <li>6. Number of areas under some form of conservation status (especially community conserved areas, but also more "formal" protected areas).</li> <li>7. Number of regional and international forums (for MEA's and other regional and international agreements) with Somali representation.</li> </ol>

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