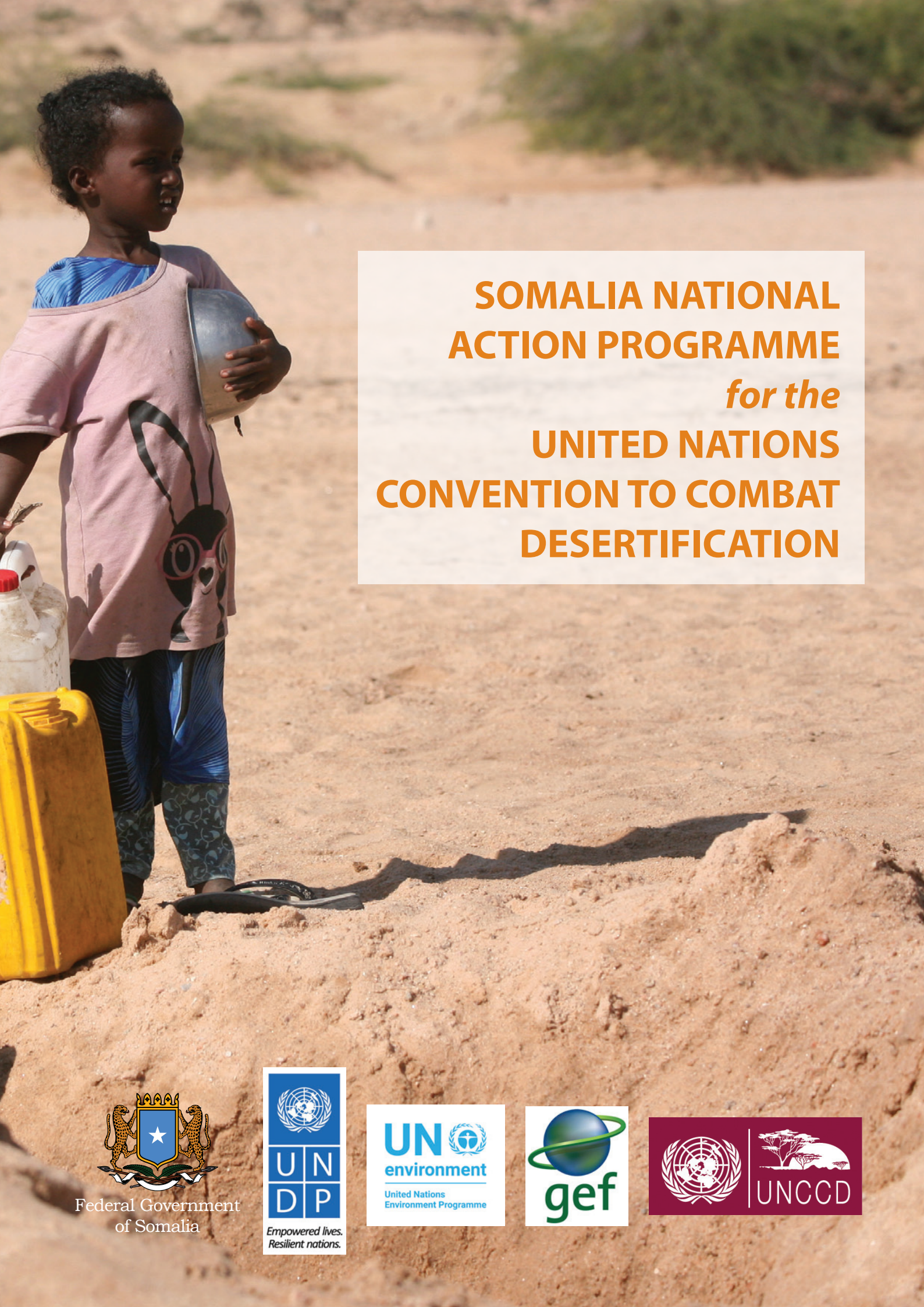

SOMALIA NATIONAL ACTION PROGRAMME *for the* UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

Federal Government of Somalia

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Somalia National Action Programme for the United Nations Convention to Combat Desertification

CONTENTS

ACRONYMS

DLDD	desertification, land degradation, and drought
ELD	economics of land degradation
FAO	Food and Agriculture Organization of the United Nations
NAP	National Action Programme
NAPA	National Adaptation Plan of Action
NBSAP	National Biodiversity Strategy and Action Plan
NGO	non-governmental organization
NRM	natural resource management
SWALIM	Somalia Water and Land Information Management
UN-Habitat	United Nations Human Settlements Programme
UN-OCHA	United Nations Office for Coordination of Humanitarian Affairs
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Populations Fund

FOREWORD

Land degradation is a threat to the livelihoods of millions of people in the world's drylands. Desertification, land degradation, and drought caused by human activities and climatic variations are having a huge toll on human well-being and the environment and hence rank among the greatest development challenges of our time. The United Nations Convention to Combat Desertification (UNCCD) facilitates international efforts to prevent land degradation, mitigate the effects of drought, and alleviate poverty by requiring countries party to the convention to prepare and implement National Action Programmes (NAPs). Somalia became a signatory to the UNCCD in 2002 and has formulated this NAP to fulfil its first obligation under the convention.

Approximately 70 percent of the Somali population are dependent on natural resources for their pastoralist and agricultural livelihoods. Land degradation is adversely affecting the productivity of both pastoralism and agriculture and therefore undermines the fight against poverty and hunger. Land degradation particularly threatens the medium- to long-term sustainability of pastoral systems since degraded rangelands cannot support the feeding requirements of animal populations.

The National Action Programme identifies priority action areas and sets out an implementation plan to reverse desertification and land degradation and to mitigate the effects of drought. The NAP was formulated through a participatory, bottom-up approach involving the concerned stakeholders and was led by the Office of Environmental Affairs at the Office of the Prime Minister. The NAP is also aligned with the UNCCD Ten-year Strategic Plan.

I commend the Federal Government of Somalia for its leadership of the NAP formulation process and for ensuring strong participation across Somali society. The NAP is an important document that will help the government and development partners address desertification, land degradation, and drought, increase the resilience of the economy, and contribute to the achievement of the Sustainable Development Goals. The UN will continue to support the Federal Government of Somalia in its efforts to tackle land degradation and promote sustainable social and economic development.

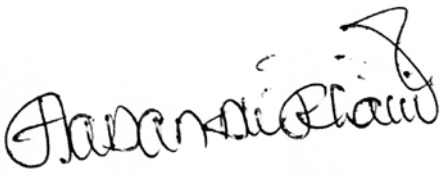
George Conway
Country Director
United Nations Development Programme Somalia

MESSAGE FROM THE PRIME MINISTER

Land degradation is the most serious environmental challenge facing Somalia. It is adversely affecting the productivity of both pastoralism and agriculture, which are the backbone of Somalia's economy. To address this challenge, Somalia acceded to the United Nations Convention to Combat Desertification (UNCCD) in 2002. As its first commitment under the UNCCD, the Federal Republic of Somalia has produced the Somali National Action Programme (NAP) to combat desertification and reduce the effects of drought. The NAP was produced through wide-ranging consultations held in different parts of the country. It represents collective efforts towards sustainable land management and the integrated management of land – both the resources that lie on its surface and those in its subsoil. Regulation and sustainable management of communal grazing lands, curtailing of urban sprawl, mitigation of the effects of land degradation, and proper planning and construction of infrastructure and road networks to minimize the effects of land degradation (particularly gully erosion) and natural disasters are the priority action areas in the NAP. The NAP is aligned with the UNCCD Ten-year Strategy (2008–2018) adopted at the Eighth Conference of Parties, which advocates for the alignment of country NAPs to the strategy.

On behalf of the Federal Government of Somalia and the Somali people, I would like to register my sincere appreciation of all the stakeholders who participated in the consultations and contributed to the formulation of the NAP. Special recognition is due to the United Nations Development Programme, in partnership with the State Minister of Environment, Office of Environmental Affairs at the Office of the Prime Minister, for achieving this substantial milestone. I would also like to sincerely thank the United Nations Environment Programme for their financial support.

Finally, I am confident that UNDP, UNEP, and other partners will provide technical and financial support for the implementation of the National Action Programme herein, as this will greatly contribute to the achievement of the global Sustainable Development Goals.



H.E. Hassan Ali Khaire
Prime Minister of the Federal Government of Somalia

1. BACKGROUND

1.1 COUNTRY PROFILE

Somalia has been in state of conflict and civil strife for over two decades after the collapse of the central government at beginning of the 1990s. Due to the absence of a functioning central government and the weakening of traditional management and enforcement mechanisms, the country's environment was severely degraded. Uncontrolled exploitation of natural resources has led to severe environmental degradation in many parts of the country (United Nations, World Bank, 2006). Huge areas that were once tree-covered rangelands have been reduced to treeless plains; the result has been disappearing wildlife and soil erosion. Approximately 35,000 hectares of land are deforested each year for charcoal production in spite of a national ban against the damaging practice. Scarcity of fresh water, severe erosion such as gullying, land degradation resulting from charcoal production, and siltation of water bodies are also major issues. Marine resources have also been damaged due to illegal overfishing and damage to marine habitats (UNEP, 2006).

Extreme weather and climate change further aggravate natural resources in Somalia, most notably by increasing spatial and temporal variability of the rainy and dry seasons, floods, and droughts. These adverse environmental impacts and the mismanagement of natural resources are negatively affecting the country's economy, since approximately 70 percent of Somalis are dependent on climate-sensitive agriculture and pastoralism.

1.2 LOCATION AND SIZE

The Federal Republic of Somalia is located on the easternmost point of the African continent. It has a land area of 637,540 km² and is situated between 2 degrees South and 12 degrees North and 41 and 52 degrees East. Somalia is surrounded by the Gulf of Aden to the north, the Indian Ocean to the east, Kenya and Ethiopia to the west, and Djibouti to the north-west. Somalia has the longest coastline among the countries of the African continent, with estimates ranging from 3,333–3,898 km.

Extreme weather and climate change further aggravate natural resources in Somalia, most notably by increasing spatial and temporal variability of the rainy and dry seasons, floods, and droughts

1.3 POPULATION

The population of Somalia was estimated to be 12.31 million in 2014. About 22.8 percent of the Somali population live in rural areas, and 25.9 percent are nomadic. Urban dwellers make up about 42.4 percent of the population, while internally displaced persons account for 9 percent. The annual growth rate is estimated at 2.8 percent. The Somali population is youthful, with over 70 percent of the population under the age of 30 years (UNFPA, 2014). The net migration for Somalia is negative, with 150,000 people emigrating from the country in 2012 (IOM, 2014). More than 1 million Somalis live as part of the diaspora in numerous countries and remain actively engaged in supporting the country through financial remittances and other forms of support. Over 1 million Somalis are refugees, located primarily in Kenya, Ethiopia, Yemen, South Africa, and Djibouti. Also, 1.1 to 1.36 million Somalis, or about 9 percent of the population, are internally displaced persons (IOM, 2014).

1.4 CLIMATE

Somalia generally has an arid to semi-arid climate. Rainfall in the country is low and has high spatial and temporal variability. The climate of Somalia is determined by the north- and southward movement of the Inter-tropical Convergence Zone. In most areas of Somalia, this results in two rainy seasons: the *Gu* as the zone passes northward, and the *Deyr* on its southward movement. In both cases, the rain is produced as the moist air from the Indian Ocean meets up with the Inter-tropical Convergence Zone. The north-easterly winds from Asia and Arabia produce little significant rain.

1.5 PHYSICAL GEOGRAPHY

The terrain of Somalia consists of mainly arid and semi-arid plateaus, plains, and highlands. Arid and semi-arid lands make up more than 80 percent of Somalia's landmass. These areas are characteristically prone to extreme weather conditions, including high mean surface temperatures, periods of extended drought, highly erratic rainfall, and strong winds (NAPA, 2013: 14). The country can be divided in to five different geographic zones: the northern coastal plains (*Guban*); Gollis mountain range (northern highlands); central coastal plains, with a wide sand dune system; a broad limestone/sandstone plateau covering all of central and southern Somalia; and floodplains of the Juba and Shabelle Rivers in the south, which provide the highest agricultural potential.

The predominant hydrographical features of Somalia are the downstream stretches of the two main permanent rivers of the Horn of Africa, both of which flow from the highlands of Ethiopia towards the Indian Ocean: the Juba, which flows in Somalia for more than 1,000 km out of its 1,800 km of total length, and the Shabelle, which extends for more than 1,200 km from the Somali-Ethiopian border to its confluence with the Juba (WFP, 2016: 258).

2. INTRODUCTION

The Federal Republic of Somalia is signatory to all the Rio conventions including the United Nations Convention to Combat Desertification (hereafter UNCCD), which it signed in 2002. The UNCCD brings together all aspects of environment and sustainable land management in one broad policy framework. Through a bottom-up approach, the convention promotes the formulation of integrated environmental and socio-economic policies to address the challenges of desertification, land degradation, and drought.

Article 9 of the convention stipulates that developing country parties formulate National Action Programmes (NAPs) to combat desertification and mitigate the effects of drought. The preparation and implementation of the NAP should utilize and build on existing relevant successful plans and programmes at regional and subregional levels for the attainment of the convention's objectives. As stated in Article 10 of the convention, the purpose of the NAP is to identify the factors contributing to desertification and the practical measures necessary to combat desertification and mitigate the effects of drought.

As its first commitment under the UNCCD, the Federal Republic of Somalia has produced the Somalia NAP through wide-ranging consultations held in different parts of the country. The Somalia NAP represents the collective effort towards sustainable land management and the integrated management of land, the resources that lie on its surface, and its subsoil.

The predominantly pastoralist and agro-pastoralist population of Somalia depend on land for their livelihoods in both urban and rural areas and thus are more susceptible to the impacts of desertification, land degradation, and drought (DLDD). Combined with unreliable and highly variable rain cycles, the situation in Somalia is highly complex and characterized by extreme events such as floods and droughts (UNDP/ICPAC, 2013). In strengthening the resilience of the Somali population and enabling their adaption to the impacts of meteorological variations, the National Adaptation Plan of Action (NAPA) and the National Biodiversity Strategy and Action Plan identify sustainable land management as a priority.

The eighth conference of parties of the UNCCD unanimously adopted the ten-year (2008–2018) strategic plan and framework to enhance the implementation of the convention. The strategy has four strategic and five operational objectives that are to be achieved over the course of ten years. Decision 3 of the eighth conference calls for affected countries to align their National Action Programmes to the ten-year strategy and also relate them to outcomes under the strategy's five operational objectives. It is against this background that the Government of Somalia is aligning its first National Action Programme with the ten-year strategy.

2.1 THE SOMALI CONNECTION TO LAND

The Somali region is defined by its ecology and characterized by trans-boundary genealogical ties and cross-border land use. Its boundaries are determined by the use of land by people and their livestock. The territory and borders of the modern-day Federal Republic of Somalia represent the balance that needs to be maintained between building a nation state and incorporating the multitude of formal and informal structures for the governance of land and natural resources. Land used for grazing (sedentary or transhumant), agriculture, or charcoal production (as

well as other uses of flora and fauna) is at the core of the Somali connection to land and the integrity of its territory (Farah et al., 2002).

The interface between geomorphology, land cover, and patterns of land use are best demonstrated by the case of Somaliland. In the 1840s, the main urban centres were clustered along the coastal cities of Zeila and Berbera (Burton, 1856; Swayne, 1905: 361). These port cities formed the primary junctions for caravan routes traversed by camels via the Sarar plains, Hargeisa, Sheikh District, Bohotle or Burao town (Lewis, 1994), with each territory (or *deegaan*) under the patronage of the respective dominant clans (Bradbury, 1996).[1]

In addition to forming part of the caravan routes, Hargeisa, Burao, and Sheikh formed natural watering grounds along the seasonal watercourses of the Togdheer River and Golis drainage basin. Prior to the introduction of *berkads* and the proliferation of boreholes, the dry season search for water and pasture would take pastoralists away from town centres to grazing areas in the Hawd eco-zone (Killeh and Awale, 2003). Once pasture in one location was depleted, pastoralist nomads would relocate to another rangeland, reducing grazing burden on one location and allowing pasture to regenerate. This process was referred to as 'traditional and natural rangeland management' in NAP stakeholder consultations.[2]

1 Bohotle and Sarar Plain caravans came under the Habar Tol Ja'lo clan; at Burao Habar Yuunis; at Sheikj Habar Awal/Iise Muuse; and Berbera Habar Awal Sa'ad Muuse; see Lewis, 1994: 115 and Lewis, 1999: 187.

2 This thinking also finds reference in Awale (2010), Awale et al. (2005), and Unruh (1995a).

The introduction of *berkads* into the dry Hawd zone in 1950s marked the start of a trend that characterizes the pattern of environmental degradation in the Somali region (Killeh and Awale, 2003). The construction of *berkads* encourages permanent settlements and concentrated patterns of land use and grazing (Academy for Peace and Development, 2002). As the numbers of settlements and *berkads* continue to grow, this increases the demand for fuel wood, timber for fencing and shelter, and other consumable goods. These predominantly pastoralist settlers then engage in commercial activities and trade, exchanging milk and livestock for food products and other commodities not locally available (e.g. sugar, tea, spaghetti, rice, etc.).

Trucks now convey goods previously transported by foot or on camelback. In the absence of reliable road networks, truck drivers are forced to carve their own pathways between settlements. This process of truck conveyance between rapidly growing settlements and their increasing demands for consumable goods further exacerbates the degradation of land. The overuse of these pathways by water trucks or traders causes soil compaction, making land susceptible to water and wind erosion. The occurrence of torrential rains deepens the cracks in the soil and forms gullies.

Throughout the Somali region these patterns of unplanned urban sprawl, unregulated groundwater extraction, and unsustainable subsistence pastoralism and agro-pastoralism are prevalent. Land degradation further amplifies the impact of social and economic systems on the natural environment. These factors exist in parallel and pervade all aspects of Somali life – social, cultural, economic, and political.

The Somalia NAP captures recommendations from the consultative process and proposes activities towards reversing desertification and land degradation and mitigating the effects of drought. As the Somali connection to land is shaped by the use of resources on the surface and subsoil of land, the input of stakeholders at the federal government level – as well as in the states of Somaliland and Puntland, where land degradation is most prevalent – has aided the formulation of a holistic approach to DLDD, elaborated in Section 2.3 below.

2.2 KEY MESSAGES FROM THE NATIONAL ACTION PLAN CONSULTATIVE PROCESS

Consultations for the Somalia NAP and the Economics of Land Degradation (ELD) Initiative were conducted in Hargeisa, Garowe, and

The Somalia NAP captures recommendations from the consultative process and proposes activities towards reversing desertification and land degradation and mitigating the effects of drought

Mogadishu. Focus group discussions and consultative workshops were held in April–July 2015 in Somaliland (Hargeisa) and Puntland (Garowe), while the consultations at the federal government level (Mogadishu) were conducted in February 2016 (see Table 2.1). In Somaliland, the consultations brought together traditional elders, ministers, and representatives from each of the environment line ministries, as well as non-governmental organizations (NGOs) and land users. The Puntland consultations were focused on government officials and district representatives. The consultations at the federal level brought together stakeholders from 12 different federal ministries.

There was a unanimous and strong affirmation that immediate action needs to be undertaken to reverse desertification and land degradation and mitigate the effects of drought. This was echoed by stakeholders consulted throughout Somalia. The key stakeholder messages that have influenced the direction of the Somali NAP and the proposed Somali approach are listed in the two following sections.

National Desertification, Land Degradation, and Drought Concerns

Food insecurity and dependence of the national economy on land

The combined effects of drought and floods have resulted in soil and land degradation, reducing the growth of grass and browse biomass and the capacity to recuperate from drought and overgrazing. This reduces the production and productivity of livestock and impacts the food security of pastoralists. Recurrent floods along the Juba and Shabelle Rivers also severely affect agricultural production in the country by destroying crops and on-farm infrastructure, hence affecting the food security of the country. The threats to livelihoods and food security that result from DLDD were the primary concern of the majority of the stakeholders consulted. The national economy's dependence on land for grazing, livestock production, and agricultural production was also considered a critical part of the rationale for immediate and concerted efforts to combat DLDD.

Escalating land conflicts as evidence of the immediate need for action

Competition for grazing land and water points, which is leading to increasing incidents of land conflict, is considered evidence that supports immediate action to reverse DLDD, whether it relates to sustainably

Table 2.1: National Action Programme Consultation Process

Place	Date	Regional Representation	Number of Participants
Hargeisa	5–6 May 2015	Awdal, Maroodi-Jeex, Saxil, Sanaag, Sool, Togdheer	77
Garowe	12–13 May 2015	Bari, Nugaal, North Mudug, Sanaag, Sool, Ayn, Hilan, Karkar regions	20
	17 June 2015		13
Mogadishu	8 February 2016	Federal-level ministries	40
Interview/questionnaire respondents			150
Total number of participants consulted and interviewed			150

managing land in conflict-affected areas (e.g. the north-eastern border regions between Somaliland and Puntland) or reducing the occurrence of conflict over land and scarce resources in the other parts of the country.

Localized incidents of drought

Traditional elders in Gumburaha village flagged the occurrence of localized incidents of drought as one of the key problems facing Somaliland. This phenomenon is also apparent in parts of Somalia. It manifests in one region suffering extreme droughts (through two or three missed cycles of rain), while an adjacent region 10 to 15 km away receives regular seasonal showers.

Unplanned urban sprawl and an absence of necessary infrastructure

Traditionally, pastoralists used camels, horses, and donkeys to transport water, consumable goods, and people. Pastoralists, mainly in the northern and north-eastern regions, have shifted from this traditional mode of transport, and trucks are increasingly being used. Since there are no feeder roads to household settlements, each truck carves its own road in the plateaus and valleys; this destroys grass and leads to soil compaction and the formation of gullies, which expand every rainy season. Mushrooming small villages and mobile camps and the unplanned expansion of cities into grazing lands are also considered an immediate cause of persistent land degradation in the Hawd zone, Nugaal Valley, and Karkar/Darood Valley.

Call for Immediate Action

Pastoralists are viewed as having first rights to land

The federal government and regional governments expressed commitment towards securing communal access to and use of rangeland resources for pastoralist communities, with emphasis on safeguarding communal rights against land grabbing and illegal enclosures. The role of elders was considered critical.

Decentralized service delivery and enforcement

Strengthening district-level service delivery and the enforcement of land-use laws and policies by local governments was considered a key starting point. This will particularly involve working with land users through Village Development Committees, both in areas where there is government presence as well as in administratively unstable regions.

Lack of seasonally disaggregated baseline data

The complete lack of seasonally disaggregated land-use data provides challenges for medium- to long-term mapping, national planning, and early warning. Furthermore, it limits the understanding and prediction of localized incidents of drought and the management of livestock migration routes.

2.3 SOMALI APPROACH TO DESERTIFICATION, LAND DEGRADATION, AND DROUGHT

The Somali approach to DLDD emerged in response to the competing and overlapping demands on land by different stakeholders. Through focus group discussions, consultative workshops, and questionnaires, stakeholder input was gathered and synthesized. This approach draws on the interface between the nature of Somali ecology, the demands of its modern economy, and the systems in place for the administration and governance of land and its resources (Figure 2.1). The aim is to understand localized incidents of drought and land degradation so as to better enforce measures for their mitigation.

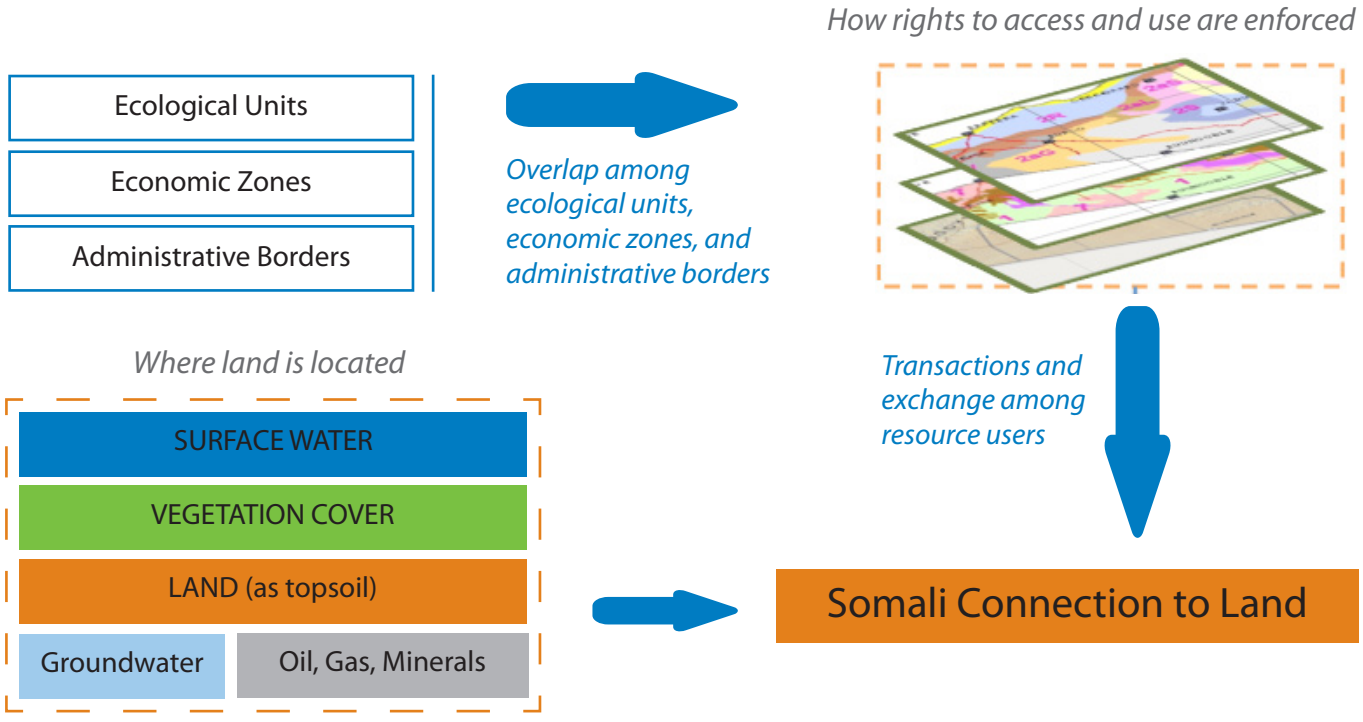
Ecological Units: Different and overlapping uses of land and its

resources exist in parallel – a permanent settlement also hosts livestock in need of grazing, small parcels of land for fodder and crop production, and *berkads* for watering livestock, irrigation, and domestic use.

Economic Zones: The demand for certain commodities necessitates trade among different town centres. The exchange of milk, livestock, and fodder for consumables such as sugar, tea, rice, and spaghetti forms the basic transactions of an average village economy in Somalia.

Administration and Governance: Communal lands may cut across different administrative borders. These lands are open to grazing, and it is considered unacceptable to exclude others from the use of rangelands. However, prior consent and permission must be acquired from a pastoralist community through Village Development Committees and traditional elders. Access to and use of resources is then granted, depending on the time and duration of the agreement between communities. Such agreements are a fundamental part of customary law, known as *xeer*.

Figure 2.1: Somali Connection to Land – NAP/ELD Conceptual Framework



Source: NAP/ELD Consultations; adapted from Somaliland and Puntland 2014 NRM Sector Studies and Mukhayer (2012)

3. STATUS OF LAND DEGRADATION

The Somali landscape is predominantly arid and semiarid, with annual rainfall ranging from 250 millimetres in the northern plains to approximately 400 mm in the south and 700 mm in the south-west (Somalia NAPA, 2013; FAO SWALIM, 2009). Within each region and across catchment areas, there are wide spatial and temporal variations in the rainfall patterns. For example, coastal areas adjacent to the Gulf of Aden receive less than 20 mm of average rainfall annually, whereas the western parts of the Togdheer/Nugaal basin receive 240 mm per year.

Similarly, the Dharoor Basin in the north-east of Somalia receives 93 mm per year of rainfall on average, whereas annual rainfall in the south-east Lag Badana basins averages 549 mm per year (FAO SWALIM, 2012). In addition to spatial variations of rainfall across catchment areas, there are wide variations within catchment areas. For example, the Juba and Shabelle upper catchments in the Ethiopian highlands receive 1,300–1,800 mm/year, whereas annual rainfall at Luuq and Beledweyne averages 271 mm and 330 mm respectively.

Land degradation is a major threat to ecosystem functioning in the areas classified as having both high and low agricultural potential in Somalia. Recent spatial studies extrapolated on local findings to point out that land degradation is increasing in both severity and extent in many parts of the country. Remote sensing analysis classified about one-third (~31 percent) of the country as degraded and 17 percent as exhibiting evidence of land condition improvements (Omuto et al., 2011). The most productive areas of the country, the Shebelle and Juba basins, are experiencing the highest risk of degradation due to deforestation, overgrazing, poor cultivation methods, and land fragmentation (General Service Agency, 2016).

In the Somali region, DLDD occurs in different forms and varies in severity depending on a number of factors. Factors contributing to the type, duration, or intensity of land degradation include the environmental and biophysical condition of land; the socio-economic uses of land; the type of land-use management system; and the formal or informal regulatory framework.

The most prevalent types of land degradation are the following:

- *Soil degradation* through water, wind, and chemical erosion
- *Water degradation*, resulting in

Land degradation is a major threat to ecosystem functioning in the areas classified as having both high and low agricultural potential in Somalia

aridification and a decline in surface water quality
- *Biological degradation*, which includes the loss of biomass, vegetation cover, and biodiversity

Land degradation has contributed to loss of vegetation, gully erosion, loss of topsoil, siltation of surface dams and irrigation canals, invasive non-palatable plant species, and loss of plant nutrients in areas with agricultural potential (FAO SWALIM, 2009; NBSAP, 2015). See Figure 3.1.

Somalia's arid and semiarid landscape is at a high risk of desertification (International Institute for Sustainable Development, 2015) and is prone to extreme variations in weather conditions (Somalia NAPA, 2013). The unpredictability of these variations includes high diurnal temperature ranges, torrential rains, periods of extended drought, highly erratic rainfall, and strong winds (International Union for Conservation of Nature, 2006). As a result, Somalis are in a constant flux between two extremes: adapting to prolonged droughts and coping with recurring flooding.

This creates a dual effect whereby drought degrades vegetation cover (biological degradation), leaving the soil exposed (wind and water erosion) to variable and torrential rain that washes away remaining nutrients, a process referred to as chemical erosion through soil degradation (FAO

BASELINE INFORMATION

Population	**12.3 million**
Urban	5,216,392
Nomads	3,186,965
Rural	2,806,787
Internally displaced persons	1,106,751

Source: UNFPA (2014)

Land Cover Change 1988–2001	
Woodland	- 88.8%
Open shrubs	- 06.2%
Sparse shrubs	+123.6%
Bare soils	+168.8
Annual soil loss	> 20-ton/ ha-1

Source: FAO SWALIM (2007)

Primary Land Uses	
Irrigated	1%
Rainfed	7%
Natural	83%
Bare areas	11.7%
Surface water	1.6%
Built areas	0.1%

Source: Somali NBSAP (2015)

Estimated Cost of Land Degradation
154,000 km^2 of degraded land costs approximately US$1.54 billion annually

Source: Roba et al. (2013: 13)

Land as Portion of Gross Domestic Product Estimates	
Somalia GDP (2010)	US$5.8 billion
Percentage: livestock and crops	40%
Somaliland GDP (2012)	US$1,390 million
Percentage: livestock industry	29.5%
Percentage: crops	08.2 %

Source: African Development Bank (2013), World Bank (2014), MoPS (2003)

SWALIM, 2007). In southern Somalia, lower elevations and river floods further exacerbate the situation.

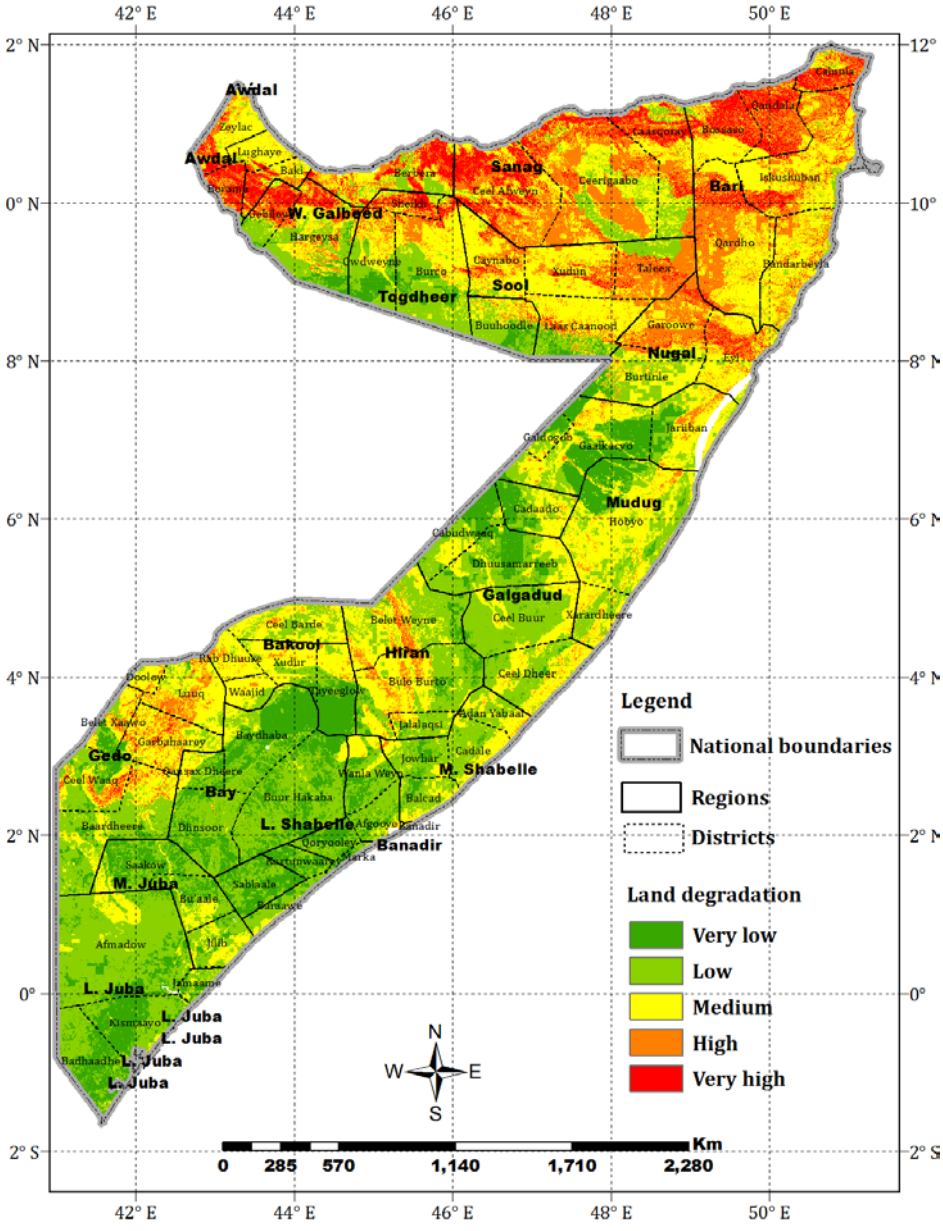
3.1 CAUSES OF DESERTIFICATION, LAND DEGRADATION, AND DROUGHT

Soil Formation and Erosion

Historical accounts of the process of soil formation and soil erosion point to early incidents of degradation and drought starting from as early as 1885 (Hemming, 1966; Swayne, 1903). Soil in Somalia is among the most extensively studied aspects of the Somali geomorphology. In explanation of variations in land cover between proximate locations, the Somali terrains – for example, sub-desert shrub and grass and coastal formulations in southern Somalia – have been described as edaphic (Hemming, 1966).

In these regions, one patch of land presents characteristically different soil qualities from another patch of land within the same ecological zone. Wind-induced movements and range erosion transport soil, overlaying downward slopes to remote locations,

Figure 3.1: Actual Land Degradation



Source: MESA/ICPAC 2012

which alter the composition of topsoil (Watson and Nimmo, 1985) and reveal underlying layers of soil or introduce surface layers of sand.

Predominately, the extreme and uniform climate in parts of the Somali plains contributes to zonal vegetation that is monotonous, with low numbers of plant species (FAO SWALIM, 2007). Large tracts of land are sparsely vegetated, and areas with some vegetation (predominately *Chrysopogon aucheri* var. *quinqueplumis*) are heavily grazed. Between vast and sparsely vegetated plains, the occurrence of common patterns of vegetation, referred to as vegetation arcs, has been described as a key feature of soil characteristics (Macfadyen, 1950; Boaler and Hodge, 1964; Hemming, 1965).

Vegetation arcs are bands of vegetation separated by nearly bare ground and with the uphill edge lying very nearly parallel to the contour line (Boaler and Hodge, 1964: 515). The scale of a single strand within a vegetation arc and intervening desert averages about 160 metres, but may range from 70 to 300 metres. The length of an individual arc is variable and may surpass 2 kilometres (Macfadyen, 1950).

Vegetation arcs are commonly divided into four distinguishable segments (Figure 3.2)[1]: centre, upper edge, lower edge, and lower side (Hemming, 1965). The centre of an arc is characterized by dense grass; a clearly defined upper edge is typically colonized by small grasses and soil deposition; a poorly defined lower edge is marked by pathways of excess drainage water; and the lower side of the arc has dead trees on bare ground (Hemming, 1965). The occurrence of vegetation arcs presents a plausible explanation for the incidents of localized drought reported by stakeholders during the NAP/ELD consultations.

In northern Somali rangelands, mature soils with deep profiles are rare (Watson, 1982; Hemming, 1966). The average potential annual soil loss for an area of 13,000 hectares in Somaliland is estimated at slightly over 20 tons per hectare (FAO SWALIM, 2009). Due to limited concentrations of sparsely vegetated land cover, the overexploitation of trees for fuel wood, fencing, and shelter can quickly escalate into deforestation and desertification.

Overgrazing

The traditional nomadic system of pastoralism in Somalia is characterized by high mobility in search of pasture and water. The seasonal movement is essential for pastoralists to manage spatial and temporal changes in grazing resources while enabling pasture recuperation. Mobility provides the best strategy to manage low net

The traditional nomadic system of pastoralism in Somalia is characterized by high mobility; the seasonal movement is essential for pastoralists to manage spatial and temporal changes in grazing resources while enabling pasture recuperation

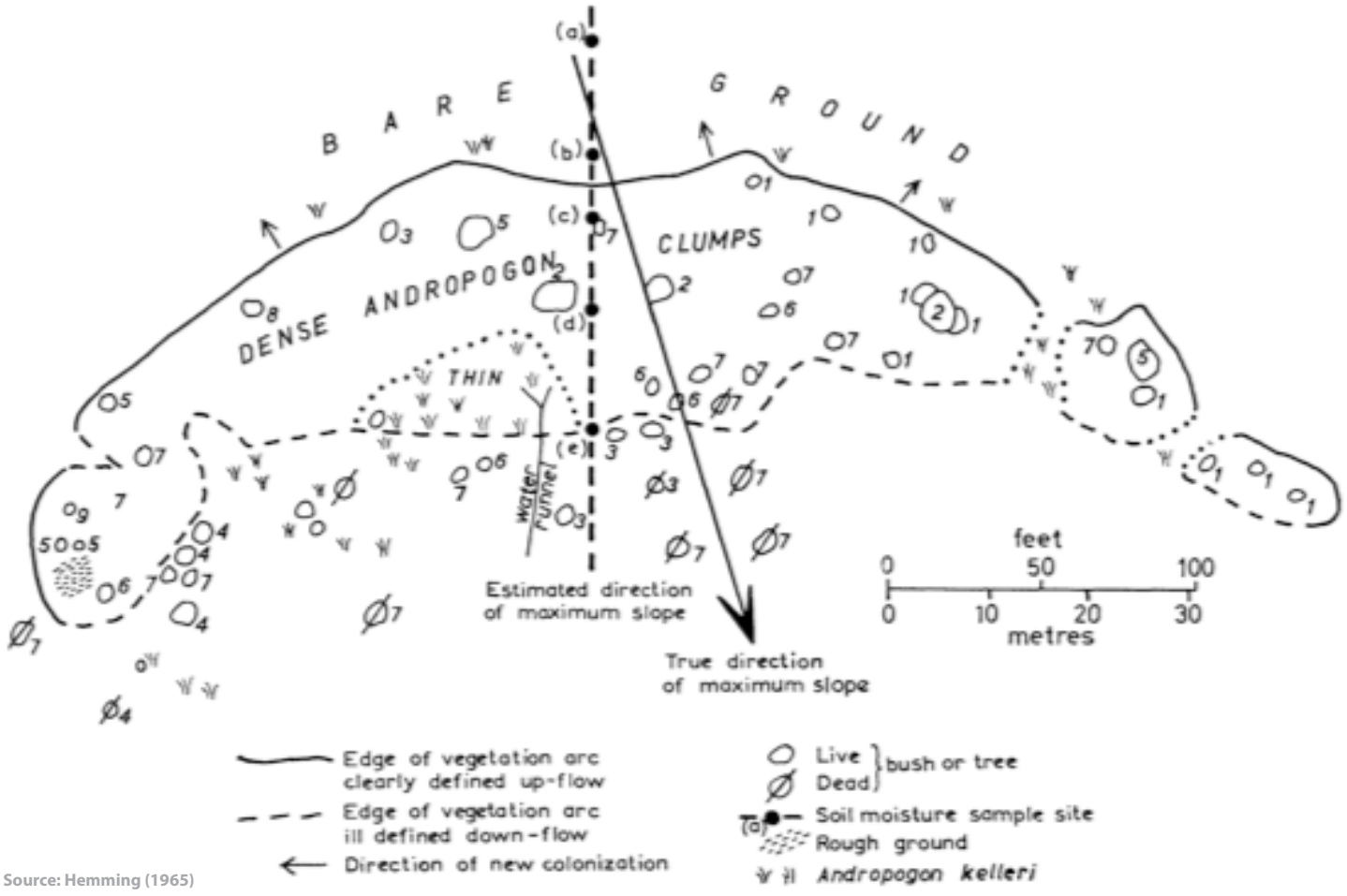
1 Plan of the vegetation arc showing the distribution of trees and shrubs: 1) *Acacia senegal* var. *kerensis* (1.5–2.5 m tall); 2) *A. mellifera* (3 m); 3) *Boscia minimifoli* (1–2.5 m); 4) *Bos wellia bricchetti* (1–4 m); 5) *Commiphora* spp. (2–3 m); 6) *Cadaba glandulosa* (1 m); 7) *Dalbergia commiphoroides* (1–5.3 m); 8) *Grewia tenax* (1.5 m); 9) *Sterculia rhynchocarpa* (3.5 m).

productivity unpredictability and risk in the arid and semiarid lands of Somalia. However, emerging developments in the past few decades such as the proliferation of unplanned water reservoirs, *berkads*, transportation of water in tankers, and the establishment of unregulated permanent enclosures on communal grazing lands are changing the traditional nomadic systems by enabling pastoralists to stay for longer periods in fewer settlements. This has resulted in extensive overgrazing and rangeland degradation.

Hydrogeology of Somalia

Somalia lies downstream of five river basins: the Gulf of Aden, Nugaal, and Dharoor basins in the north, and the Juba, Shabelle, and Laag Dheera River basins in the south. Its topography generally slopes in a south-eastern direction towards the Indian Ocean (Awise, 2009, cited in FAO SWALIM, 2012). The highest elevations are in the north-east along the Golis range of mountains in the Gulf of Aden. South of the Golis mountains, the

Figure 3.2: Vegetation Arc in Somaliland



Source: Hemming (1965)

topography of Somalia can be classified as gently sloping, with average slopes of less than ~1–2 percent (Kammer, 1989, cited in FAO SWALIM, 2012).

In the south, the Juba and Shabelle River basins are the two major catchments contributing to surface flow in southern Somalia. The Laag Dheera catchment joins the Juba basin in the lower reaches of southern Somalia (FAO SWALIM, 2012). The Juba and Shabelle River basins are shared with Ethiopia and Kenya, with most parts of both basins lying outside of Somalia's border. Approximately 30 percent of the Juba River basin lies within Somalia, and only 25 percent of the Shabelle basin lies in Somalia.

Originating in the Ethiopian highlands, the Juba and Shabelle traverse the gently sloping terrain in Somalia. At its confluence with the Juba River, the Shabelle River basin is 297,000 km2, of which two-thirds are in Ethiopia and the rest in Somalia. After its confluence with the Shabelle, the Juba River flows downstream through to the Indian Ocean. However, due to climatic conditions throughout the Shabelle, extreme flooding and periods of drought frequently affect the basin. This causes major problems to the downstream communities in Somalia (Mohamed, 2013). In these areas, mild and frequent droughts occur, often followed by devastating floods (Roba et al., 2013; FAO SWALIM, 2009).

During the rainy season,[2] some of the same regions that experience severe droughts become inundated due to river floods along the Juba and Shabelle Rivers in southern Somalia and flash floods in the seasonal rivers in the north (FAO SWALIM, 2015; Roba et al., 2013; Guleid et al., 2007). In combination with the climatic conditions in the transboundary river basins, temporal patterns of high rainfall variability over Somalia further exacerbate events such as floods and droughts impacting the country (UNDP/ICPAC, 2013).

Charcoal Production

Charcoal production is one of most serious causes of land degradation in Somalia. Breakdown of state institutions in 1991, protracted conflict, weakening of traditional systems, lack of alternative energy, and limited livelihoods have resulted in the unsustainable production, trade, and use of charcoal. Forests and rangelands have been cleared to provide raw materials for charcoal production; the slow growing dry deciduous bush land and thicket species of *Acacia* and *Commiphora* have been most affected (Federal Government of Somalia, 2015). The cleared areas are hit by flash floods during the rainy season, resulting in the formation of deep gullies that continually are deepened and enlarged.

The carrying capacity of the degraded rangelands is diminished and can no longer support the feeding requirements of animal populations. This further threatens the medium- and longer-term sustainability of the pastoral economy.

NAP consultations and the existing literature reveal the complexity of DLDD in Somalia: there are several reasons, including biophysical and socio-economic factors, for the erosion of soil and the subsequent degradation of land. In urban areas, the expansion of town and village centres results in the accelerated removal of tree and vegetation cover – primarily used for firewood, shelter, and livestock fencing. In suburban areas, an added dimension of agro-pastoralism also contributes to vegetation cover removal, but the primary culprit of DLDD is gully erosion. In suburban and rural areas, the absence of a formal road network results in the proliferation of alternative dirt roads and pathways.

In the outskirts of suburban centres, and towards communal grazing land, the land is used for pastoralism, and pastoralist activities are the primary livelihood source. While elements of urban pastoralism can be noted within urban centres (e.g. Hargeisa and Garowe), overgrazing is considered more of a rural problem.

2 In the western regions of Somaliland there are two rainy seasons: *Gu*, which occurs between April and June, and *Karan*, which occurs from July to September. In the eastern regions, there is the *Gu* season (April–June) and *Dayr* in September and October. The two dry seasons occur between December and March (*Jilaal*) and July and August (*Hagga*).

The primary drivers of desertification, land degradation, and drought in Somalia can be attributed to environmental and biophysical causes as well as socio-economic patterns of land use

3.2 CONSEQUENCES OF DESERTIFICATION, LAND DEGRADATION, AND DROUGHT ON NATURAL RESOURCES

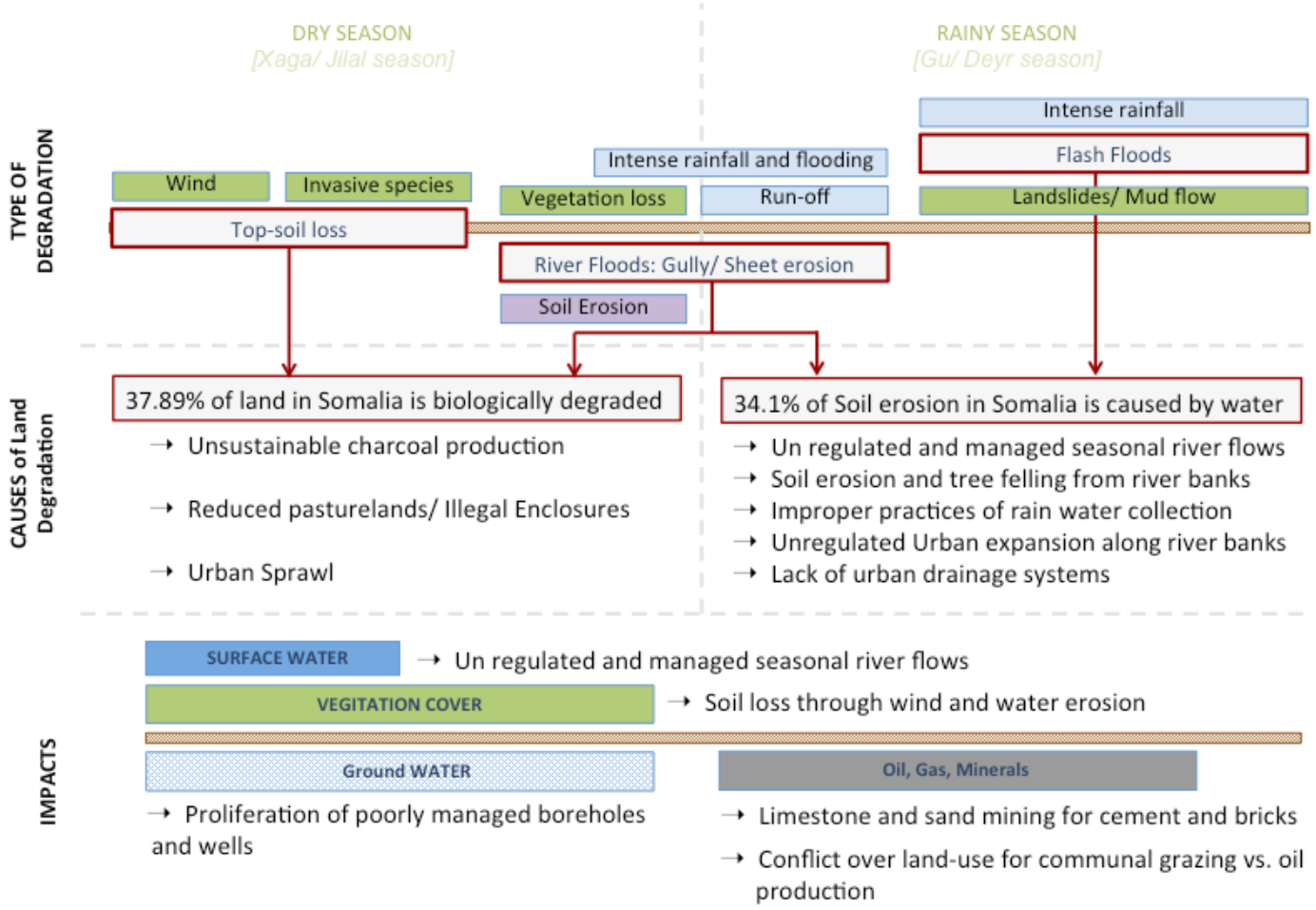
As a consequence of a changing climate, combined with aspects of Somalia's geomorphology and topography, Somalia has a biophysical disposition that is prone to recurrent droughts and severe flooding. Drought affects all communities in Somalia: the agro-pastoral communities in the woodlands of Bay, Bakool, Benadir, Gedo, and Hiraan Regions, as well as those in the arid and low-rainfall shrub lands in Nugaal and Bari Regions. These climatic variations create a metrological predetermined pattern of seasonal migration.

While seasonal migrations are a part of pastoralist patterns of subsistence and trade, severe climatic variations contribute to losses of livestock. This has been noted in the predominantly pastoralist-inhabited northern areas of the Golis mountain range in the Waqooyi Galbeed, Togdheer, and Bari Regions. Southwards in Bakool, pastoralists and their livestock migrate westwards towards Ethiopia in the rainy season and return to grazing in the Bay and Bakool Regions during the dry season. Similarly, within Middle Shabelle, the movements in and out of the Shabelle River are based on seasonality.

Both severe droughts and extreme flooding have been known to cause deepened food insecurity as a result of loss of livestock and food shortages (FAO SWALIM, 2009; ACAPS, 2011). However, the impacts of DLDD are often localized and differ both across ecological zones and within them. The explanation for the localized occurrences of DLDD in areas that suffer from extreme floods and severe droughts lies in the intersection between biophysical states of land degradation, the impacts DLDD has on natural resources, and the socio-economic uses of land.

The primary drivers of DLDD in Somalia can be attributed both to environmental and biophysical causes as well as socio-economic patterns of land use. This section creates a link between the biophysical causes of DLDD (Section 3 of this document) and its socio-economic impacts (Section 4). Here, the focus is on the impacts of DLDD as it relates to resource units on the surface and subsoil of land.

Figure 3.3: Types of Degradation and their Impact



Source: Compiled by NAP/ELD Technical Expert

Vegetation Cover

The land cover of the floodplains in southern Somalia is considered the most densely vegetated. Cultivated areas and a smaller proportion of dense vegetation contribute to 74 percent of its natural vegetation, of which 65 percent is wooded grassland and only 9 percent is rangeland. In the north, 83 percent of the land cover consists of predominately rangeland vegetation and parts where small portions of non-vegetation are prevalent (FAO SWALIM, 2009). Although clear differences in vegetation cover can be recorded for geographically and ecologically distinct areas in the northern and southern parts of Somalia, DLDD trends are fairly similar.

Loss of topsoil, nutrient decline, and loss of vegetation cover (FAO SWALIM, 2009) are some of the

environmental impacts of DLDD in Somalia. Between 2003 and 2008, northern Somalia lost 8.5 percent of its vegetation cover. The most affected areas were those in which fuel wood collection and livestock grazing are intensively practiced (FAO SWALIM, 2009). In 2012, 59 percent of the predominantly pastoralist inhabitants of the eastern part of the Hawd plateau in the Togdheer, Sool, and Sanag Regions reported complete loss of livestock, which forced them to abandon their livelihoods and move to towns (HAVOYOCO, 2012).

It is in these areas that the complexity of the relationship between vegetation cover and livelihoods is most evident. Around 23 percent of the Somali population are rural and 26 percent engage in nomadic pastoralism (UNFPA, 2014). Almost all rural and suburban dwellers engage in some form of agro-pastoralism, subsistence agriculture, and charcoal production as livelihood options. Pastoralism and wood collection are the dominant land-use types, thus giving a strong signal that the major drivers of land degradation in the country have been overgrazing and loss of vegetation (FAO SWALIM, 2009).

However, while DLDD as a result of excessive use of land is measured in terms of vegetation cover removed, the loss of land through agricultural expansion and urban sprawl does not feature in calculations of vegetation cover loss. This results in misleading signals and indications of the underlying drivers of DLDD, pointing to grazing on rangelands as excessive without accounting for pasture that is increasingly encroached upon by unregulated urban expansion and the construction of illegal enclosures in communal grazing areas reserved for pastoralism.

Alternatively, vegetation cover removal can be measured as the opportunity cost per unit of topsoil lost,[3] accounting for the benefits of reserving land and mitigating the effects of DLDD for sustainably managed communal grazing and agro-pastoralism. What could be measured are biophysical causes (soil and water erosion caused by droughts and floods), direct land uses (such as charcoal production and grazing), and indirect uses of land (e.g. urban expansion and illegal enclosures). The emphasis placed on measuring topsoil is critical for understanding where degraded land is located and what has caused land degradation.

Groundwater and Surface Water

Water in Somalia can be classified as surface water and groundwater. Surface water is most often accessed through traditional communal *warr* or *ballis* and *berkads*; groundwater requires the construction of boreholes, shallow wells, and springs used for water harvesting. The availability and distribution of the different water sources is based on the topography, hydrogeology, and composition of different ecosystems. For example, shallow wells are more abundant in valleys such as Nugaal, Dharoor, and Mudug (Roba et al., 2013), which receive less rainfall and are more arid.

Impacts of DLDD on water are related to the management of seasonal rivers and the regulation of groundwater sources. The absence of management for seasonal river flows, soil erosion, and tree felling along riverbanks lead to erosion caused by water, improper rainwater collection practices, unregulated urban expansion along riverbanks, and a lack of urban drainage systems, resulting in water pollution (Guleid et al., 2007).

Oil, Gas, and Minerals

Somaliland and parts of Bay hold a range of known mineral resources such as coal, gypsum, limestone, and quartz. Various gemstones as well as precious and base metals such as gold, copper, lead, and zinc are also known to be present (Somaliland NDP, 2011; Yergen, 2011). The World Bank and the United Nations Development Programme (UNDP) hydrocarbon study carried out in 1991 indicated

3 See Gudger and Barker (1993) on the theory of land degradation and ELD Initiative (2013) on accounting for land degradation and ecosystem services.

good potential for oil and gas deposits in northern Somalia (Balthasar, 2014; Farah et al., 2002; World Bank, 1980).

Artisanal mining for non-metallic minerals (gemstones, salt, sepiolite, gypsum, and kaolin) is the primary mineral production activity in Somalia (Yager, 2011). Medium cement production is also prevalent in Berbera at Suria Malable, north of Baardheere, Bur Anole, Markabley, and at Jiiqleey, south of Beledweyne on the Shabelle River (Hussein, 2013).

High-grade limestone (calcium limestone) contributes to 80 to 90 percent of cement production. Limestone is then combined with lay, mudstone, or shale (10–15 percent), and the remaining 5 percent is gypsum or anhydrite (Hussein, 2013). These raw materials are also used in brick making, which is increasingly pursued as an alternative livelihood strategy (IRIN, 2007). Although the mining of sand and limestone does result in the denudation of land, which contributes to degradation (Hadley, 2014; Somalia NBSAP, 2015), the scale of activities is such that the mining sector is not considered a direct threat to land. Problems of access to and use of land for mining versus grazing are problematic in a socio-economic context rather than an environmental one.

Similarly, recent oil and gas exploration activities in Oodweyene, Somaliland, raise a number of critical issues with regard to the value of converting grazing land for oil and gas production. The overlap between traditional authority, local government, and central government jurisdiction further exacerbates the challenges to the hydrocarbon sector (OCVP, 2014). The implications of the exploration, extraction, and transportation of hydrocarbon resources is discussed further under Section 4.3 on the conflict over access to and use of land and its resources.

4. THE SOCIO-ECONOMIC IMPACT OF LAND DEGRADATION IN SOMALIA

Land and its resources are a development priority for the Somali people. Land features in the Somali Compact and the currently evolving National Development Plan (NDP), Puntland Development Plan, and Pillars 1 and 4 of the Somaliland Development Plan. The inability to respond adequately to the cyclical drought–flood pattern is damaging to land, livelihoods, and the economy. A recurring concern from stakeholder consultations pointed to the need to link land-use management to the development of the region, particularly in pastoralist and agro-pastoralist areas that are affected by severe droughts and flooding.

In Somalia the productivity of land and its natural resources was directly linked to security and conflict resolution. The key actions prioritized by stakeholders during consultations were the following:

- To improve peace and avoid conflict among people
- To resettle borders and identify rangelands, agricultural land for crop production, and forests
- To protect against overgrazing, desertification, and soil erosion
- To strengthen the connection between regional officers and central government
- To encourage people to find good, suitable environments for settlements

4.1 DEMOGRAPHICS AND CHANGING LAND USE

Factors contributing to urban sprawl, according to stakeholders consulted during the NAP/ELD consultations, were unemployment and disenfranchisement with the pastoralist way of life (particularly for youth). A recent International Organization for Migration report on youth migration in Somaliland and Puntland further validates these findings (IOM, 2015).

Contrary to historical accounts of the population of Somalia being 60 percent nomadic (UNEP, 2005; IUCN, 2006; WHO, 2010), the most recent Population Estimation Survey for Somalia (conducted in 2014) reveals that the majority of Somalis (42 percent) are urban dwellers; only 26

In Somalia the productivity of land and its natural resources was directly linked to security and conflict resolution

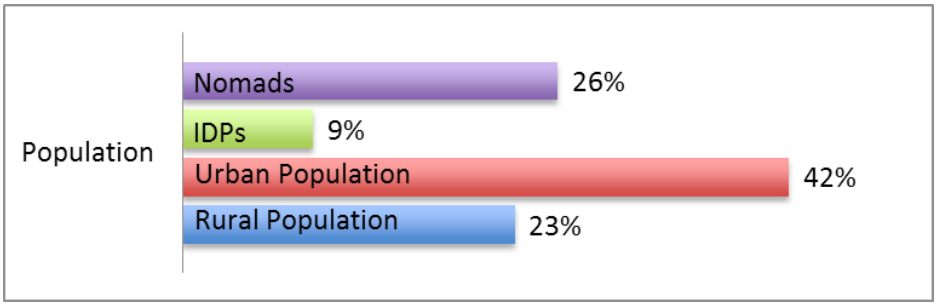
percent are nomadic pastoralists, while 23 percent make up the rural population (Figure 4.1).

An understanding of the changes in the demographic composition of the Somali population is necessary to put into context the socio-economic impacts of DLDD.

Women, youth, and particularly pastoralist nomads were identified as vulnerable groups. Stakeholders identified nomadic herders as vulnerable to drought, since it depletes their most precious assets: their livestock and pasture. Even in agricultural riverine areas, the effects of drought are compounded; there are risk-prone communities in Middle and Lower Shabelle and Middle and Lower Juba. This was evident in the period before the onset of the 2014 El Niño (for a more detailed analysis, see Section 2.7 of the 2013 Somalia NAPA).

The increasing urban population has accelerated the expansion of urban centres and contributed to the proliferation of new villages and towns at a rate of 5 to 8 percent per annum (Bruyas, 2006), with an increase in requirements for sedentary land uses that incorporate livestock production and construction of permanent settlements on land that was previously communally held. This trend has been traced to the introduction of *berkads* and boreholes, which facilitate water access throughout the year (Killeh and Awale, 2003; Academy for Peace and Development, 2002).

Figure 4.1: Population Estimates for Somalia 2014



Source: UNFPA (2014)

While urbanization is not a problem per se, the complete absence of urban planning for these settlements is problematic ecologically and administratively. The obvious demand for economic transactions through urban centres has contributed to a phenomenon stakeholders refer to as 'mobile business camps'. According to customary law in Puntland, the illegal construction of such camps in the Nugaal Region is punishable by law.[1]

Growth of the urban population has also resulted in an urban–rural hybrid of land use, characterized by the prevalence of *urban pastoralism*. The practice of urban pastoralism is a commonly noted phenomenon, even in established cities such as Hargeisa and Garowe. In response to changing land-use systems (increasingly sedentary lifestyles, commercial pastoralism, large-scale conversion of communal lands for agriculture) and land degradation, the need for herd mobility to be incorporated into urban and peri-urban adapted livelihood forms has emerged as a coping strategy. This is in addition to growing demand for camel and goat milk and livestock sales with reduced transportation costs for the individual pastoralist unit.

1 Annex 6: Summary of Offences and Fines for Nugal Region, 2013 NRM Customary Law, Puntland.

Women and children in rural areas are identified as one of the most vulnerable groups in Somalia due to the adverse impacts of desertification, land degradation, and drought

4.2 GENDER AND DESERTIFICATION, LAND DEGRADATION, AND DROUGHT

Women and children in rural areas are identified as one of the most vulnerable groups in Somalia due to the adverse impacts of desertification, land degradation, and drought. Sexual division of labour, unequal access to both material and non-material resources, and women's diminished participation in decision making in both political and private domains further contribute to the vulnerability of women. In rural Somalia, women usually undertake many household tasks, including collection of firewood and water and preparation of food for the family. These resources get scarce in degraded ecosystems and put more of a burden on women and girls as they attempt to fulfil their duties.

Mainstreaming gender issues in the NAP is essential and should lead to the recognition that women have a significant role to play in environmental decision-making processes. To address the impacts of DLDD on women, sex-disaggregated socio-economic data on the impacts of DLDD should be collected to inform decision making related to NAP activities. Women-targeted training and capacity-building measures should also be undertaken during the NAP implementation.

4.3 DEVELOPMENT PLANNING AND DECENTRALIZED LOCAL GOVERNANCE

A recent baseline survey conducted by the Somaliland Ministry of Environment and Rural Development, covering Awdal, Sahil, Togdheer, Maroode Jeex, and Sanaag Regions, suggests that communities in the areas surveyed are largely dependent on forests and grazing reserves as their main source of energy, income, and fodder (Ministry of Environment and Rural Development, 2014). Findings of the survey highlight the dominance of low-value species in all targeted grazing and forest reserves in the survey areas. Low nutritional range species and low economic value tree species are dominating ecosystems, while preferable and valuable species are either endangered or extinct (Ministry of Environment and Rural Development, 2014).

Similar results were echoed in the 'Your Environment, Your Life' baseline

survey commissioned by the Puntland Ministry of Environment, Wildlife and Tourism. The study area covered the regions of Bari, Karkaar, Mudug, Sanaag, Nugaal, and Sool (Roba et al., 2013). Degradation of land and its natural resources is manifested in desertification, soil erosion, secondary salinization, and waterlogging and affects 70 percent of the landmass in Puntland.

Towards reversing land degradation, decentralization continues to be a key government policy across government administrations. Since 2008, the United Nations Joint Programme on Local Governance and Decentralized Service Delivery has been delivering support to the reconstruction and development of Somalia.

As part of local government efforts, annual District Development Frameworks are revised by local government authorities and approved for funding and implementation. These frameworks form the basis of the district planning process. In relation to land-use planning and early warning, stakeholders proposed the alignment of DLDD-specific objectives under the District Development Frameworks, given the close connection between land resources and Somali development.

The Science and Technology Working Group to the NAP consultations proposed the district-level approach to DLDD at the federal level, as well as in Somaliland and Puntland. Districts were considered the main focal level of government, as they have access to populations through Village Development Committees and engage in preparing district natural resource management plans with the support of specialized ministries.

District administrations strengthening the understanding of causes of DLDD

- Awareness raising at village and community levels through Village Development Committees and traditional elders as well as schools
- Advocacy for sustainable land management through community-based organizations, with technical support from specialized ministries and district departments

District NRM planning

- Ministries working together and producing a consultative NRM plan endorsed by local government officials
- Local governments can take the lead in managing their resources and report back to the central level for national planning

Early warning and reporting on land-use indicators

Monitoring and evaluation is notoriously weak in the Somali context. Focusing on bridging the gap between the periphery and the centre and providing information nearest to where it is collected and utilized will help strengthen reporting on land-use indicators, as well as wider joint programming with other Rio conventions (see Section 5.1 for details).

4.4 CONFLICT AND THE USE OF VIOLENCE

The link between land use, environmental degradation, and conflict is an inevitable and well-documented reality in the Somali pastoralist way of life (Lewis, 1999; Unruh, 1995a). Throughout the Somali region, rural land is communally owned and administered by traditional elders (or through Village Development Committees).[2] The government, as the legal custodian of all natural resources, provides services to regulate the use of land.[3] However, incidents of conflict and the use of violence are often resolved traditionally through councils of elders.

Clan territory forms the basic unit of

2 For federal policy on decentralization, see Somalia Interim Constitution and Somali Compact. For decentralization structures by regions, see Somaliland Regions and District Self-Administration Law No. 23/2002; Puntland District Self-Administration Law No. 07/2003.

3 According to the legal systems in Somaliland and Puntland State, land is classified as either urban land or rural land. This distinction is elaborated under Operational Objective 2: Policy Framework of the Somali NAP.

administration for the enforcement of rights of access and use of land and its resources. According to stakeholders who participated in consultations and questionnaire respondents, the most important role of clan leadership is determining the development of natural resources and regulating access to land and its resources. The breakdown of clan relations, increasing incidents of conflict over land, and the duration and intensity of such conflicts were raised as a key indicator of the socio-economic impacts of DLDD.

In Puntland, stakeholders reported that 'conflicts over water and rangelands are common…for instance, in Bari Region…there has been an ongoing conflict between two subclans since 2008.' The disputed area lies in the grasslands of the Dharoor valley, which is also the site of the Africa Oil drilling operation. Drought, famine, and the promise of potential oil created overlapping claims to land by Dubays (subclan of Warsangali) and Osman Mohamud (subclan of Majeerteen), who are the predominant subclans in that area (Beerdhige, 2012; Hoehne, 2015).

Somalia represents three distinct typologies in which land degradation is a factor in conflict and the use of violence. The first is where incidents of conflict over land and access to resources escalate into violence, such as the Bari Region example. In such cases, the biophysical degradation of land and its resources results in overlapping claims to a diminishing resource base. In such situations, land degradation contributes to the duration and intensity of conflicts that could otherwise be resolved or prevented if land was less degraded. Conflicting claims often arise when entitlements to the development and use of resources on the subsoil of land are appropriated contrary to, or outside the scope of, previously established clan agreements or customary law (*xeer*).

The second link to conflict in relation to land is in areas of ongoing violence and armed conflict where land degradation is a feature of conflict dynamics. This is most commonly found in parts of southern Somalia and in contested border areas. In these areas, violence and the use of force occur as a result of the political environment, rather than biophysical degradation of land and its resources. The interface between political volatility and the biophysical state of the environment manifests on different scales. For example, political rivalry and grazing rights escalate conflict between subclans in the contested border regions of Sool, Sanaag, and Cayn between Somaliland and Puntland. In southern Somalia, the felling of 4.375 million trees for charcoal production has been linked to revenues generated by the Al-Shabaab terrorist group (Government of Somalia/ UN, 2013).

The third link between land degradation and conflict relates to the administration of the land cadastral and the resolution of disputes over land tenure. In such cases, conflicts of interest are unlikely to escalate into extreme and protracted violence. Most often, land tenure disputes are settled by district courts or the Land Dispute Tribunal, or through out-of-court settlements by elders through traditional systems of governance. Such conflicts include forced eviction, issuance of duplicated title deeds/ official documents, or land grabbing.

It is important to note that the link between conflict and land degradation is a function of overall changes in the demographic and geopolitical landscape of Somalia. As more rural communities, internally displaced persons, and returnees relocate to urban centres, the economic value of soil will increase as its ecological quality continues to diminish. The differences in the causality of land to incidents of conflict will determine the value people attach to soil, and the costs they are willing to incur to enforce their right to access and use land, as well as their perceptions of benefits from ecosystem services. In the Somali context, the connection between land and conflict is a series of transactions executed by people, determined by the biophysical environment, and regulated by the rules they enforce.

Throughout the NAP/ELD consultations, there was general consensus that

Most often, land tenure disputes are settled by district courts or the Land Dispute Tribunal, or through out-of-court settlements by elders through traditional systems of governance

the increasing number of conflicts is linked to desertification and land degradation. However, drought was considered the main factor in internal displacement and migration towards urban centres, rather than conflict. Land users and district administrators in the conflict-prone Somaliland–Puntland border areas point to the need to improve soil quality and land productivity to provide for the influx of migrants who flee into their districts for refuge. In more politically stable areas, the primary concern related to securing access to communal grazing areas by destroying illegal enclosures.

The following sections present case studies and examples gathered during the NAP/ELD consultations that capture stakeholder concerns as they relate to DLDD.

Conflict over Access to and Use of Land and Its Resources

According to questionnaire respondents and consultations, the use of force was deemed an acceptable strategy in the protection of communal land. Stakeholder perceptions were that land held communally should be utilized to derive communal benefits even if such benefits included the grazing, watering, and fencing of livestock that are privately owned by individuals within a wider pastoralist unit. While the enforcement of rights was seen as a community responsibility, the protection of soil and rehabilitation of rangeland was considered a government responsibility.

In some situations, natural resource management interventions are introduced by the private sector or non-governmental actors (mainly local NGOs, international NGOs, and UN agencies; see the list of stakeholders consulted for details) and adopted by communities. Such initiatives are small scale, few in number, and scattered in spatial coverage, thus having no significant impact on reversing the land degradation caused by widespread sheet and gully erosion, which is prevalent in the northern areas of Somalia. The Ministries of Environment in Puntland and Somaliland, through support from SWALIM, have well-documented studies on the location of land degradation hotspots (Mumuli and Njeru, 2015).

Gumburaha village in Baligubadli District, Somaliland, was one of the sites visited during the NAP/ELD consultations. The focus group discussion with traditional elders in Gumburaha provides a representative example of the value attached to communal rights to grazing and the constraint land degradation places on the enforcement of overlapping claims to land. According to elders, the village of Gumburaha has experienced two years of drought, calculated from the last rain cycle in 2013 and two missed cycles of rain since. The situation can

be described as a localized occurrence of drought, as the neighbouring plains surrounding the village continue to receive rain.

During the NAP/ELD consultative visit on 29 April 2015, elders described a recent conflict that arose among members of their community that relates to a nearby grazing area. Over the preceding months, an increase of illegal enclosures had been noted. As illegal enclosures limit pastoralists' access to grazing land and water resources, their construction is considered a violation of Somali custom. To reclaim communal land for the community, the enclosures were destroyed. This sparked animosity between the community and the enclosure owners.

As a result of the violence and the costs associated with the removal of enclosures, elders, through the Village Development Committee, called upon local government officials and the Ministry of Environment and Rural Development district officer for assistance. The committee proposed the destruction of all illegally constructed enclosures on communal grazing land, and the formalized seasonal closure of the rangeland to enable natural restocking and rehabilitation. While any individual has the right to grow crops for food or fodder within their place of residence, on communal rangelands it is not acceptable to restrict access to or exclude others from the use of any parcel of land.

According to a recent baseline survey on forest and range resources, the increase of similar resource conflicts as a result of the proliferation of private enclosures on communal land is not uncommon (Ministry of Environment and Rural Development, 2014). It should be noted that stakeholders view the issue of illegal enclosures as a threat to communal rights, and one that gives benefits from land to the individual at the expense of the many. Thus, the occurrence of conflict is a social sanction, and one that is imposed to enforce communal rights, rather than restrict individual access.

This example is repeated across regions and communities (OCVP, 2014). In areas where there are overlapping claims to land over different resource units – on the surface of land as well as its subsoil – these have led to intensified and protracted incidents of conflict. For example, the predominantly pastoralist district of Oodweyne in Togdheer is believed to hold oil reserves.[4] Since the onset of oil exploration efforts in June 2012, community protests and unrest in the Oodweyne block prompted the government to consider establishing an Oil Protection Unit to safeguard oil operations (Williamson, 2014).

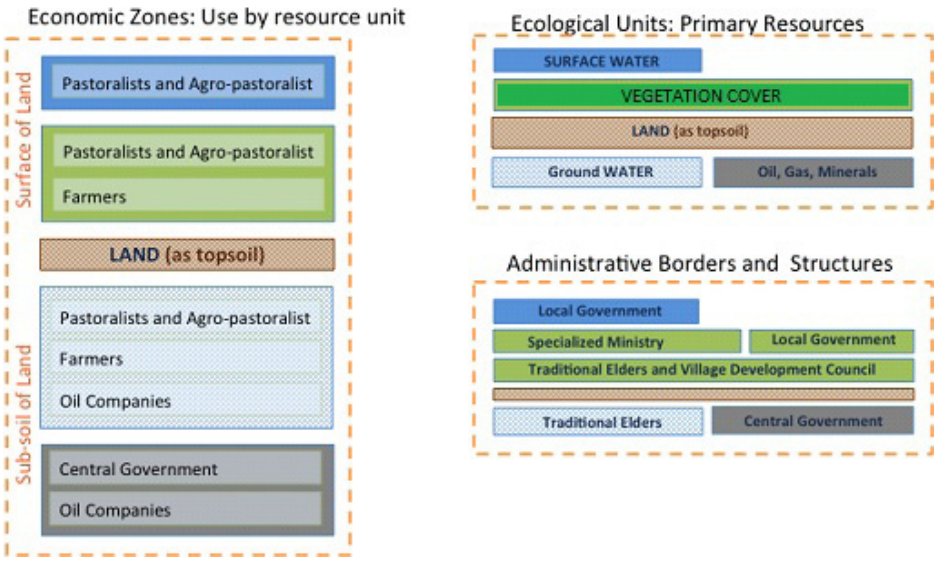
As the constitutional custodian of all land, whether communally held or otherwise, the different levels of government (federal or state or district) have the overriding authority over the land and natural resources within their respective territories. It is important to note that the regulatory regimes that govern land are subject to the customary rules[5] and legislative laws that govern the resources that lie on the surface of land and in its subsoil. This applies to situations where members of one clan/subclan wish to construct a borehole on communal grazing land over which they only have access rights to surface resources, and no rights of use for subsoil resources such as groundwater. Similarly, oil and minerals in the subsoil of land are subject to both statutory laws of the central government as well as the traditional rules governing communal land under which hydrocarbons are located.

For this reason, stakeholders to the NAP/ELD consultations emphasize the need for a holistic approach to land management, one that considers land and the resources on its surface and subsoil and the administrative arrangements governing economic activities within each ecological unit (Figure 4.2).

4 Exploration rights within the Oodweyne block are allocated as follows: Genel Energy (50 percent), in partnership with Jacka Resources (30 percent) and Petrosoma (20 percent) (OCVP, 2014: 3).

5 In Puntland, the constitution recognizes and enshrines the traditional Somali norms and uses in Article 108 of the 2009 Puntland Constitution. In Somaliland, Part 2 of the 2001 Somaliland Constitution recognizes Somali custom under the legislative powers vested in the House of Elders, Article 57.

Figure 4.2: Integrated and Holistic Approach to Land and Its Resources



Source: Compiled by NAP/ELD Technical Expert

Violence and the Use of Land

According to most recent data on conflict in Somalia, as of 1 August 2015 there were 2,099 reported incidents of violent death since the beginning of the year 2015 (Armed Conflict Location and Event Data Project, 2015). The majority of these incidents were in south central Somalia in the regions of Hiiran, Lower Shabelle, Bay, and Bakool, with reports of 2,500 people displaced between May and June 2015 (Somalia Humanitarian Bulletin, 2015: 3). In addition to those displaced by internal conflict, there have been over 20,000 Somali returnees fleeing conflict in Yemen to settle in Mogadishu, Hargeisa, and Bossaso (Somalia Humanitarian Bulletin, June 2015).

Recurrent drought as a result of missed cycles of rain has been the primary cause of food insecurity and malnutrition. According to a food security analysis of 2015, movement restrictions due to instability in areas affected by military operations have caused disruptions to trade and markets, creating further dependence on humanitarian assistance. However, due to security concerns, humanitarian organizations are unable to reach affected populations (Humanitarian Needs Assessment, 2014).

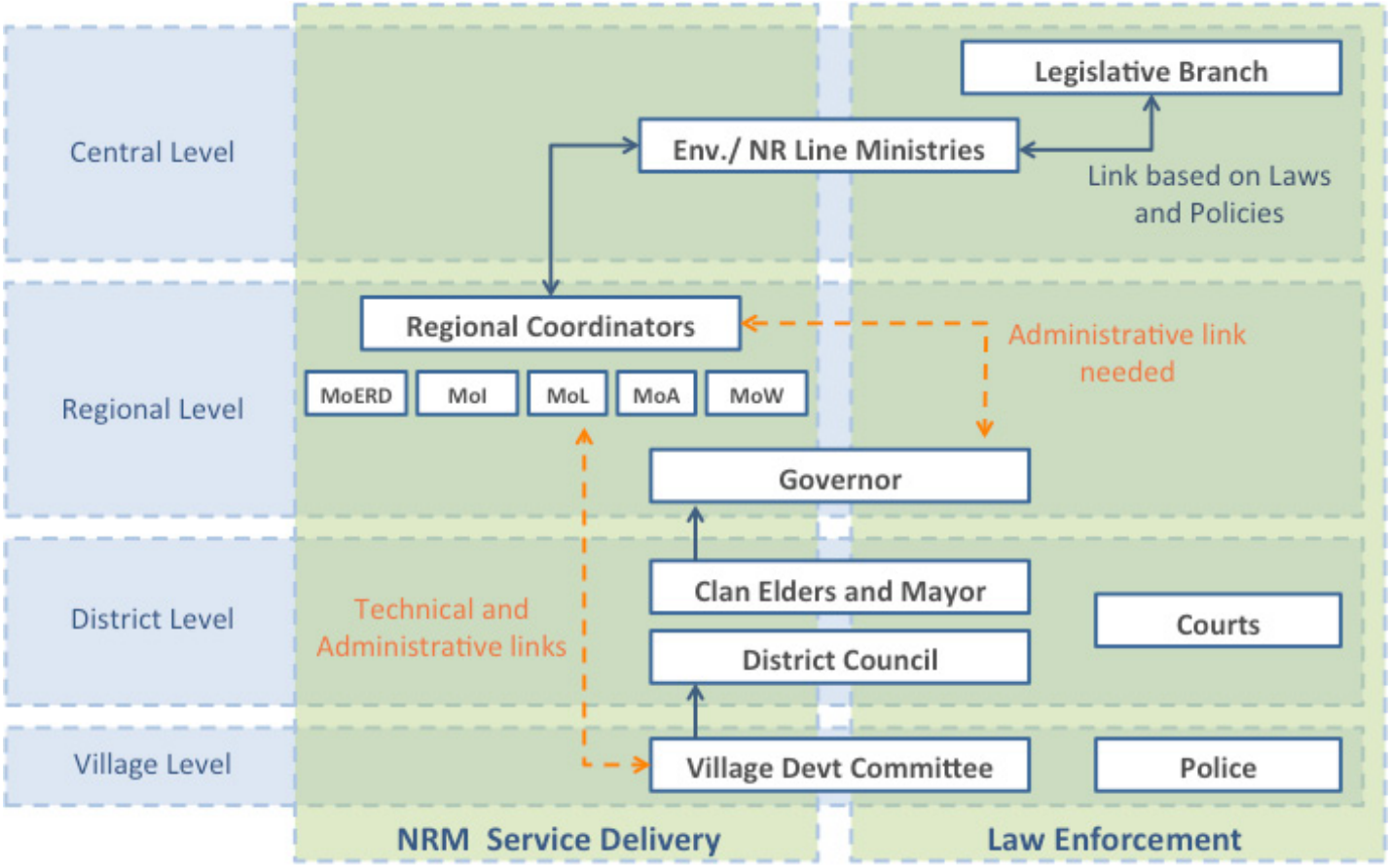
Displaced women are often their household's main income provider and are most affected by the surge in prices of basic commodities that accompany periods of instability. According to OCHA's overview of the humanitarian situation, people experiencing acute food security crisis are found in large numbers among displaced people in Bari, Nugaal, south Mudug, Galgaduud, Hiraan, Middle Shabelle, Lower Shabelle, Bakool, Gedo, Middle Juba, and Banadir Regions, and in rural areas (Humanitarian Needs Assessment, 2014).

Stakeholders to the NAP/ELD proposed some actions for reversing land degradation in the face of the deteriorating humanitarian situation in areas that are particularly vulnerable to violent conflict. The recommendations focused on two levels: engagement at the grass-roots level, and interventions at the policy and national planning level. These proceedings are summarized below.

Somali communities in areas of violent conflict

- Strengthening neutral outreach by local civil society on DLDD
- Prioritizing decentralized natural

Figure 4.3: Decentralized Natural Resource Management



Source: Adapted Excerpt from Somaliland 2014 NRM Sector Study

resource management service delivery
- Focusing on technical sustainable land management interventions at the grass-roots level
- Utilizing existing governance structures to introduce sustainable land management practices that are adapted to context

Policy and planning for DLDD in areas of violent/armed conflict

- Introducing sustainable land management into camps for internally displaced people and adjacent areas
- Mainstreaming environmental planning into humanitarian operations
- Prioritizing sustainable land management and land rehabilitation among the first post-conflict interventions
- Investing in improving soil quality, as food security is linked to soil fertility
- Utilizing decentralized mechanisms (Figure 4.3) for enforcement of natural resource management and DLDD policies

Conflict over Land Tenure and Dispute Settlement

One in eight land dispute cases relates to overlapping claims to land and use of its surface resources and to residential land (UN-Habitat, 2015a). Administratively, such disputes over titles are different from those that occur between resource users over communal land. Although disputes are officially brought to the Land Dispute Tribunal, the majority of cases are resolved through traditional channels of dispute resolution (NRC/LAW, 2014: 9 and 28).

The nature of land tenure disputes is often related to inheritance of land, gifting or donation of land, customary acquisition or sale of land, demarcation of plots, and issues pertaining to title or ownership (NRC/LAW, 2014: 15; UN-Habitat, 2015a, 2015b). Across regions, urban land conflicts are similar (NRC/LAW, 2014: 16 and 34; Academy for Peace and Development, 2010), with some variations among urban centres (see below).

Mogadishu

- Forced eviction of internally displaced people
- Land grabbing
- Insecurity of tenure and abuses caused by gatekeepers of camps for internally displaced people
- Conflicts between private land owners and tenants
- Conflicts between residents and returnees

Somaliland (various urban areas)

- Overlapping claims to the same parcel of land by host community and returnees
- Conflicts between landlords and tenants over private land/ settlements
- Forcible eviction from public land
- Issuance of duplicate legal documents over the same plot of land
- Counterfeiting of land ownership documents

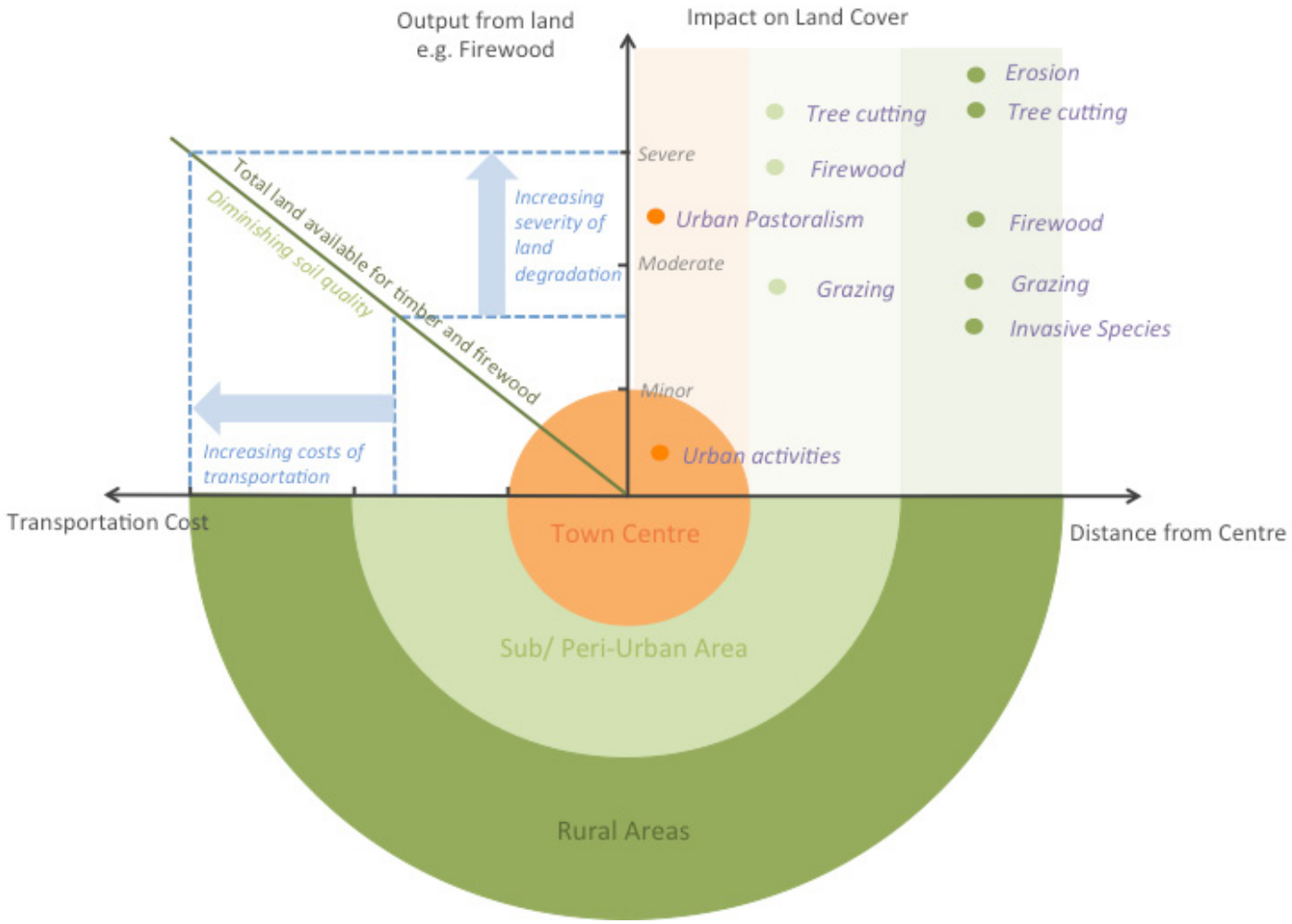
The prevalence of different legal systems in Somalia makes the regulation of rights to land, title over property, and access to secure tenure particularly complex (Unruh, 1995b; Unruh, 2004). The changing demographic situation, increasing disenfranchisement with the pastoralist way of life, and demand for urban settlements all have implications on the use of land and the quality of soil. The primary environmental concern is the pressure on land as more returnees and internally displaced people relocate to urban centres, as well as the increase in land degradation that comes with the growing demands of a rapidly expanding urban population.

During NAP/ELD consultations, stakeholders were asked to list the primary causes of land degradation and to rank these by intensity of their impact on land cover, ranging from minor impacts to severe land degradation. These causes were then mapped according to three locations (urban centres, suburban areas, and rural areas), which are marked by a growing distance from any given town centre. Stakeholder inputs were then adapted to von Thünen's model on the locational theory of land. The findings are summarized in Figure 4.4.

While land degradation affects the benefits land users may derive from land and its resources, it has limited implications on the tenure system in Somalia. The extent of the link between land administration and the management of land and its resources is when land disputes arise over the validation of rights to land appropriated by customary law. This is a common feature of Land Dispute Tribunal case law and is often resolved by customary precedent. From the case samples reviewed during the Somalia NAP formulation process, a typical land dispute scenario would draw heavily on previous decisions of elders.[6]

6 Republic of Somaliland, Maroodi-jeex Regional Committee for Land Disputes, GGDH/MJ/7-14/G-124/2014 and GGDH/MJ/74-12/G-84/13.

Figure 4.4: Desertification, Land Degradation, and Drought by Location and Distance from Urban Centres



Sources: Adapted by NAP/ELD Technical Expert- CiFOR LDSF (2013), von Thünen cited in Sinclair (1967)

5. SOMALIA NATIONAL ACTION PROGRAMME PROCESS

5.1 SOMALI PRIORITIES UNDER THE RIO CONVENTION

Joint planning and programming for the implementation of the Rio Convention (a formal combination of three conventions: the UN Framework Convention on Climate Change, the Convention on Biological Diversity, and the UN Convention to Combat Desertification or UNCCD) and the post-2015 agenda was a key feature of discussions during the Somalia NAP planning process and consultations. Efforts were made to link pre-existing climate change adaptation and mitigation plans (mainly early warning on floods and drought) with the underlying causes of DLDD, in addition to linking the Somalia NAP with the need for institutional capacity development across environment ministries and parliamentary committees in the respective regions.

The UN Framework Convention on Climate Change and the Somalia National Adaptation Programme of Action on Climate Change

The Somalia National Adaptation Programme of Action on Climate Change (NAPA) points to biophysical and metrological factors contributing to severe drought events and flooding. Land degradation forms an integral part of climate change problems identified during the NAPA consultations in 2013. Some of the impacts of climate change (mainly extreme variations in climate) associated with land degradation were the following: damage to land, gullying, soil erosion, loss of soil fertility, loss of existing water supply schemes, and damage to infrastructure. The NAPA provides a comprehensive account of rainfall variability and presents climate change projections, which were previously unavailable for Somalia.

The Somalia NAPA focuses on three programme areas:

1. Sustainable land management
2. Integrated water resource management
3. Disaster management

The Convention on Biological Diversity and the Somalia National Biodiversity Strategy and Action Plan

The Somalia National Biodiversity Strategy and Action Plan (NBSAP) presents the Somalia Vision 2050 for biodiversity, in which the Somali people envision that by 2050 their biodiversity is restored, conserved, and used sustainably. The ecosystem-based approach under the convention, which calls for the integrated management of land, water, and living resources, provides a strong linkage for the joint implementation of the NBSAP and NAP. The NBSAP sets out national biodiversity goals and objectives, 9 overarching principles, and 15 strategic approaches that will guide the 5 main priority areas of the NBSAP:

1. Awareness and an inter-sectoral approach to biodiversity and development planning
2. Promotion of conservation and the sustainable use of biodiversity
3. Safeguarding ecosystems, species, and genetic diversity in Somalia
4. Enhancing benefits from ecosystems services, with an emphasis on marginalized groups
5. Participatory planning, knowledge management, and capacity building for conservation and sustainable biodiversity use

The UN Convention to Combat Desertification and the Somalia National Action Programme

The NAP/ELD consultations, held from April 2015 to February 2016, made evident the need for an integrated and holistic approach to DLDD in the Somali region, considering the variation in regional administrative systems, the transboundary patterns of resource use, and the shared ecological units (e.g. mountain ranges and river basins).

As a result, activities set out in the Somalia NAP 2015–2030 consider the concurrent access to and use of resources that characterize land use in Somalia. The conceptual framework set out in the introductory section is adapted to activities that combine sustainable land management practices with integrated water resources management concepts and interventions, proposing efforts towards land degradation neutrality that consider the management of land (specifically topsoil) as it relates to access to and use of overlapping resource units (Figure 5.1).

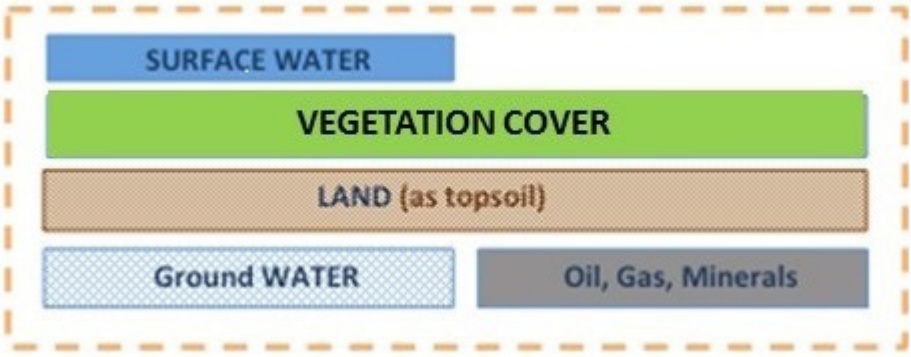
The Somalia NAP adapts an understanding of the Somali connection to land to stakeholder recommendations. The proposed NAP priorities are aligned with the UNCCD Ten-Year Strategy and clustered into three programme areas:

1. Integrated land and water management
2. Access and rights to communal land
3. Zoning and urban land use

5.2 SUSTAINABLE DEVELOPMENT GOALS AND THE SOMALIA NATIONAL ACTION PROGRAMME

In September 2015, the UN Summit in New York launched the new Sustainable Development Goals. The 17 goals set the international agenda on the environment, social change, and economic development for the next 15 years. Goal 15 urges countries to protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss. Target 15.3 aims to 'combat

Figure 5.1: Land Resources



The Somalia National Action Plan adapts an understanding of the Somali connection to land to stakeholder recommendations

desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation–neutral world' by 2030. Somalia has officially launched the domestication of the Sustainable Development Goals into National Development Plans and policies for better implementation and monitoring. Special consideration has been made to incorporate the goals into the Somalia NAP to contribute to achieving land degradation neutrality and also to facilitate future linkages in planning and programming.

5.3 INTENDED NATIONALLY DETERMINED CONTRIBUTIONS, THE PARIS AGREEMENT, AND THE SOMALIA NATIONAL ACTION PROGRAMME

Somalia submitted its first Intended Nationally Determined Contributions report to the UN Framework Convention on Climate Change secretariat in November 2015. Land degradation, droughts, and flash floods were identified as major environmental challenges in the report. Among the key recommendations of the report was the implementation of sustainable land management projects to build the resilience of rural livelihoods and contribute to national food security. Achieving land degradation neutrality through sustainable land management and rehabilitation of degraded lands will enhance the role of land and soil in carbon sequestration and deliver on the Paris Agreement (the Paris climate accord), to which Somalia is a signatory.

5.4 SOMALIA NATIONAL ACTION PROGRAMME SPECIAL CONSIDERATIONS

New and Emerging States

The political and administrative situation in Somalia is evolving, and there is increased demand from stakeholders for more comprehensive subnational and regional engagement. Apart from the existing states of Puntland and Somaliland, other regional states have emerged in the south central regions of Somalia. The interim administrations of Jubaland, South-West, Galmudug, and Hirshabelle States were recently formed.

Land-use issues are at the forefront of the political dialogue about the borders of the new and emerging states, as well as the border area between Somaliland and Puntland. As clans continue to coexist and utilize natural resources that straddle administrative regions, the need emphasized by stakeholders in the NAP consultations for an integrated and holistic approach to natural resource management becomes increasingly evident.

Instability and Ongoing Conflict

Throughout 2015, there has been an upsurge in conflict and acts of violence, particularly towards the international community. This reinforces the need to enable local governments and strengthen civil society. Effectiveness of international support for DLDD can only be recognized at the local level, through local stakeholders.

Efforts towards DLDD and wider environmental resilience need to be embedded in the local context, through decentralized branches of the executive and legislature, supporting both policymaking and policy enforcement at the grass-roots level.

The Pastoralist Way of Life

Pastoralism continues to be one of the predominant livelihood strategies. Despite disenfranchisement with the pastoralist way of life, the Somali economies continue to rely on livestock production for 30 percent of the collective gross domestic product and more than 50 percent of foreign exchange earnings (World Bank, 2014).

Livestock husbandry was also reported as a key coping mechanism for communities in areas of low agricultural productivity (Ministry of Environment and Rural Development, 2014), as it provides livelihood diversification options for poor and low-income families.

Local Government and the Role of Elders

The enforcement of rights of access to and use of natural resources continues to be one of the primary functions of traditional elders. Land disputes are often referred to traditional elders for resolution in the event of a failure to resolve disputes through the formal district courts. As the case study in Section 3.3 of this NAP demonstrates, these traditional systems of governance form the cornerstone of access to justice and need to be strengthened.

6. SOMALIA NATIONAL ACTION PROGRAMME 2015–2030: TOWARDS LAND DEGRADATION NEUTRALITY

6.1 PROGRAMME AREAS

The programme areas that constitute the Somalia NAP target the three components (ecological, economic, and administrative) of the Somali connection to land. Each programme area represents a biophysical and socio-economic focus that targets the reversal of desertification and land degradation and mitigates the effects of drought (Figure 6.1).

Activities under each programme area are linked to the NAP Implementation Matrix (Section 6.3 of this document) and aligned to the UNCCD operational objectives. Each programme area has a specific focus:

Programme Area 1: Integrated Land and Water Management has an ecological focus. The choice of programme unit of analysis will be ecological, i.e. a watershed, catchment area, agro-ecological zone, or resource unit such as rangeland or forest area. Activities in this programme area are aligned with Operational Objectives 1, 2.1, 3, and 4.1 of the Somalia NAP.

Programme Area 2: Zoning and Urban Land Use focuses of the economic and productive uses of land and its resources, with the aim of establishing a zonal system that distributes land uses on the basis of soil suitability and the productive capacity of the land. Programmatic focus under this programme area should include institutionalizing an understanding of different and geographically adapted livelihoods across agro-ecological zones. Activities in this programme area are aligned with Operational Objectives 2.2, 2.3, 3, 4.2, and 5 of the Somalia NAP.

Programme Area 3: Access and Rights to Communal Land has an administrative focus with the aim of clarifying the delineation and enforcement of the rights to access and use land and its resources. In Somaliland, this follows the recommendations from the Burao conference held in April 2015. The aim is to secure communal access for pastoralists and institute measures for the rehabilitation of communal land. Activities are aligned with Operational Objectives 1, 2, 4.2, and 5.3 of the Somali NAP.

6.2 NATIONAL ACTION PROGRAMME ALIGNMENT TO THE UN CONVENTION TO COMBAT DESERTIFICATION TEN-YEAR STRATEGY

The gaps in the available baseline data necessitate that the immediate and strategic activity for the alignment of the NAP with the UNCCD Ten-year Strategy is the development of biophysical and socio-economic baselines.

Figure 6.1: National Action Programme Areas

Source: NAP/ELD technical expert

Somali Strategic Objectives for the UN Convention to Combat Desertification

Strategic Objective One: Improve living conditions of the affected populations

- Socio-economic baselines conducted systematically throughout administrations and regions
- Economics of land degradation approaches adopted to understand the socio-economic impacts of DLDD in Somalia
- Engage with district authorities to adapt the Somalia NAP to District Development Frameworks

Strategic Objective Two: Improve the condition of affected ecosystems

- Biophysical baselines conducted in accordance with Operational Objective 3
- National coordination to ensure consistency of tools for baseline
- Seasonal biophysical baselines to aid in mapping livestock migration and transboundary resource use

Strategic Objective Three: Generate global benefits through the effective implementation of the UNCCD

Somalia NAP implementation aligned with Somalia's international commitments and national plans

Strategic Objective Four: Effective partnerships though UNCCD implementation

Activities under Operational Objective 5 of the Somalia NAP implementation schedule

Somali Operational Objectives for the UN Convention to Combat Desertification

Operational Objective 1: Advocacy, Awareness Raising and Education

The activities proposed for advocacy and public awareness favoured the dissemination of public messages

that emphasized instilling a sense of responsibility towards addressing land degradation. Stakeholders prioritized the need for customized messages to target different audiences: individuals, communities, and the private sector, as well as a nationwide government message on combatting desertification and mitigating the effects of drought.

The stakeholders identified education as being among the key priorities in addressing DLDD issues in Somalia. This would include incorporating environmental education into the national curriculum, introducing environmental courses at the universities, engaging students in advocacy and awareness raising, and promoting research to inform decision making.

Climatic changes and diminishing biological diversity also featured as critical issues contributing to land degradation. The stakeholders consulted provided input to inform a dual communications strategy: focusing on legal enforcement of land-use regulations, particularly those securing communal access, as well as emphasizing messages on how to maximize socio-economic gains from sustainable land-use management.

- First-track Social Mobilization: Nationwide public messages covering the environmental aspects of land degradation as they relate to soil productivity and the socio-economic implications of unsustainable land use, with an emphasis on people's responsibility to protect the environment and land resources. This can be achieved through weekly or bimonthly radio broadcasts and debates, bringing together land users and government policymakers under the same public forum. The aim is to infuse the Somali connection to land with a strengthened sense of responsibility towards the prevention of land degradation.
- Second-track Informed Land-use Decisions: This activity aims at disseminating facts and strategies on what causes land degradation and how to mitigate it. This can be achieved through publicly available and widely disseminated information that will enable land users to make informed and environmentally sound land-use decisions. The aim is to enable land users to mitigate land degradation and the effects of drought.

Operational Objective 2: Policy Framework

There are no land-use policies to create an enabling environment to combat land degradation and mitigate the effects of DLDD at the federal level or at regional levels, with the exception of Somaliland and Puntland, which have urban land management laws and other related laws. The need to

Climatic changes and diminishing biological diversity featured as critical issues contributing to land degradation

Table 6.1: Objective 1 – Baseline, Outcomes, and Institutional Commitments/Responsibilities

Objective 1: Advocacy, Awareness Raising, and Education		
Baseline	Federal Government of Somalia level	Scattered efforts; no clear continuity
	Puntland	Ministry of Environment, Wildlife and Tourism–led advocacy through NGOs
	Somaliland	Active civil society and small-scale advocacy
	Interim South-West Administration	No activities reported in region
	Interim Juba Administration	No activities reported in region
	Interim Galmudug Administration	No activities reported in region
	Interim Hirshabelle Administration	No activities reported in region
Outcomes	1.1 Communications Strategy	
	1.2 National Awareness Campaigns	
Institutional Commitments/ Responsibilities	***Organization***	***Role***
	Central environment and natural resource ministries	Design strategy and fundraising
	Universities, NGOs, and private sector	
	International community	Provide technical and financial support

formulate national land-use policy came out strongly in the stakeholder consultations. The stakeholders further suggested the revival of forestry, rangelands, and game warden institutions at district, regional, and national levels.

The policy framework in Somaliland and Puntland makes a clear distinction between *urban land* and *rural land*. However, the geographic and spatial delineation of urban and rural land is less well defined in practice. All statutory procedures relating to access to and use of land are subject to this dualistic system of land classification. Urban land falls within the jurisdiction of the Ministry of Public Works and is regulated by the Urban Land Management Law No. 17/2001 in Somaliland and Urban Land Management Law 2008 in Puntland. Urban land management is decentralized to local government levels on issues relating to temporary and permanent land allocation,[1] registration of plots,[2] land dispute resolution.[3]

The regulation and management of rural land use is more complex, both in terms of applicable law and administrative enforcement. The legislative scope of land considers land a productive resource unit in terms of the resources that lie on its surface (pasture, vegetation cover, and soil)[4] and within its subsoil (groundwater; similar inferences can be drawn for access to land for hydrocarbon resources),[5] as an ecological asset to be managed (land overlaying watersheds, deforestation

1 Article 10(1) and Article 14(1), Urban Land Management Law No. 17/2001.
2 Article 27, Urban Land Management Law No. 17/ 2001.
3 Article 28, Urban Land Management Law No. 17/ 2001.

4 Article 7 and Article 9, Environment Conservation and Proclamation Act No. 4/1998, Environment and Pastoral development Strategic Plan 2011–2015.
5 Article 75, Somaliland National Water Act 2004.

of catchment areas)[6] and its biological diversity protected.[7]

In terms of administration of land and the regulation of ecosystem services derived from land, the primary units of enforcement are customary/traditional structures and local government devolved to the district level. Within clan/subclan boundaries, traditional elders function as administrative units for the regulation of access to and use of communal land. District borders represent the formalized spatial units of government service delivery. The devolved government agencies collaborate with local government authorities in delivering natural resource management services at village and district levels. A comprehensive account of inter-ministerial coordination for natural resource management in Somaliland and Puntland is provided in the 2014 Natural Resource Management Sector Studies, but there

6 Somaliland National Policy on Environment.
7 Section I(B)(a), Somaliland National Policy on Environment 2011; Pillar 5 of Somaliland Vision 2030.

Table 6.2: Objective 2 – Baseline, Outcomes, and Institutional Commitments/Responsibilities

Objective 2: Policy Framework		
Baseline	Federal Government of Somalia level	The policies, regulatory frameworks, and institutions to address DLDD are either weak or non-existent
	Puntland	Light/none in Bari; strong/medium coast degradation in Nugaal
	Somaliland	Strong/moderate degradation; none in Gacan Libaax
	Interim South-West Administration	Strong/moderate degradation in Bay, Lower Shabelle
	Interim Juba Administration	Strong degradation in Gedo, with light/none in Juba
	Interim Galmudug Administration	Light/moderate degradation in Mudug/Galgadug
	Interim Hirshabelle Administration	Light/moderate degradation in Middle Shabelle/ Hiraan
Outcomes	2.1 Rangeland reserves demarcated, illegal enclosures removed	
	2.2 Measures for urban sprawl control and land-use planning	
	2.3 Access to land and resources for internally displaced people	
Institutional Commitments/ Responsibilities	***Organization***	***Role***
	Parliamentary committees	Facilitate consultations, policy design and enforcement
	Specialized ministries and agencies	
	Elders and Village Development Committees	

Table 6.3: Objective 3 – Baseline, Outcomes, and Institutional Commitments/Responsibilities

Objective 3: Science, Technology, and Knowledge		
Baseline	Federal Government of Somalia level	Early warning and inter-agency coordination for information management: data on rainfall variability, flooding, food security, and nutrition
	Puntland	
	Somaliland	
	Interim South-West Administration	No formal structures in DLDD at the state level. The environmental institutions in these newly formed states are at their infancy stages.
	Interim Juba Administration	
	Interim Galmudug Administration	
	Interim Hirshabelle Administration	
Outcomes	3.1 Seasonally disaggregated data on vegetation cover	
	3.2 Early warning for areas at risk of drought and desertification	
	3.3 Appropriate technology adopted for removal of invasive species	
	3.4 Incorporation of tools for traditional knowledge management	
	3.5 Harmonized tools for coordination at national/subnational levels	
Institutional Commitments/ Responsibilities	***Organization***	***Role***
	Central environment and natural resource ministries	Facilitate consultations, policy design and enforcement
	Disaster management agencies – SODMA, NERAD, HADMA	
	Disaster Risk Coordination Committee – UN-Habitat	Standardization of tools

are no coordination mechanisms for such management in other regional states or at the federal level.

At the core of land-use management and the urban–rural land dichotomy is the coexistence of customary and statutory administrations for the governance of land. When overlapping claims to land escalate into conflict, traditional systems of dispute resolution are engaged to enable dispute settlement. To be effectively implemented, solutions to combat desertification/land degradation and mitigate the effects of drought must be supported by the unique approach to land-use management adopted traditionally and administratively.

In both Somaliland and Puntland, the role of the respective Parliamentary Committees on Environment and Natural Resources were seen as playing a critical role in bringing together Objective 1 on advocacy and Objective 2 on the policy framework and its enforcement. This is not the case in the other regional states and at the federal level, and hence there is a need to further sensitize and engage the respective Parliamentary Committees on Environment and Natural Resources.

Operational Objective 3: Science, Technology, and Knowledge

Across the regional consultations, there was general agreement and

emphasis among stakeholders that the current information available on DLDD is neither sufficient nor reliable. Coordination efforts to gather and present data relevant to DLDD were considered a priority activity. In particular, information on seasonal variations and livestock migrations was seen as critical for early warning on drought and food security.

Participants highlighted sites and ecological zones that are representative of the major ecosystems. Emphasis was placed on information gaps and the need for standardized and tabulated data, in addition to mapping. The focus on agro-ecological zones was linked directly to the use of land and its resources. This is a common feature of the Somali connection to land. It presents a holistic view of land and its resources – both on the surface of land and in its subsoil (Figure 2.1 and 3.4). This holistic approach is also considered critical with regard to groundwater retention and the regional hydrologic balance across the five river basins in Somalia that affect seasonal land use and soil quality.

In Somaliland, the proposed ecological sites were based on prevalent land-use practices across four agro-ecological zones:

1. Coastal Zone and Guban
2. Golis Mountains (Ogo Plain)
3. Hawd Plateau
4. Nugaal Valley

Similarly, in Puntland stakeholders presented four agro-ecological zones and their prevalent land and resource uses.

1. Dharoor Valley Zone
- Pastoralism
- Frankincense
- Timber production
- Fodder
- Agriculture

2. Nugaal Valley Zone
- Pastoralism
- Agriculture

3. Hawd Zone
- Pastoralist
- Farming

4. Deex/coastal Zone
- Pastoralism
- Mangroves
- Farming

In the south central regions of the country, there are three major agro-ecological zones, and the predominant land and resource uses are as follows:

1. The central plateau with broad limestone/sandstone
- Pastoralism
- Limited farming

2. The Shebelle Basin
- Pastoralism
- Extensive farming

3. The Juba Valley
- Pastoralism
- Extensive farming

All three agro-ecological zones have a coastal zone attached to them in which fishing is practised, but this is not fully exploited.

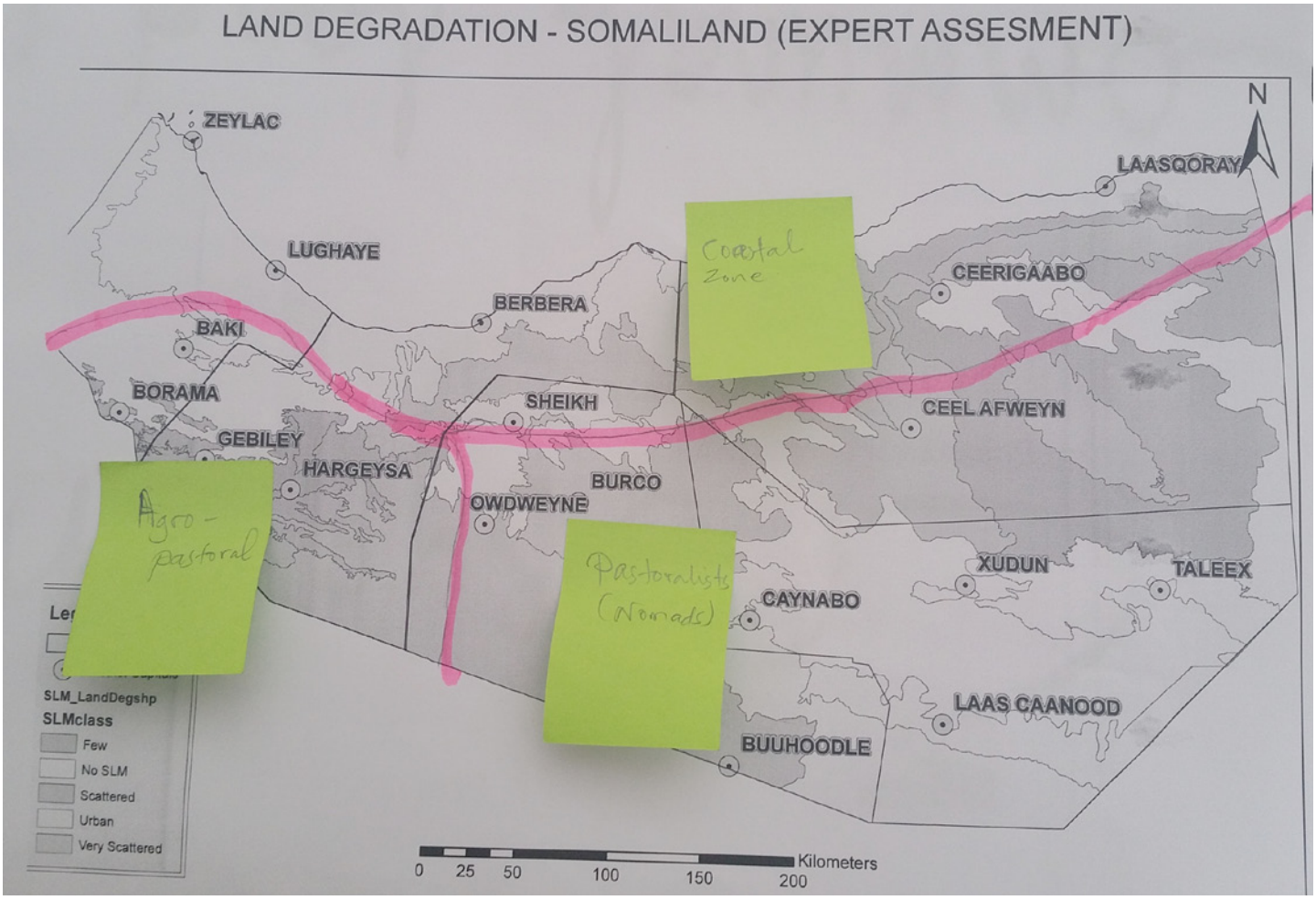
Traditional elders, backed by the specialized ministries, emphasized the need to develop systems for gathering and disseminating traditional knowledge. The role of the elders in local government was described (see information box), and government officials agreed on the importance of traditional knowledge in decentralized service delivery and early warning.

Operational Objective 4: Capacity Building

Consultations on the DLDD capacity-building needs were prioritized based on the respective National Development Plans in each region of consultation. These national documents included the Somali Compact (Federal Government of Somalia), the Puntland Five-year Development Plan 2014–2018, and Somaliland Vision 2030. Stakeholders ranked each development priority and identified activities for the Somali NAP.

The Somali Compact was considered the main development point of reference, primarily Peace and

Figure 6.2: Stakeholder-identified Agro-ecological Zones by Land Use



Source: Somaliland NAP/ELD Consultative Workshop May, 2015

Traditional Knowledge and the Role of Elders

Within a given clan/subclan unit, a group of elders is nominated to form a committee. This committee serves to assign clan delegates to explore the quality of pasture from one place to another and relay the information back to the pastoralist unit. Based on this information, the clan elders would advise the clan/subclan of the recommended transhumant migration route. In addition to providing information on grazing locations, clan elders are key in regulating the types of trees, plants, pasturelands, and vegetation cover permitted for grazing or general use.* This system of land-use management is aided by traditional knowledge of the nutrients derived from particular plants and of herbal medicine, as well as experience on seasonality and so on.

* The Environment Conservation Act and Proclamation No. 4/1998 substantiates some of the regulations that apply in custom. Article 1 provides a list of permitted tree species that are subject to prior authorization by the Ministry of Environment and Rural Development. Article 2 provides a list of trees that are prohibited for general use.

Table 6.4: Objective 4 – Baseline, Outcomes, and Institutional Commitments/Responsibilities

Objective 4: Capacity Needs		
Baseline	Federal Government of Somalia level	Mogadishu-level capacity; limited decentralized capacity
	Puntland	Ministry of Environment, Wildlife and Tourism capacity; limited inter-ministerial linkages for DLDD
	Somaliland	Moderate institutional capacity at centre; limited district capacity
	Interim South-West Administration	Immediate capacity required for food production and water provision
	Interim Juba Administration	Immediate capacity needed across ministries in Kismayo
	Interim Galmudug Administration	Immediate capacity needed across ministries at Adado
	Interim Hirshabelle Administration	Immediate capacity needed across ministries at Adado
Outcomes	4.1 Capacity to formulate and enforce policy measures	
	4.2 Consultative land-use planning and decentralized service delivery	
	4.3 Measuring progress and reporting on indicators and multilateral environmental agreement requirements	
Institutional Commitments/ Responsibilities	***Organization***	***Role***
	Central Ministries of Environment	Lead NAP formulation/validation
	UNDP	National capacity needs self-assessment
	Parliamentary committees	Link between centre and communities Formulate decentralized laws

State-building Goal 4 on Economic Foundations.

In Somaliland, the Somaliland Vision 2030 Pillars were used as the basis for stakeholder priorities: 1) Economic Development Pillar: Agriculture, Trade and Financial Services, and Mining; 2) Infrastructure Development Pillar: Transportation, Energy Production, and Water Supply.

The Puntland Five-year Development Plan 2014–2018 sets out six sector priorities:

1. Governance Sector
2. Security Sector
3. Justice Sector
4. Social Sector
5. Livelihoods Sector
6. Infrastructure Sector

In addition, the plan has cross-cutting thematic priority areas: a) Establishing

Table 6.5: Objective 5 – Baseline, Outcomes, and Institutional Commitments/Responsibilities

Objective 4: Financing and Technology Transfer		
Baseline	Federal Government of Somalia level	Donor trust funds – implementation varies according to security situation
	Puntland	NGO programme–based funding; limited institutionalization
	Somaliland	Project-based funding and small-scale technology transfer
	Interim South-West Administration	Scattered projects by national and international partners; no systematic DLDD financing and technology transfer
	Interim Juba Administration	
	Interim Galmudug Administration	
	Interim Hirshabelle Administration	
Outcomes	5.1 Integrated investment frameworks for multilateral environmental agreements at subnational levels	
	5.2 Promoting efforts to mobilize funds from international funding mechanisms	
	5.3 Village Development Committees to prepare own projects	
Institutional Commitments/ Responsibilities	***Organization***	***Role***
	Central Ministries of Environment, Finance/ Commerce	Macroeconomic framework for resource mobilization
	ELD Initiative, UNDP, and World Bank	Economic and livelihood assessments/support
	Federal Government of Somalia and UNCCD focal points	Approach Kuwait Fund and Islamic Bank

and Strengthening the Economic Foundation for Accelerated Sustainable Growth b) Effective and Responsive Service Delivery, c) Accountable and Transparent Governance, d) Ruling Justly, and e) Maintaining Peace and Stability.

Out of the sector priorities and thematic priority areas, NAP consultations with stakeholders in Garowe identified specific DLDD activities and capacity needs that target development sectors according to the Puntland Five-year Development Plan, including the following:

1. Environmental governance
2. Customary dispute resolution
3. Green job creation
4. Agricultural land development
5. Infrastructure and urban sprawl

Throughout the NAP consultations, capacity development for monitoring and reporting on environmental indicators was prioritized as a capacity need across the regions, particularly at decentralized district levels. Furthermore, the capacity to formulate and enforce laws and policies, particularly those on illegal enclosures, rangeland reserves, and natural resource management, were

also prioritized. Traditional elders and Village Development Committees were seen as the primary target groups, with support from specialized ministries and Parliamentary Committees on Environment and Natural Resources.

Operational Objective 5: Financing and Technology Transfer

The DLDD financial diagnosis by stakeholders yielded promising results. Participants in the consultative workshops were asked to identify current sources of financial support for DLDD activities. In Somaliland, emphasis was placed on immediate efforts towards changing individual habits of resource use. Financial support for ecological literacy (ecoliteracy) is seen as the responsibility of all stakeholders – including subnational governments, local communities, and the diaspora.

6.3 SOMALIA NATIONAL ACTION PROGRAMME IMPLEMENTATION

Consistent with the Somalia development plans and aligned with the UNCCD Ten-year Strategy, stakeholders identified activities targeting the Somali NAP strategic and operational objectives. These proceedings are tabulated in Table 6.6.

Throughout the NAP consultations, capacity development for monitoring and reporting on environmental indicators was prioritized

Table 6.6: National Action Programme Implementation Plan (Matrix of Activities)

Operational Objectives	Time	Indicators	Linkages	
OPERATIONAL OBJECTIVE 1: ADVOCACY, AWARENESS RAISING, AND EDUCATION				
Outcome 1.1: Communications strategy				
Compiling an inter-ministerial communication strategy	2018	Three national strategies (Somaliland, Puntland, Federal Government of Somalia) with regional input prepared, validated, and activated	NAPA	
Media and academia to design key messages			NBSAP	ST 1.5
Traditional elders leading community message development			SDGs	Goal 15
Outcome 1.2: National awareness campaigns				
Nationwide public messages: weekly/bi-monthly radio/TV broadcasts	2018	Ten hours of weekly airtime	NBSAP	ST 1.5
Dissemination of scientific information on land-use decisions		Information accessed at the village level		
Ecoliteracy mainstreamed into formal and vocational curricula		100 teachers, 20 in each zone trained	NBSAP	ST 1.6
OPERATIONAL OBJECTIVE 2: POLICY FRAMEWORK				
Outcome 2.1: Rangeland reserves demarcated, illegal enclosures removed				
Districts apprise Ministry of Environment and Ministry of Planning of demarcation proposals	2020	Percentage of rangelands demarcated/ degazetted	NBSAP	ST 12
Removal of all illegal enclosures		Number of illegal enclosures removed		
Measures to compensate for loss as a result of enclosure removal		Alternative livelihood/compensation		
Outcome 2.2: Measures for urban sprawl control and land-use planning				
Existence and implementation of a national urban land-use policy	2018	Zoning system based on land use and ecological zones	SDGs	Goal 11.7
Instituting controls to contain urban sprawl and DLDD impact			NBSAP	ST 2, 15
Outcome 2.3: Access to land and resources for internally displaced people				
Securing land for those displaced by conflict or natural disasters	2020	Documented/recognized tenure	SDGs	Goals 1, 15.1, 16
Natural resource management service delivery to vulnerable groups of internally displaced persons in disaster-prone areas		Administrative arrangements for internally displaced people		
DLDD livelihood support to vulnerable groups		Losses by climate/non-climate disasters	NAPA	PA 1
		SDGs Indicator 6	SDGs	Goal 1

OPERATIONAL OBJECTIVE 3: SCIENCE, TECHNOLOGY, AND KNOWLEDGE				
Outcome 3.1: Seasonally disaggregated data on vegetation cover				
Instituting measures to collect, disaggregate, and provide seasonal data	2020	Seasonality feature of information management and mapping tools	NAPA	PA 1, 2
Land cover changes monitored by seasonality				
Outcome 3.2 Early warning for areas at risk of drought and desertification				
Continuous monitoring of changes to the ecosystem	2020	Deforestation and ecosystem monitors in early warning/disaster risk management	NBSAP	ST 7.2
Monitoring charcoal-based deforestation			NAPA	PA 3
Rapid mobilization of mitigation measures for long-term adaptation		Area covered with drought-resistant crops		
Outcome 3.3: Appropriate technology adopted for removal of invasive species				
Management plan for *Prosopis juliflora* and *Leucaena leucocephala* removal and prevention	2018	*Prosopis juliflora*/invasive species expansion arrested by 60 percent by 2027	SDGs	Goal 15.8
Alternative uses promoted by 2020	2020		NBSAP	ST 9
Land-use plans account for *Prosopis juliflora* management				
Outcome 3.4: Incorporation of tools for traditional knowledge management				
Participatory methods for collecting traditional knowledge	2020	Vitality Index of Traditional Environmental Knowledge	SDGs	Goal 15.3
Mainstreaming traditional knowledge into DLDD interventions				
Outcome 3.5: Harmonized tools for coordination at national/subnational levels				
National and subnational tools harmonized by thematic areas	2018	Institute DLDD monitors		
Compilation of templates to tabulate data for planning, as well as maps		Standardized methodologies and tools	NBSAP	15.2
OPERATIONAL OBJECTIVE 4: CAPACITY NEEDS				
Outcome 4.1: Capacity to formulate and enforce policy measures				
Nationwide afforestation requirements to be enforced by law	2025	Two nurseries per village	NAPA	PA 1
Economic incentives to strengthen ban on charcoal	2020	Effective ban on charcoal and notable sustainable land management	NBSAP	ST 3.5, 7.2
Strict enforcement of zonal requirements on fragile ecosystems	2025	Environmental impact assessments conducted on all development projects	NBSAP	ST 2, 15

Outcome 4.2: Consultative land-use planning and decentralized service delivery				
Zoning to form basis of land-use planning	2018	Land-use plans by ecological zones and administrative borders	NBSAP	ST 2, 15
Urban plans to incorporate elements of urban pastoralism and agriculture				
Outcome 4.3: Measuring progress and reporting on indicators and multilateral environmental agreement requirements				
National workshops to define and agree on common indicators	2018	Indicators verified and streamlined into national plans		
Harmonizing national plans with Somalia's multilateral environmental agreement obligations				
Improving technical capacity of ministries and parliamentary committees				
OPERATIONAL OBJECTIVE 5: FINANCE AND TECHNOLOGY TRANSFER				
Outcome 5.1: Integrated investment frameworks for multilateral environmental agreements at subnational levels				
Preparing a macroeconomic framework for resource mobilization	2018	Macroeconomic/investment framework endorsed		
Utilizing ELD for the macroeconomic framework for resource mobilization				
Outcome 5.2: Promote efforts to mobilize funds from international funding mechanisms				
Endorsed Somali NAP presented to Global Environment Facility and UNCCD Secretariat	2016	Somali NAP finalized and endorsed	NBSAP	ST 17.3
Mobilizing funds through private sector investments in sustainable land management		Potential donors/investors approached	NAPA	PA 1
Outcome 5.3: Village Development Committees prepare own small-scale projects				
Support local authorities in preparing project proposals for village natural resource management	2020	Biannual trainings per district/region	NAPA	
Providing disaster management funds for DLDD-related emergencies		National emergency funds for each region		PA 3

ABBREVIATIONS

NAPA	National Adaptation Plan of Action
NBSAP	National Biodiversity Strategy and Action Plan
ST	Strategic Target
PA	Programme Area
SDG	Sustainable Development Goal

7. IMPLEMENTATION ARRANGEMENTS

7.1 IMPLEMENTATION MECHANISM

The NAP is a comprehensive programme that requires the state and its partners to take a multidisciplinary approach to its implementation in order to achieve its objectives. Several organizations – including federal and state-level government agencies, local authorities, academic bodies, community-based organizations, private sector actors, and other stakeholders – are expected to be engaged in the planning and implementation of the projects, programmes, and actions. The Office of Environmental Affairs at the Office of the Prime Minister, which is the UNCCD focal point, will be responsible for coordinating the overall implementation of the NAP, while a national task force will be formed for the day-to-day implementation.

The national task force will be formed by the Office of Environmental Affairs at the Office of the Prime Minister. Key environment line ministries at both federal and state levels, including those related to agriculture, livestock, forestry, range, energy, water, transport, planning, and international cooperation, will be represented in the task force. Development partners, academia, community-based organizations, NGOs, and the private sector will all be represented in the task force. The national focal point and the national task force will be responsible for the implementation of the National Action Programme.

The national task force, together with the national focal point, will perform the following functions:

- Provide overall policy guidance, coordinate NAP implementation, and ensure stakeholder engagement
- Compile the available data and information on land degradation and the associated socio-economic impacts in Somalia and engage academia and experts in conducting additional research that might be deemed necessary for the NAP implementation
- Develop funding mechanism for NAP operationalization, in collaboration with the Ministry of Finance and development partners
- Constitute a technical monitoring committee for the NAP implementation

The NAP is a comprehensive programme that requires the state and its partners to take a multidisciplinary approach to its implementation in order to achieve its objectives

7.2 MONITORING AND EVALUATION

The National Action Programme will be presented to the national stakeholders for validation, upon which the national focal point will submit it to the UNCCD secretariat for endorsement. The NAP will be published and disseminated to the general public and the relevant line ministries at both federal and regional levels. This will be followed by awareness-raising programmes on the NAP's implementation and enforcement.

Monitoring will be undertaken on all NAP-related activities and projects to assess the environmental and socio-economic impacts, identify challenges, document best practices, and determine how the implementation activities are contributing to the strategic and operational objectives of the ten-year strategy. The relevant line ministries and agencies will be supported to develop coherent monitoring and evaluation systems.

Environmental and socio-economic indicators and benchmarks will be developed for the identified priority areas for monitoring the NAP implementation. The indicators and benchmarks are to be set when developing detailed programmes/projects related to the NAP implementation. The Office of Environmental Affairs at the Office of the Prime Minister will form a technical monitoring committee to undertake independent monitoring and also collect and compile monitoring reports from the institutions and agencies engaged in the NAP implementation. The committee will produce biannual and annual monitoring reports to measure the achievements against the intended targets.

It is proposed that independent mid-term and final evaluations will be carried out on the implementation of the NAP. The mid-term evaluation will focus on the implemented activities and their results and impacts and will provide recommendations on possible adjustments and resource mobilization needs for the remaining period. The final evaluation is envisaged to provide information on the overall achievements regarding the strategic and operational objectives of the ten-year strategy and also provide recommendations on ensuring sustainability. In addition, it will inform the formulation of Somalia's second NAP and other development plans.

REFERENCES

Academy for Peace and Development (2002). *Regulating the Somaliland Livestock Economy*. Draft report. http://www.apd-somaliland.org, accessed 10 June 2010.

Academy for Peace and Development (2010). *Contested Urban Land: Approaching Land Management and Land-based Conflicts in Urban Somaliland*. http://www.apd-somaliland.org, accessed 10 August 2010.

ACAPS (2011). 'Secondary Data Review: Horn of Africa'. Geneva. http://acaps.org/, accessed 20 July 2015.

African Development Bank Group (2013). *Somalia Country Brief 2013–2015*. OREB Department. http://www.afdb.org/, accessed 7 August 2015.

Armed Conflict Location and Event Data Project (2015). 'Real Time Data on Somalia Conflicts'. http://www.acleddata.com/data/realtime-data-2015/, accessed 7 August 2015.

Beerdhige, M. (2012). *Politics of Ethnicity and Resources in Puntland*. http://www.somaliareport.com/, accessed 1 August 2015.

Berry, L., J. Olson, and D. Campbell (2003). *Assessing the Extent, Cost and Impact of Land Degradation at the National Level: Findings and Lessons Learned from Seven Pilot Case Studies*. Global Mechanism: World Bank.

Bradbury, M. (1996). 'Hostility and Hospitality: The Pastoral Dimensions of the Somali Civil Conflict'. Unpublished manuscript.

Bruyas, F. (2006). *Somaliland and Puntland State of Somalia: The Land Legal Framework – Situation Analysis*. UN-Habitat, Nairobi.

Burton, R. (1856). *First Footsteps in East Africa, or An Exploration of Harar*.

ELD Initiative (2013). *The Rewards of Investing in Sustainable Land Management. Interim report for the Economics of Land Degradation Initiative*. www.eld-initiative.org/, accessed 7 May 2015.

Farah, I., A. Hussein, and J. Lind (2002). 'Deegan Politics and War in Somalia' in Scarcity and Surfeit by Lind and Sturman, eds. South Africa: ISS.

Federal Government of Somalia and United Nations (2015). *Joint Programme for Sustainable Charcoal Reduction and Alternative Livelihoods*.

General Service Agency (2016). *Feasibility Study for Canals and Water Harvesting Infrastructures Development in Four Districts*.

Gudger, W. and D. C. Barker (1993). 'Banking for the Environment' in *FAO Agricultural Services Bulletin* 103. http://www.fao.org/docrep/t0719e/t0719e00.htm#Contents.

Guleid A., H. M. Gadain, F. M. Muthusi, and P. W. Muchiri (2007). *Improving Flood Forecasting and Early Warning in Somalia*. Feasibility study, Technical Report No. W-10. Nairobi, Kenya: FAO-SWALIM.

Hadley, S. and S. Farah (2014). *Assessment Report: Somalia Economic Growth Strategic Assessment*. USAID http://pdf.usaid.gov/pdf_docs/PA00JXG7.pdf, accessed 19 July 2015.

Hannam, I. and B. Boer (2002). *Legal and Institutional Frameworks for Sustainable Soils: A Preliminary Report*. Gland, Switzerland, and Cambridge, UK: International Union for Conservation of Nature. https://portals.iucn.org/library/efiles/documents/EPLP-045.pdf, accessed 8 June 2015.

Hannam, I. and B. Boer (2004). *Drafting Legislation for Sustainable Use of Soils: A Guide*. Gland, Switzerland, and Cambridge, UK: International Union for Conservation of Nature.

Hoehne, M. (2015). *Between Somaliland and Puntland*. Nairobi: Rift Valley Institute. http://www.riftvalley.net/publication/, accessed 28 July 2015.

Hussein, A. A. (2012). 'Minerals of Somalia: From Exploration to Artisanal Production to Export'. SomaliaTalk.com. http://somaliatalk.com/2013/minerals_of_somalia.pdf, accessed 15 June 2015.

International Union for Conservation of Nature (2006). *Country Environmental Profile for Somalia*. Nairobi: IUCN Eastern African Regional Office: Nairobi. http://www.eeas.europa.eu/.

Lewis, I. M. (1994). *Blood and Bone: The Call of Kinship in Somali Society*. The Red Sea Press.

Lewis, I. M. (1999). *A Pastoral Democracy: A Study of Pastoralism and Politics among the Northern Somali of the Horn of Africa*. Hamburg/Oxford: Lit Verlag Münster-Hamburg / James Currey Publishers.

Macfadyen, W. (1950). 'Soil and Vegetation in British Somaliland' in Nature. London: Nature Publishing Group.

Ministry of Environment and Rural Development (2014). *Baseline Survey: Status of Forests and Grazing Reserve and their Management in Awdal, Sahil, Togdheer, Maroode Jeex and Sanaag Regions*. Hargeisa, Republic of Somaliland.

Ministry of Environment and Rural Development and International Labour Organization (2014). *Integrated Natural Resources Management Plan for Burao Town, Somaliland*.

Mohamed, A. E. (2013). 'Managing Shared Basins in the Horn of Africa – Ethiopian Projects on the Juba and Shabelle Rivers and Downstream Effects in Somalia' in *Natural Resources and Conservation*. http://www.hrpub.org, accessed 8 June 2015.

Mukhayer, H. (2012). *Integrating Land-use and Water Management: Making Ecosystem Services Work for the Poor*. Dundee, Scotland: University of Dundee. http://www.dundee.ac.uk/cepmlp/gateway/index.php?news=32348, accessed 13 May 2015.

Mumuli, S. and J. Njeru (2015). 'Land Degradation in Somalia' in *SWALIM Update*, 8th Edition. Nairobi: FAO-SWALIM. http://www.faoswalim.org/resources/site_files/SWALIM%20Update%20Issue%208.pdf, accessed 28 July 2015.

Omuto, C. T., Z. Balint, and M. S. Alim (2011). *A Framework for National Assessment of Land Degradation in the Drylands: A Case Study of Somalia*. John Wiley & Sons, Ltd.

Puntland Ministry of Planning and Statistics (2003). *Puntland in Figures*. Garowe, Puntland State of Somalia. http://siteresources.worldbank.org/SOMALIAEXTN/Resources/PuntlandFigures.pdf, accessed 7 August 2015.

Republic of Somaliland. *Maroodi-jeex Regional Committee for Land Dispute, Case No. GGDH/MJ/74-12/G-84/2013*.

Republic of Somaliland. *Maroodi-jeex Regional Committee for Land Dispute, Case No. GGDH/MJ/7-14/G-124/2014*.

Roba, G., M. Samantar, A. Zeila, and H. Yussuf (2013). *Natural Resources Management Project Baseline Survey Report for Puntland*. Garowe: Adeso/CARE.

Swayne, H. G. C. (1903). *Seventeen Trips through Somaliland and a Visit to Abyssinia*. Third Edition. London: Rowland Ward Limited, Forgotten Books www.forgottenbooks.com, accessed 5 July 2015.

UN-Habitat (2015a). 'Simple Matrix on LDT Case-Decisions'. Unpublished summary. Document with NAP/ELD Technical Expert.

UN-Habitat (2015b). 'Overview of Land-related Activities Carried Out by UN-Habitat for the UN Joint Programme on Local Governance and Decentralized Service Delivery'. Unpublished summary. Document with NAP/ELD Technical Expert.

United Nations and Federal Government of Somalia (2013). *UN Joint Programme for Sustainable Charcoal Production and Alternative Livelihoods*.

United Nations and World Bank (2006). *Somali Joint Needs Assessment: Productive Sectors and Environment Cluster Report*.

United Nations Environment Programme (2005). *State of the Environment in Somalia: A Desk Study*. UNEP Regional Office for Africa: Nairobi.

United Nations Environment Programme (2006). *Somalia Joint Needs Assessment: Environment Sub-cluster Report*.

United Nations Food and Agriculture Organization – Somalia Water and Land Information Management or FAO SWALIM (2015). 'Flood Monitoring'. http://www.faoswalim.org/water/floods/flood-monitoring, accessed 5 June 2015.

United Nations Office for the Coordination of Humanitarian Affairs (2014). *Somalia Humanitarian Needs Overview 2015*. https://somalia.humanitarianresponse.info/assessment-registry, accessed 10 August 2015.

United Nations Office for the Coordination of Humanitarian Affairs (2015). *Humanitarian Bulletin Somalia May/June 2015*. http://www.unocha.org/somalia/, accessed 10 August 2015.

United Nations Population Fund or UNFPA (2014). *Population Estimation Survey 2014 for the 18 Pre-war Regions of Somalia*.

Unruh, J. (1995a). 'Pastoralist Resource Use and Access in Somalia: A Changing Context of Development, Environmental Stress, and Conflict' in *Disaster and Development in the Horn of Africa* by J. Sorenson, ed. London: Macmillan.

Unruh, J. (1995b). 'The Relationship between Indigenous Pastoralist Resource Tenure and State Tenure in Somalia'. *GeoJournal* 36.

Unruh, J. (2004). 'Migration Induced Legal Pluralism in Land Tenure: Implications for Environmental Change' in *Environmental Change and Its Implications for Population Migration* by J. Unruh, M. S. Krol, and N. Kliot, eds. Netherlands: Kluwer Academic Publishers.

von Thünen (1826, 1942 and 1875). *Uer lsolierte Staat in Beziehung auf' Landwirtschaft un!d NutionaZokonomi,e*, Part I, II, III cited in *Von Thünen and Urban Sprawl* (R. Sinclair, 1967). *Annals of the Association of American Geographers*, Volume 57, Issue 1, 1967. http://www.tandfonline.com/doi/abs/10.1111/j.1467-8306.1967.tb00591.x#, accessed 20 June 2015.

Watson, R. M., C. I. Tippett, J. J. Beckett, and V. Scholes (1979). *Central Rangeland Survey*. Somali Democratic Republic. London: Resource Management & Research.

Watson, R. M. (1982). *Northern Rangelands Survey*. Somali Democratic Republic. London: Resource Management & Research.

Watson, R. M. and J. M. Nimmo (1985). *Southern Rangelands Survey*. Somali Democratic Republic. London: Resource Management & Research.

Williamson, R. (2014). 'Securing Oil in Somaliland'. https://www.beaconreader.com/rachel-williamson/securing-oil-in-somaliland, accessed 6 Aug 2015.

World Bank (2014). 'New World Bank GDP and Poverty Estimates for Somalia'. Washington, DC: World Bank. http://www.worldbank.org/, accessed 19 July 2015.

World Bank (2014). 'Somaliland Economic Conference, 24 January 2014'. Hargeisa: World Bank. http://somalilandmof.com/, accessed 7 August 2015.

World Food Programme (2016). *Atlas of Climate Risk and Food Security in the Greater Horn of Africa Region*.

World Health Organization (2006). *Somalia's Situational Environmental Health Assessment of Three Zones*. WHO Office for Somalia.

ANNEX I: OBJECTIVES AND AGENDA OF THE CONSULTATIONS

April 2015 Meetings and Geospatial Data Collection

- Meeting with Ministry of Environment and arranging of meetings with other ministries
- Food and Agriculture Organization/Somalia Water and Land Information Management maps on land degradation, agro-ecological zones, etc.
- Rule of Law (UNDP Somalia) internal meeting with UNDP colleagues to explore link between land resources and rights – arrange meeting with Ministry of Justice

April–May 2015 Focus Group Discussions

Traditional elders, pastoralist associations, and women's groups will be engaged in focus group discussions surrounding their connection to land and their experience of its degradation.

Aim of session: Understanding the Somali connection to land in Somaliland and the linkage between environmental degradation of land resources and the socio-economic implications.

Questions: The discussions will involve answering a set of structured, open-ended questions on the economic and sociocultural value of land, competing claims to land, and enforcement of rights and responsibilities surrounding access to and use of natural resources.

April–June 2015 Consultative Workshops

The consultative workshop will bring together representatives from central ministries, members of parliament, representatives from specialized agencies, civil society representatives, regional representatives, and selected district representatives. The workshop will consist of four sessions, as below.

Opening Session:
Opening Remarks and Welcome *Ministry/UNDP*

Day One:
Session A: Background to UN Convention on Climate Change and Desertification *NAP Technical Expert*
Somali NAP Process
Introduction to Economics of Land Degradation
Session B: Consultations and Priority Identification

Day Two:
Session C: Overview of Priority areas *Technical Expert/Mukhayer*
Commitments
Session D: Preliminary Endorsements

Closing Session:
Re-cap and Summary *Mukhayer/NAP Technical Expert*
Closing Remarks *Ministry of Environment, co-chaired by Ministry of Planning*
ELD video: *Value of Soil*

ANNEX II: CONSULTATIVE PROCESS

Somaliland Consultations, 2–3rd May 2015
Venue: Ambassador Hotel

Stakeholders consulted included participants from the six regions of Awdal, Saaxil, Maroodi-Jeeh, Tog-dheer, Sool, and Sanaag, represented by traditional elders, governors, and deputy governors from each region. Government ministries and representatives that engaged in the consultation processes included the following: Commissioner of the National Environment Research and Disaster-preparedness Authority (NERAD) and technical specialists, Minister of Livestock and Animal Husbandry, including regional coordinators, Minister of Agriculture and Irrigation, Minister of Water Resources, Ministry of Public Works, Ministry of National Planning and Development, Ministry of Interior, and Ministry of Labour and Social Affairs.

From the legislative branch of the Somaliland government, the Parliamentary Committee on Environment and Natural Resources and traditional elders and religious leaders were represented. Members of civil society included non-governmental organizations and research institutions: Candlelight, Agriculture Development Organization (ADO), Pastoral and Environmental Network in the Horn of Africa, Horn Youth Development Association, Himilo Relief, Rehabilitation, and Development Association (HIRDA), Horn of Africa Voluntary Youth Committee (HAVOYOCO), Initiative for Research and Development Action (IRADA), Partner Aid, Somaliland National Youth Organization (SONYO), Somaliland Non-State Actors Forum (SONSAF), Oxfam, UN Office for the Coordination of Humanitarian Affairs, University of Hargeisa, Gollis University, and the women's group Nagaad Umbrella.