REPUBLIC OF KENYA

THE MINISTRY OF WATER AND IRRIGATION

FINAL DRAFT

NATIONAL LAND RECLAMATION POLICY

Foreword

The debate as to whether land degradation is occurring or not is over. In the absence of concerted action, this phenomenon is an established fact, manifesting itself every second, every minute, every hour, and every day. It requires the adoption of an approach targeting key challenges and appropriate strategic actions for land reclamation including wastewater recycling and re-use, resulting into tangible sustainable socio-economic development. The approach adopted by the State Department responsible for water affairs and land reclamation, will evolve through the activities of this policy, whose focus is the protection, management and restoration of marginal and degraded lands, whilst at the same time working to address threats to land resources, such as decreasing water supply, increasing wastewater discharge into the environment, declining soil fertility, diminishing agricultural lands, increasing frequency of episodic floods; loss of mangrove habitats, fisheries and wildlife habitats; invasive alien floral and faunal species, land degrading mining practices, and deforestation, among others.

Given that water is regarded as land in the Constitution of Kenya 2010, potential socioeconomic benefits of reclamation interventions are huge, given the significance of land values, aesthetics, and viability of additional land for food production and settlement. The rising demand for such lands drives the need to create new usable land resources. To this end, the reclamation of degraded lands, especially for agricultural activities demands increased awareness about appropriate and agro-ecological zone-sensitive practices, particularly in the marginal lands of Kenya. Indeed, the poverty manifested in these areas coupled with inadequate policies, poor policy implementation, high population density, lack of awareness, as well as isolation of community participation from management of land resources, are some of the indicators of an unacceptable state of affairs.

Sensitizing communities to use sustainable agricultural practices and technologies in order to reduce extensive cultivation associated with low input agriculture, is a pragmatic action to discouraging wanton clearance of forest resources. While ensuring propagation of farm woodlots, the government will perpetually promote use of improved cooking stoves and green energy like geothermal, wind, solar, and biogas; to stop reliance on wood fuel and charcoal for cooking and heating. These strategies will translate into up-to 10% forest cover and its robust conservation thus increasing carbon storage as well as cutting on greenhouse gases to mitigate effects of climate change such as increased frequency and magnitude of many types of extreme events, including floods, droughts and tropical cyclones.

This document presents the National Policy providing for reclamation and conservation of lands hitherto subjected to natural and/or anthropogenic disturbances, and thereby preserving natural resources, to promote the protection of water resources, soil, and wildlife and aquatic resources; to establish agricultural, aesthetic and recreational, residential and industrial zones; to protect and perpetuate taxable value of property; and to protect and promote the health, safety, and general welfare of the human population. This would help reduce the cost of land degradation estimated at 3% GDP that affects over 11 million people.

Further, the policy provides a basis for the development of guidelines for efficient and cost-effective use of land resources by integrating reclamation, rehabilitation, restoration, and remediation practices, in harmony with Vision 2030 and related economic development frameworks. Also, this policy has incorporated inputs from the stakeholder consultative workshops at regional and national levels, as well as international arrangements related to land reclamation.

Last but not least, we are deeply indebted to our development partners for supporting this process. We believe that this policy will radically change the way we do things in the sub-sector and ultimately improve the livelihoods of our peoples.

Hon. Charity Kaluki Ngilu, EGH.
Minister; Ministry of Water and Irrigation

Acknowledgement

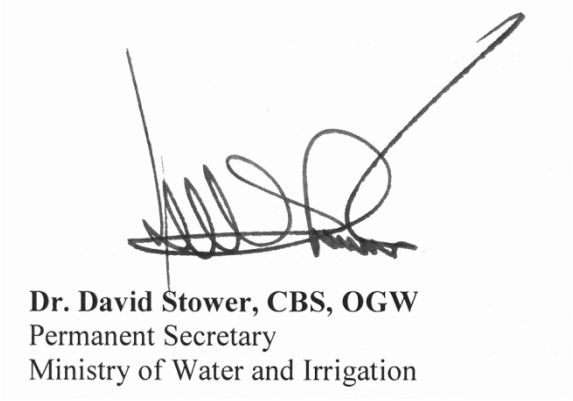
The Constitution of Kenya 2010 recognizes stakeholder participation in policy formulation, analysis and implementation. The Department responsible for Land Reclamation affairs realizes that to achieve success, an all-inclusive approach is necessary. This pioneering National Land Reclamation Policy was achieved through such a process using the workshop methodology at regional and national levels, as well as technical meetings and retreats. The Policy was further informed through literature reviews of various Government policy documents, Laws of Kenya, Procedures, Rules and Regulations, Guidelines and Strategic Plans, and global best practices.

In particular, an inter-ministerial steering committee drawn from Ministries of Water and Irrigation, Agriculture, Livestock, Environment and Mineral Resources, Forestry and Wildlife, Regional Development Authorities, Lands, Development of Northern and other ASALs, and the Office of the Prime Minister. Development Partners and other stakeholders including Non-governmental Organizations, Community-Based Organizations, and Faith-Based Organizations, contributed immensely towards the processes that culminated into the production of this document.

Prior to the current efforts, the State of Environment Reports of Kenya had informed the development of the National Land Policy 2009 and the Environment Policy 2012, thereby emphasizing the significance of environmental concerns. This policy is in synch with these developments and creates opportunities to enhance harmonization of related public policies, in addition to ensuring that conflicts in environment and natural resources management are averted. It is envisaged that the objectives of this Policy shall be realized through effective and well coordinated efforts by various stakeholders.

As envisioned under the Vision 2030 and related economic development frameworks, the implementation of this Policy should positively impact on all Kenyans by triggering transformation of livelihoods, more so, in marginal lands such as the arid and semi-arid lands (ASALs).

I am therefore deeply indebted to all individuals and corporate stakeholders, civil society, international financial institutions, staff of the Ministry and consultants for their tremendous contributions towards the preparation of this Policy.



Dr. David Stower, CBS, OGW
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Abbreviations and Acronyms

ASALs	Arid and Semi-Arid Lands
CBOs	Community Based Organizations
CC	Carter Commission
CDC	Convention to Combat Desertification
CLRC	County Land Reclamation Committe
CoK	Constitution of Kenya 2010
EMCA	Environmental Management and Coordination Act
FBOs	Faith-Based Organizations
G0K	Government of Kenya
GIS	Geographic Information System
GPRS	General Packet Radio Service
HMPA	High to medium potential areas
LCLRC	Local Community Land Reclamation Committe
LRB	Land Reclamation Bureau
LRR	Land Reclamation Regulator
LRP	Land Reclamation Policy
MDGs	Millennium Development Goals
MDNA	Ministry of Development of Northern and other ASALs
MEMR	Ministry of Environment and Mineral Resources
MLFD	Ministry of Livestock and Fisheries Development
MOA	Ministry of Agriculture
MOL	Ministry of Lands
MWI	Ministry of Water and Irrigation
NEMA	National Environmental Management Authority
NEPAD	New Partnership for Africa's Development
NGOs	Non Governmental Organizations
NLC	National Land Commission
OPM	Office of the Prime Minister
PRSP	Poverty Reduction Strategy Paper
R&D	Research and Development
SP	Swynnerton Plan
SRA	Strategy for Revitalization of Agriculture
SWAPs	Sector Wide Approach Plans
WRMA	Water Resources Management Authority
WUAs	Water User Associations

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1.0 INTRODUCTION

1.1 THE CONTEXT

Land in Kenya is a very important economic resource used in several ways. For instance, industries use land to extract natural resources (such as limestone for cement manufacturing), to build processing plants that manufacture items for consumption; farmers use land for agricultural purposes through clearing, tilling, seeding and fertilizing land to grow food crops and livestock husbandry; and foresters sustainably grow and harvest trees for timber products and fuel wood. Land is also used for building homes and businesses, for recreational purposes, and for fisheries and animal husbandry; among others.

Over 80% of Kenyan land surface that include the Arid and Semi Arid Lands (ASALs) is fragile and has a population of about 11 million people, the great majority of who live below the poverty line and suffer effects of widespread aridity, acute food and water shortage, as well as general insecurity. Much of the lands in such areas are community land held under National Land Commission on behalf of the County Governments. Increasing evidence of desertification in these lands is real and the climate change is a major threat. Overexploitation of natural resources coupled with natural calamities could result into devastating impacts on livelihoods, more so among nomadic populations.

The remaining 20% of Kenya land mass is non-ASALs and is arable land often referred to as high potential or humid areas, in which the most affected areas are located in hilly and mountainous regions experiencing de-vegetation or clear cutting of forests, diminishing soil fertility due to poor soil management or cultivation on steep slopes, among other impacts. The common features of degradation include bare land surfaces, gullies due to erosion, landslides, among others. The high human population is a key trigger of these consequences.

Unless the emerging situation is addressed, this could lead to severe decline in land productivity and increased incidences of aridity, threatening the realization of Vision 2030 and the Bill of Rights of the Constitutional of Kenya 2010 (CoK 2010), namely provision water, food and the protection of the environment for the benefit of present and future generation. Consequently, a large proportion of human population would suffer internal displacement.

Socio-economic development plans of the national and county governments will give priority to alleviating poverty and create employment especially for the youthful population, particularly in rural areas. As an indicator, the government has increased its budgetary development expenditure towards the development of drip irrigation for maximum use of scarce water resources more so in the ASALs. With this, land reclamation should enhance irrigation potential to ensure food security by doubling grain production in the next decade, signifying a marked growth of the agricultural sector.

In Kenya, an estimated US $390 million dollars or 3% of the Gross Domestic Product (GDP) is lost annually due to land degradation. This is attributed to inappropriate anthropogenic activities such as clear-cutting of forest and other vegetation, logging and firewood gathering, bush encroachment, invasion of alien species, charcoal production, mining, human settlement, infrastructural and industrial development, uncontrolled fires, livestock overstocking and overgrazing, among others. Driving forces include climate change and subsequent change in rainfall patterns.

Degraded areas are often characterized by low re-charge of groundwater systems, high surface water runoff, and a decline in land productivity; with severe consequences on water resources management. Because of lack of an appropriate policy, government efforts to mitigate and reclaim

degraded land to improve productivity of marginal lands have fallen short of desired targets. Robust agro-ecological zone-sensitive land reclamation strategies are required.

The water cycle and land management are intimately interlinked in determining the water balance in the ecosystem. Every land use decision is a water management decision, meaning the improvement of water management directly relates to mitigating or preventing land degradation. The development of this policy permits consolidation, coordination and integration of land reclamation initiatives.

Reclamation and rehabilitation of the ASALs, other disturbed lands and waterways shall increase the land available for use in agriculture, forestry, recreational industry and wildlife habitats, among many others uses.

1.2 RATIONALE FOR THE POLICY

The emerging broad challenges and pressures of land degradation are:

- Degradation and its impact on food, water and general insecurity in Kenya is real.
- Climate change means that the country has to implement major development projects using new technologies to restore the needed level of sustainable land use systems and water security.
- The historical sustainability focus on effluent, solid waste or garbage and air emissions now needs to be considered in conjunction with water scarcity and carbon emissions.
- The need for and impact of an increasing focus on regulatory frameworks to manage the overall land and water resources and, in particular ensure water abstraction falls within sustainable limits.
- Delivering projects within an often resource constrained environment.
- Staying abreast of emerging technologies and selecting the best technology solution for land reclamation practices.

Top address above challenges, the fundamental rationale for this land reclamation policy is benchmarked thus:

a) Assess possible environmental and social impacts to ensure sustainable increase in productivity of arid and semi-arid, and other marginal lands to ease pressure on high potential areas.
b) Create space for wildlife conservancy in a balanced ecosystem to attract both local and international tourists.
c) Encourage gender-sensitive community participation and mobilization for reclamation programmes.
d) Ensure appropriate reclamation systems for different agro-ecological zones that increase the stock of productive land resources; rain water harvesting and storage; water treatment including desalination; and surface and groundwater resources storage, in order to address challenges of food insecurity, pasture and water shortage.
e) Explain the implementation of rigorous environmental and knowledge management systems to meet increasing regulatory requirements for land reclamation covering wastewater treatment, water reuse and recycling including aquifer re-charge and recovery.
f) Link watershed management to restoration of the health and fertility of the lands in order for them to respond to climate change and the effects of frequent sporadic floods and droughts in the context of a broader flood and drought mitigation strategies.
g) Promote collaborative efforts aimed at poverty alleviation.

h) Provide landscaping in reclaimed lands to improve the beauty of surroundings for recreation and other aesthetic purposes.
i) Regulate control and create an enabling environment for reclamation initiatives through regulatory advice and approvals.
j) Removal or prevention of water and land pollution by proper industrial water management
k) Transfer equal access to and control of reclaimed lands to community groups, Foreign Direct Investors (FDIs), Private-Public-Partnerships arrangements, and other players thereby ensuring investor confidence in land reclamation programmes.

1.3 POLICY GOAL

The **goal** of this Land Reclamation Policy is:

To integrate national interests and stakeholders' participation including those whose actions affect and / or are affected by land and water degradation, and consolidate and coordinate all reclamation initiatives.

The concept of reclamation can be viewed from theoretical and practical perspectives. Any reclamation activity should aim at producing environmentally sound and stable conditions that eventually integrate disturbed areas into the general ecosystems; in accordance to a plan addressing topographical reconstruction, topsoil replacement and/or substitution, site or landscape re-vegetation, and monitoring and maintenance.

Kenya has new land Statutes developed on the basis of the new National Land Policy 2009, compliant with the new CoK 2010. Some of the other policies and strategies that have a direct baring on land rehabilitation include; National Water Policy, Agriculture Policy, National Disaster Policy, National Climate Change Strategy, Wetlands Policy, among others. Policies covering Mining and Mineral Resources, Environmental and Wastes Management, once re-aligned to the CoK 2010, would lead to the development of the necessary legal frameworks that would ensure responsive approaches to land development and management, with a component of land reclamation.

1.4 POLICY OBJECTIVES

This policy will meet the following specific objectives:

a) Ensure uniform application of exploration, development and reclamation standards
b) Ensure prompt reclamation of lands to productive uses consistent with land management policies
c) Integrate appropriate disciplines in the natural sciences, engineering and design in establishing criteria for reclaiming disturbed lands, reviewing plans and monitoring reclamation activities and congruency in definition of degradation/reclamation terms
d) Indentify information needs that can be provided by research and encourage research projects to provide such information
e) Utilize the best available information in developing and reviewing reclamation plans
f) Promote the planning, coordination, implementation and administration of the national land reclamation activities synergy in the land rehabilitation and reclamation efforts
g) Reduce development conflicts and competition over resources
h) Increase resource use efficiency and effectiveness
i) Institutionalize measures to mitigate and adopt/cope with the effects of climate change
j) Create awareness and environmental education of land reclamation
k) Create the necessary legal, institutional and regulatory framework for land reclamation

l) Provide mechanism for continuous monitoring, evaluation and reporting for degradation and reclamation status and implementation

2.0 SITUATIONAL ANALYSIS

2.1 AN OVERVIEW

Land degradation is a global development and environmental issue. The Global Assessment of Land Degradation and Improvement Report indicates that 22% of degraded land in Kenya is in the ASALs, while 78% is in the medium and high potential areas. The situation is aggrevated by inappropriate land use practices that have increased loss of productivity impacting negatively on livelihoods and the national economy. It is reckoned that 70% of the national livestock herd is found within the ASALs where they are kept mostly under traditional nomadic pastoralism or semi agro-pastoralist production systems. Hence the need to ensure sustainable resource use in the ASALs.

Kenya can be divided into two major categories of terrestrial and marine ecosystems. These are further subdivided into three broad geographical zones, namely, ASALs, the Humid Areas (high and medium potential areas or simply HMPA), and Ocean and other water bodies including rivers and lakes, among others. These geographical zones are then sub-divided into seven Agro-ecological zones. An important zone with regard to agricultural activities associated with severe land degradation in the HMPA comprising of agro-ecological zones II and III; in which reside about 80% of the country's human population.

Land degradation manifests itself in many ways, including, unsustained loss of vegetation and lanscape functions, increasing incidences of aridity, increasing scarcity of water sources, shrubs in areas which were predominantly rich in pastures, gullies, thin and stony soils, invasion of intrusive species that lead to food and water insecurity. These components do not act separately, but are intrinsically linked to each other and may act as mutual supporters and accelerators of the degradation process. As degradation continues, it becomes increasingly difficult and costly to rehabilitate and restore affected lands to original state.

2.2 POLITICAL CONTEXT

At the turn of 20^{t-*h} Century the colonial government divided the country into the "scheduled areas'' or the "white highlands'' and the "native reserves". By 1938/39 the Carter Commission (CC) fixed boundaries allocating more land to the 3,500 White famers (14 000 square miles) and restricted allotment to the 4 million Africans (52,000 square miles). The rest 10,000 square miles constituted forests and lakes, and 149,000 square miles designated as "crown land'' which included most of the grazing lands for the nomadic pastoral communities. The rapidly increasing indigenous population exerted more pressure within their allocated space resulting in severe land degradation, breakdown of traditional shifting cultivation, the land inheritance system, inefficient farming methods, low or lack of use of manures and fertilizers, absence of soil and water conservation practices, and what was termed as perverse and irrational behaviour among African farmers. This marked the genesis of land degradation within the high to medium potential areas (HMPA).

Between 1936 and 1937, the Agricultural Department introduced mixed farming and soil conservation measures such as terracing, a practice that was resisted by many Africans, despite being coerced to adopt it. This was aimed at addressing the deteriorating conditions of lands occupied by the African. The political uprising in the period between 1952 and 1955 was benchmarked on population pressure on these lands. Consequently in 1953, the Swynnerton Plan (SP) of 1954 was mooted to improve agriculture in the African settlements and to initiate growing of cash crops like tea and coffee, and encourage soil and water conservation in these areas.

It is important to note that the Swynnerton Plan formed the beginning of the shaping of the land markets in Kenya, leading to the institutionalization of consolidation, registration, farm planning, good farming practices including soil conservation, and redistribution programs which unfortunately were only successful in the HMPA. However, African farmers could acquire up to only 20 hectares of land. This was the advent of small holder farmers with the majority confined by this restriction. Thus the concept of land rental markets was never developed to address the problem of poverty, equity and efficiency.

Perhaps this evolution of events explains why most of the privileged elites stepping in the White farmers shoes continue to own large tracks of land that are hardly put into agricultural production characterized with little or no action against land degrading agents. The situation has been worsened by loss of land rights among the poor, some because of lack of title deeds or even those with papers losing them to financial institutions from which they may have acquired loans and failed to service them. The problem of landlessness and the squatters is therefore a creation of the described colonial land policies which inadvertently created inequality in allocation of land resources and disenfranchised large population especially during the emergency period occasioned by political uprising.

After independence in 1963 and under a special resettlement programme, lands previously owned by White farmers that were acquired by the government. Also other large European farms were bought. By 1978 the large farms owned by Africans and Europeans covered 266 million hectares while the small farms catering for about 10.3 million people then, covered only 3.45 million hectares. Incentives provided by agricultural policy that focused on encouraging investment in agricultural crops for export purposes resulted in deforesting large areas of land and converting them into intensive agricultural production without considering the limited capacity of land thus ignoring degradation risks. This was an easier but destructive option although land was available for conversion at little or no financial cost.

The high and medium agricultural potential areas cover the Central, Western, Nyanza and parts of Rift Valley and Coast Regions. These regions face environmental and economic dilemma in terms of diminishing per capita land availability in the face of a fast growing population. Thus the pressure on land has persisted from the pre-independence period leading to severe land degradation. The methods applied then in African settled areas poisoned the peoples' psyche, from participating in soil conservation measures. For instance, attempts by the Presidential Commission on Soil and Water Conservation in the 1980s registered limited impacts.

Inappropriate land use practices and continued subdivisions led to diminishing farm sizes, from about 0.55ha at independence to about 0.25ha at present. Much smaller holdings are registered in Counties such as Kiambu, Nyeri, Vihiga, Kakamega and Kisii, a situation that has brought about high levels of poverty. This is further exacerbated by the problem of land degradation aggravated by heavy rains coupled with inadequate soil conservation and inappropriate agricultural production practices. The result is decline in food production, low farm income, low farm level employment, diminishing forest products, loss of water catchment areas, silting of rivers, dams and other water bodies, thus reducing water supply and water quality. In addition poor yields and declining land and labour productivity occur. With diminishing food security and a marked drop in employment potential of agricultural activities, national economic growth is threatened.

2.3 POLICY AND LEGISLATIVE CONTEXT

2.3.1 Pre-independence Ordinances

Under the colonial government, land ordinances or laws were borrowed from India and Britain. The most famous land reforms were defined in the Swynnerton Plan of 1954. This plan set new order in agricultural land development. It introduced reforms and measures of controlling soil erosion and degradation. The measures were resisted by the indigenous population due to the aggressive manner of their introduction and implementation. Little regard was given to people's views about the Plan.

2.3.2 Post Independence Statutes

The independence Constitution introduced freedom and the right to own and occupy land. Over the years appropriate statutes were legislated and institutions created. However because of the colonial legacy, land reclamation measures have remained weak and no explicit and specific laws have so far been enacted to deal with the problem.

Nevertheless, the Department of Land Reclamation was created but severally shifted across many ministries over time. Prior to 1974, it belonged to the Ministry of Agriculture, and then moved to the newly created Ministry of Land Reclamation, Regional and Water Development in 1992. Six years later it was moved to a reconstituted Ministry of Agriculture and Rural Development. In 2003, it moved to the Ministry of Water and Irrigation. This evolution serves to demonstrate changes in institutional arrangements in government under different public sector reform phases. The impact of these movements includes the loss of institutional memory, technological inputs and technical skills. During this period, the Ministry of Water and Irrigation has had the overall mandate for managing all water sources including the waters in the Nile Basin, flood control systems, irrigation canals, drains, and groundwater resources.

On the other hand the National Water Policy 1999 and the Water Act 2002 provided for the management, conservation, use and control of water resources but failed to adequately address the inter-linkages and inter-relationships between land use and the water cycle (in the context of availability). The Water Act 2002 provided for authority and responsibilities for Water Resources Management Authority (WRMA) and the Water User Associations (WUAs). Within this framework, land reclamation was weak. This situation has now been addressed in the CoK 2010 which recognized water as land. While the three new land statutes have set the stage for land management and control in Kenya, the same instruments fall short how to handle the already degraded areas.

Although the Agricultural Act (Cap. 318) prescribed the application of the "Land Preservation Rules", the mechanisms for rehabilitation of that which is already degraded are equally weak and unclear. Whereas the Environmental Management and Coordination Act (EMCA) of 1999 recognize the fundamental rights of every individual living in Kenya to a clean and healthy environment; it lacks clear and explicit mechanisms with regard to already degraded areas. Further, the Forest Policy and the Forest Act of 2005 has no provisions for rehabilitation of lands that are already degraded or denuded. Likewise the National Policy for the Sustainable Development of Arid and Semi-Arid Lands of Kenya (2012) has inadequate provisions for rehabilitation of degraded pastoral land, use of common pastures, and provision of effective mechanisms for controlling environmental degradation. Again issues of rehabilitation and reclamation of both the ASALs and degraded areas are not adequately addressed.

The National Land Policy of 2009 and the enforcing Statutes reflect the new CoK 2010 proviso on land; however, many aspects of the land question in Kenya were blamed on the old constitutional

order and its approach to protection of property rights in land. The creation of the National Land Commission ensures recognition of economic productivity, equity, environmental sustainability and the conservation of culture, and facilitation of protection of land. Indeed, the National Land Policy 2009 recommends reclamation of degraded lands to increase stock of productive lands and concomitant establishment of a regulatory framework. However the policy is inadequate with regard to mainstreaming its reclamation.

2.4 AGRO-ECOLOGICAL CONTEXT

Land degradation entails the scenario in which land resources including vegetation, minerals of different types and grades, water resources including marine animals and fishes, and terrestrial animals, among others; have dwindled in sizes as in case of marine animals, terrestrial animals, and vegetation cover. Constituents of land degradation are: soil erosion, deforestation (deterioration or loss of vegetation), and loss of biodiversity (e.g. species driven to extinction), and loss of landscape functions, among others. These components do not act separately, but are intrinsically linked to each other and may act as mutual supporters and accelerators of the degradation process, which vary by agro-ecological zones and over time.

The form or types of land degradation at any site may assume physical, chemical or biological degradation, aerobic or anaerobic biotransformation, and mineralization. The essence of these processes is linked to gradual exchanges between soil minerals and the complex interactions between the flora and fauna and other micro organisms in the soil under given climatic variability over time. The predominant patterns of degraded lands in Kenya are explained, while the landforms and specific processes of land degradation are considered in subsequent sections.

2.4.1 Humid Zones

Most degraded sites are located in hilly and mountainous areas which often experience severe forms of indiscriminate cutting of vegetation cover and cultivation on steep slopes where catchments protection measures are wanting. The result is increased erosion leading to formation of gullies downstream and increased risk of mass movements of soils (landslides) caused by excessive infiltration of water and poor plant cover. These zones are economically significant.

2.4.2 ASALs Zones

The land cover classification for Kenya indicates a broad range of habitats with low shrub lands dominating the country. The shrub lands constitute the ASALs zones, in which the main causes of land degradation are unreliable rainfall, fragile soils and sparse vegetation.

2.4.3 Ocean and Other Water Bodies

Marine ecosystems and other aquatic environments are associated with large amounts of energy. As a result the fluvial geomorphology of oceans is varied. Human settlements in places such as Gede and Mambrui near Malindi are known to have submerged and abandoned. Further, incidences of intrusion of saline waters into underground fresh water reservours are real. Massive pollution of river systems, such as Nairobi River, which drains into the Athi River ending up into the Indian Ocean, is a threat to marine life. The main cause of such pollution is unregulated effluents from industries and human activities along the river channels. Likewise the Lake Victoria is degrading rapidly due to anthropogenic activities in its catchments. Other water bodies experience similar dynamics.

2.5 LANDFORMS CONTEXT

Climatic conditions, landforms and land-use systems determine the nature and form of land degradation in different agro-ecological zones over time. The defining processes and causes are complex and when understood inform rehabilitation and restoration mechanisms. The typical forms of degradation, predominant under certain conditions and geographical regions are identified:

2.5.1 Desertification

In the ASALs areas of Kenya especially in Marsabit County (in North Horr area), desertification processes are manifesting as a result of diminished vegetation cover and increasing aridity. Strong winds account for transportation of large quantities of sands across landscapes which on encountering obstacles or any form of remnant vegetation get trapped forming dunes. The situation is worsening with the impact of overgrazing over time as more land becomes exposed to these processes due to long-term change biodiversity. Unpalatable species have become dominant, and total biomass production radically reduced, thus encouraging the emerging situation, which threatens livelihoods among the nomadic and pastoral communities.

Reclamation of degraded land from desert encroachment and of affected rangelands is necessary. For instance the reclamation of additional area for crop production as is the case in Turkana County using the waters of River Turkwel and the potentially large deposit of underground water and rainwater harvesting structures in the area is forecast to transform area's landforms. Therefore, any land reclamation strategy has ecological impact.

2.5.2 Salinization

According to the National Irrigation Policy (2012) and Vision 2030, Kenya's irrigation potential is estimated at 540,000 ha while using available surface water but 1.3 million ha if corresponding water storage facilities are developed. The potential irrigation land reclaimable by drainage and flood protection is estimated at approximately 225,000 ha, located mainly in Western, Nyanza and Coast Regions. However, the use of marginal quality water for irrigated agriculture leads to salinization of farmland due to the accumulation of salts in the soil over time. The result is disastrous effects on the productivity of the land in areas where irrigation is essential for crop production.

2.5.3 Marshlands

Natural wetlands and marshlands are covered in the National Wetlands Policy. However in areas where poor land use practices lead to water-logging especially in poorly drained lands that are subjected to flooding; the affected lands may be rendered economically unproductive. The process may be only reversed using appropriate rehabilitation and restoration strategies.

2.5.4 Open Cast Quarries

The roads and housing construction industry is associated with the extraction of stabilized red soil, murram, sand, and stone materials. Unlike the case at the Bamburi Cement Factory in Mombasa, most quarries in Kenya are left un-rehabilitated and un-restored. The affected lands remain economically unproductive, yet there exists tremendous potential to positively impact on livelihoods.

2.5.5 Mined Sites

Mining is a major economic activity in many developing countries. The country is increasingly realizing its potential as richly endowed with a variety of minerals. In recent times the country discovered commercial deposits of gold and iron ore, of coal, titanium, niobium and rare earths. It also has great potential for salt production, in addition to large quantities of fossil oil; and building materials such as marble, gravel, limestone, pozzolanic materials and sand.

However, mining is known to, disrupt groundwater balance with severe impacts on water supply due to lowering of the groundwater level; to disrupt natural landscapes composed of drainage basins which in turn consist of hill slopes and stream channels in an orderly arrangement for effectively conveying water and sediment; and to generate wastelands after the mining activities are abandoned and when the minerals have been exhausted after mining. Such mining sites consisting of either shallow surface mines or deep mines could be reclaimed for economic use.

The open cast as well as underground mining of ores will necessitate the development of binding reclamation rules and regulations for environmental, legal, and financial compliance. So far the environmental policy instruments applied in the country are mainly command-and-control policies with little attention paid to development of strategic environmental planning. Examples of mining activities with negative impacts on the environment are the sand mining sites in Machakos County along the Thwake and Athi Rivers. Similar effects occur in the Lampira Apida areas on the shores of Lake Victoria in Homa Bay County. Sand-mined rivers become gullies and as deeper harvesting leaves behind a series of gaping holes that make the streams of water stagnate with devastating consequences to the downstream populations.

Considering the actual and potential importance of mining industry to national economy, cognizance of key environmental issues pertaining to Institutions, Laws and Subsidiary Legislation Related to Environment, Possible Licenses and Permits Required (e.g. Permission to Mine in Protected Areas , such as National Parks, Game Reserves, Forestry Reserves and other protected areas), will determine the nature of implementation of a Mining Act, a Petroleum Exploration and Production Act, a Coal Mining Act, and any other relevant mining laws. This Policy recognizes interpretation and harmonization of such legal instruments in the context of an appropriate Land Reclamation Act.

The country has a potential for a Foreign Direct Investment (FDI) in the mining sector which will increase propensity for sound land reclamation strategies. A supporting FDI Policy could accelerate gains emanating from this Policy. While the Mining Policy is in the process of being aligned to the national CoK 2012, issues of land reclamation need to be addressed.

2.5.6 Rills and Gullies

The kinds of ***rills*** found in Kenya are narrow and shallow incision into topsoil layers that result from erosion by overland flow or surface runoff. They are most common on slopes of devegetated ground and agricultural farmlands, but may occur on a variety of surfaces. In some agro-ecological regions ***rills*** are found on the surface of certain soluble rocks like limestone. They constitute the first signs of impeding soil erosion, which if unmanaged or controlled, may evolve into larger fluvial features like gullies, streams, or rivers. Although ***rills*** are of a shallower depth than gullies, unless destroyed by cultivation they may evolve into gullies a result of further runoff-producing rainfall.

On the other hand ***a gully*** is a landform created by running water, eroding sharply into soil, typically on a hillside cleared of vegetation through deforestation, over-grazing, mining or other means. They are essentially open erosion channels in the form of large ditches or small valleys, ranging in width and depth from a few metres to several metres but at least 30 cm deep. Depending on rainfall intensity in an area, these channels can be associated with substantial water flow rate that may cause deep cuts in the landscape and thereby deliver large amounts of sediments downstream. Artificial gullies are formed through hydraulic mining especially in gold extraction processes.

Gully erosion causes off-site effects such as loss of soil and nutrients, reduced trafficability resulting from paddock dissection, spoils making roads impassable, downstream sedimentation of waterways, dams and lower paddocks, transportation of contaminants from agricultural catchments. Gully erosion may be attributed to overgrazing, some mining practices, repeated trampling along cattle paths which soon form gullies or cultivation without protecting the land from excessive runoff. In ASALs, the prevention of livestock overgrazing could slow down gully erosion due its impacts of permitting strong root establishment and regeneration of dense plant cover.

2.5.7 Eroded Coastline

Due to wave action coupled with erosive power of surface runoff, coastlines may be eroded. Addition impacts may occur within the marine environments of coral reefs. With the projected effects of ocean currents as a result of sea level rise, and the frequency, the intensity of coastline erosion shall become increasingly severe. Other coastal ecosystems such as mangrove forests may be affected, as much as the built-up areas that host hotels and other private properties. This Policy will inform the development of Coastal Zone Management Plans.

2.5.8 Wastes Dumpsites

Most urban and peri-urban areas have large wastes or garbage dumpsites located on land or in abandoned quarries. Such sites have the potential for reclamation and being put to some economic use. Some housing projects in the country have been located on filled-up and graded reclaimed sites. The trend will be on the rise as land for urban re-development becomes scarcer.

2.5.9 Concentrated human settlements

Nomadic and pastoral areas often have common watering points for human and their livestock. Such sites are focal points in dry season and cause unsustainable utilization of natural resources such as grasslands, trees and water, leading to accelerated land degradation. Similarly, the influx of refugee and internally displaced persons has seen emergency settlements constructed in fragile environments leading to overexploitation and degradation. There is need to develop restitution measures on the land experiencing waste

2.6 PROCESSES CONTEXT

2.6.1 Inappropriate Surface Water Management

Surface water run-off leads to soil erosion and ineffective ground water recharge. Rainwater should be managed at its point of contact with the land surface. In this regard, this policy will be implemented in tandem with other related policies especially the National Rainwater Harvesting and Storage Policy.

2.6.2 Soil Erosion

A major physical agent in land degradation in Kenya is soil erosion**.** Topography, rainfall, reduced or lack of vegetation cover, soil properties and land use and management practices are the immediate drivers of soil erosion. Soil properties as key drivers of soil erosion account for the most serious forms which occur in many parts of the country. In particular, the removal of top fertile soils leads to formation of hard pans, rills and gullies. Soil erosion due to wind action increases with loss of vegetative cover in marginal arid and semi-arid lands, creating suitable conditions for desertification. Other underlying causes of degradation are population pressure, poverty, high cost and inaccessibility to agricultural inputs; insecure land tenure, inefficient and inappropriate crop production and soil conservation technologies.

2.6.3 Loss of Terrestrial Vegetation

Since 1963, Kenya's forest cover has decreased from 10% to less than 1.7%, demonstrating rapid and dangerously high levels of deforestation driven by dependence and increased reliance on charcoal and firewood as a source of energy as well as the increasing demand for timber products for construction industry. Likewise, the prolonged overgrazing of rangelands and of crop residues in harvested fields have weakened and degraded terrestrial vegetation resources, resulting in the depletion of plant diversity and reduced biomass production. The latter in turn leads to reduced soil organic matter and the deterioration of the soil structure. Establishment of forest parks and wildlife conservation areas and afforestation could help check the rate of deforestation. Working in tandem with National Forest Policy this Policy should enable a major breakthrough in strengthening the institutional base for the use of afforestation and re-vegetation methods in reclaiming degraded lands.

2.6.4 Loss of Mangrove Vegetation

Mangrove ecosystems along Kenya’s 540 km coastline are responsible for balancing salinity levels in inter-tidal waters thus supporting unique marine biodiversity, with immediate benefits to the communities living in the coastal belt. The health of these ecosystems is threatened by rapid growth in hotel industry, industrialization, and urbanization which cause degradation. The dredging of Kilindini and Lamu harbors to create berths for large ship vessels also has negative impacts on these ecosystems. Further, land reclamation through cutting of mangroves and the dumping of wastes from commercial activities – plastic trash, oil spills, sewage, toxicants, etc; are aggravating the situation by causing marine pollution rendering productivity areas of ocean wastelands. The livelihoods of fishing communities along the coastline are threatened due to such degradation of marine ecosystems now in dire need of reclamation.

2.6.5 Alien and Invasive Species

Introduction of new or alien and invasive plant species into indigenous habitats have on occasions had devastating effects on the natural environment. Some of these plants initially introduced for aesthetic reasons have flourished and overcame local species and become an environmental challenge. Examples of such notorious aquatic plants include, *Salvinia molesta* (Kariba weed), *Pistica statiotes* (Egyptian cabbage), and *Eichorhinia crasspier* (water hyacinth). Examples of terrestrial invasive plant species are the *Prosopis Juliflora* and *Lantana camara*. This has led to suppression of local flora at the detriment of the local dependants who experience severe disruption of the food chain. There is need to control and reclaim all degraded environment**s** from these invasive species by replacing them with indigenous flora.

2.6.6 Habitat Loss and Fragmentation

Population pressure on land has lead to sustained conversion of land and biodiversity habitats to settlements. The most affected areas are in ASALs where unsustainable agricultural practices are introduced with serious land degradation consequences. Land fragmentation is associated with farming systems and leads to habitat disintegration.

2.6.7 Loss of Traditional Crops and Livestock Varieties

The indigenous food crop varieties especially vegetables, and livestock such as cattle, goats, sheep, among others; are threatened by intensification of modern agriculture and animal husbandry practices. This causes loss of critical plant and animal biodiversity, and associated gene pools.

2.6.8 Loss of Landscape Function

The most significant landscape function affected by land degradation is the hydrologic balance of catchments. Unfavourable soil-surface characteristics of degraded lands and a lack of adequate plant cover leads to reduced surface water retention and infiltration, and to higher surface water runoff. This results not only in reduced soil moisture content in the soil profile, but also soil fragility with increased rates of soil erosion. In the drier areas, reduced availability of soil moisture in turn negatively affects plant growth and thus further reduces biomass production and protective soil cover.

2.6.9 Loss of Pristine Conditions at Mining Sites

Scarification of land surface by either bucket excavators or by hand in mines and quarries leave craters on the surface. This destroys pristine landscape conditions. On exhaustion, operators often abandon such disturbed lands which remain barren or are subsequently filled with water posing a health and environmental health hazards. Other problems will include drowning or abandonment of land if not immediately reclaimed for economic use.

2.6.10 Loss of Irrigable Soils in ASALs

Irrigated agriculture is the future of food security in this country. The challenge is its practice in arid and semi-arid lands which often result in the development of the twin problem of water-logging and soil salinization, with considerable areas either going out of production or experiencing reduced yield. In particular, the use of poor quality waters and inappropriate application of farm inputs lead to accumulation of salts in soils with negative effects on land productivity and loss of soils for irrigation farming.

2.6.11 Destruction of Water Towers and Other Water Catchments

The five water towers of Kenya and other water catchments are under severe threat by very rapid rate of degradation; the most affected being the Mau Complex Water Tower with trans-boundary significance. Most vulnerable are the indigenous natural forests, a problem being addressed through a reforestation programme. The indigenous flora and fauna has been put under official surveillance and protection. With the Land Policy 2009 and appropriate Statutes, a taxation system could promote better land management and soil conservation in the affected areas and environs.

2.6.12 Climate Change

Climate change is manifest in a myriad of ways, especially the shifting rainfall patterns and intensity which are the main manifestations locally. The other factors include increasingly strong

ocean currents causing severe beach erosion, and sedimentation and debris flow. For instance the sea level rise has the potential to cause salinization of soils leading to loss of productivity of coastal lands and inundation severely impacting on land degradation. Climate change also takes on other forms, which will continue to impact on patterns of land use in both the Humid and ASAL areas. The implementation of this Policy must thus take into consideration the country's Climate Change Strategy.

2.7 SOCIO-ECONOMIC DEVELOPMENT CONTEXT

Land degradation can be considered in terms of the loss of actual or potential quality or reduction in productivity or utility of land as a result of natural or anthropogenic factors. The phenomenon has become a major environmental concern and presents formidable threats to food security and sustainability of agricultural production. While drought and floods are major driving forces, land degradation usually starts as a local problem in a vast number of locations, with cumulative effects at national scale.

The challenge is how to achieve food and water sufficiency expected to double in the next 10-20years with continued land degradation. This may not be easy to meet by expanding agricultural area, given that most of the remaining land is unsuitable for sustainable crop production. Available estimates indicate that land degradation in Kenya is increasing both in severity and extent, rendering crop and livestock production systems uneconomical and unless this trend is slowed and reversed, the national food security situation along with the general poverty situation are bound to worsen, across all agro-ecological zones.

Nevertheless, it is the land users in the resource challenged marginal areas that are most seriously affected since they are faced with fewer options. Likewise, the high rainfall areas are affected, given that the existing limited good potential land resources are under constant threat of degradation. Specifically, there is need to invest in intensification of production and land reclamation to increase food production in humid areas.

Due to lack of empirical data, it is difficult to precisely determine the economic losses resulting from land degradation. However, it is estimated that over US $390 million is lost annually from the national economy due to land degradation and which affect over 11 million people. These are the indirect economic and social costs suffered by the affected areas, including the displacement of people affected by loss of productive land resources manifesting in loss of food security and over reliance on relief food, and associated insecurity.

In the case of insecurity, this is estimated at a social cost of approximately US $3 million. The social damage, the damage to future generations, and the loss of biodiversity cannot be easily estimated in monetary terms. In addition, it is difficult to estimate the costs of dealing with the environmental 'refugees' who lose their homes and economic base. Not only do they add to the pressure on resources in their refuge areas, but are also responsible for invoking further degradation in these new settlements.

Costing of degraded lands must therefore include the cost for the reclamation and the options and requirements for reversing degradation depending on its severity. The earlier the degradation processes are recognized and reversed, the more efficient and cost-effective is rehabilitation.

Both land degradation and rehabilitation are location-specific; hence, there is no universally valid method of estimating cost per unit area of degraded or reclaimed land. Another important cost factor is the off-site effect costs, otherwise referred to as negative externalities. These include the siltation of dams and watercourses that reduce the economic life of irrigation systems, hydro-dams,

and power generating stations; and dust emissions that affect public transportation (e.g. roads and railways), and any resultant health hazards.

Land reclamation as a sector receives less than 0.001% of the GDP annually. To restore the pride of our nation there is need to develop land rehabilitation programmes which will translate in progressive increase of budgetary allocation to approximately 1% of the GDP. This would ensure effective implementation of this policy and its proposed statutory framework. The low public investment and the low returns to private sector investment in reclamation are the twin problems that this policy addresses.

2.8 IMPACTS CONTEXT

2.8.1 Bio-Physical Impacts

These include the following:

Decreased crop yields:

Soil degradation through erosion, nutrient loss, and other processes results in undesirable physical-chemical soil properties and thereby considerably depresses crop yields. A reduction in soil productivity is reflected in reduced crop yields.

Reduced grazing resources:

Typical loss of nutritious and palatable plant and grass species due to de-vegetation significantly reduce livestock productivity. This is evident in the drier areas around watering points and settlement areas that are grazed until they become bare.

Unsustainable loss of mature trees:

Uncontrolled cutting of trees for charcoal, firewood and farming is laying waste to the marginal areas and is responsible to increased poverty levels.

Reduced water resources:

Population pressure has occasioned multiple activities in the water sheds of lakes, reservoirs, rivers and streams that result in extensive deforestation, overgrazing and poor crop and soil management practices over long periods of time. These often trigger accumulation of large sediment loads in river channels, lakes and reservoirs. Subsequent siltation along river valleys has led to the disappearance of once perennial streams, affecting water quality and clogging up in lakes and rivers with excess nutrients from soils, sewage, livestock and human waste, fertilizers, industrial wastes and mining effluents.

Flooding in non-traditional flood areas:

The high incidence of flooding in downstream areas is due to the effect of land degradation in the upstream catchments associated with deforestation, overgrazing, and excessive cultivation on steep slopes. The result is increased runoff and reduced infiltration into soils and diminished potential of groundwater recharge.

Damaged irrigation infrastructure:

Accumulation of silt is threatening small-scale irrigation infrastructure in the process reducing water flow to irrigation schemes.

Deforestation:

Kenya's gazetted reserve forest cover has considerably reduced from 3.5% of Kenya's national territory in 1970 to less than 1.7% at present. Significant cover found in the Mau Complex Water Tower is severely threatened due to human encroachment, affecting the flow regimes of nearly twelve rivers. Similarly the deforestation of the Mt. Kenya watershed is largely responsible for the downstream siltation of Kenya's hydroelectric dams at Masinga, Kindaruma, Kamburu, Gitaru, and irrigation infrastructure within the Tana Delta.

Reduced harvested wood:

By end of 2012, gazetted areas provided only 200,000 m^3 of wood against the country's estimated demand of 30 million m^3. In North Eastern Kenya alone, a decline in indigenous wood cover, the lowering of the water table, the spread of sand dunes, and the clearing of forested areas on the hills and mountains (e.g. Ndoto mountains, Mt. Williams, Mt. Kulal and Mt. Marsabit), had destroyed river regimes and threatened the livelihoods of the pastoral communities.

2.8.2 Diminishing Agricultural Lands

The expansion of urban settlements is reducing available agriculturally productive lands. This new phenomenon is set to be exacerbated with increasing population and urban migration. While causes of diminishing agricultural lands are well known, the land consumed by urban development is another form of degradation of arable ecosystems into urban concrete jungles.

2.8.3 Threatened Scenic and Aesthetic Values

Some of the most scenic sites are threatened by degradation of ecosystems. For instance the clear cutting of indigenous forest and woodlots in pristine ecosystems, the destruction of wetlands, the changing conditions in grasslands ecosystems, the encroachment of rain forests and coastal forests, and the destruction of mangroves, among others continue to threaten scenic and aesthetic values. This policy in conjunction with other public policies should ensure a reversal of these destructive trends as they threaten to destroy life supporting biodiversity.

2.9 RECLAMING CONTEXT

The sector responsible for land reclamation receives less than 0.001% of the national GDP. This level of financing is insufficient for laying out a comprehensive reclamation program. In addition there is inadequate information on targeted landforms.

2.9.1 Marginal Lands

Marginal lands are characterized by poor productivity. For instance, selected tree species are planted in specific sites such on mountain slopes, in the arid and semi-arid lands, and deserts fringes (to tame advancing sand dunes). With proper risk management, degraded landscapes can be protected, replenished and restored, creating positive environmental impact.

2.9.2 Degraded Lands

Degraded lands exhibit a reduction in their capability to provide goods and services, and benefits associated with a particular land use type in a given form of management. They result predominantly due to anthropogenic factors. Examples of such lands include mountain or hillside rock outcrops, salinized soils, badlands, grasslands invaded with alien species, clear cut forest lands, and refugee settlement sites in ASALs that lead to vegetation destruction, among others, that may not be considered economically productive. The underlying disturbances may lead to permanent damage to life supporting ecosystems, hence the need for proper management practices to restore productivity.

2.9.3 ASALs and Wastelands

While ASALs are classified as fragile ecosystems but generally reclaimable, yet with limited potential for rainfed agriculture; wastelands are categorized as neglected and improperly managed lands that are unproductive and unfit for cultivation, grazing and other economic uses. Examples include abandoned quarries and open cast mine fields, land submerged under sand dunes and deserts, stony or leached or gullied lands, lands devastated by landslides or earthquakes, marshlands and coastal lands invaded by sea water (e.g. during Tsunami episodes) i.e. water-logged and saline lands, lands adulterated by military exercises or bombed in war, etc.

The ensuing geomorphic processes under the absence of sound land management practices may lead to deforestation, further aggravating the lowering of water table and enhancing dry soil conditions. Other processes include erosion and transportation of soil layers rendering lands infertile and stony, with diminishing economic value. Such wastelands are further characterized by very low economic value and very high costs of reclamation.

The process of reclamation entails rehabilitating or modifying landscapes to achieve restoration of optimal productivity, for example through conservation practices. However, reclamation operations and intervention approaches in Kenya remain unregulated and sometimes conflicting. This is occasioned by the existence of weak mechanisms of regulating the effect of one land-disturbing activity on another, resulting in continuous degradation, loss in land productivity, and a slide towards increased land aridity and the risk of desertification, more so in the ASALs.

2.9.4 Wastewater

Wastewater include mine-induced, domestically-generated especially in urban areas, industrially released as liquid effluents, agriculturally-generated from produce processing plants and irrigation systems, and urban-generated sewage discharges. Few institutions in Kenya have adopted wastewater reclamation and recycling technologies. Consequently, existing waste water ponds in urban areas and at large institutions remain. There is inadequate appropriate legislation, rules and guidelines, requiring adoption of wastewater treatment technologies, for purposes of recycling and re-use of reclaimed water in both old and new urban developments. Wastewaters can be reclaimed before they are released for social and economic activities. This process has the potential, for instance, to produce not less than 15% of total water demand in urban settlements.

2.10 CHALLENGES

From the fore-going sections, the constraints facing the Land Reclamation Sub-sector include, but not limited to:

- Climate change.

- Cultural practices.
- Land tenure systems which inhibit appropriate land use and response to reclamation needs.
- Limited data, information and awareness on land reclamation.
- Limited research and appropriate reclamation technologies.
- Low investment in land reclamation initiatives.
- Trans-boundary activities.
- Uncoordinated policy, legal and regulatory framework.
- Unsustainable exploitation of natural resources such as vegetation harvesting, mining practices, extracting resources from fragile ecosystems, among others.

3.0 POLICY GUIDELINES

3.1 THE CONTEXT

This policy envisages sound land reclamation plans for improved productivity, sustainability and economic value. The pertinent and defining issues are considered below.

3.1.1 Humid Zone Issues

The key issue is the wanton de-vegetation, little assessment of spatial and temporal loss of biodiversity for sustainable natural resources utilization and management.

3.1.2 ASAL Zone Issues

The key issues include:

a) Frequent droughts and other climatic variations including extreme temperature changes aggravating conditions of aridity
b) Severe loss of land cover and vegetation
c) Low availability of surface water
d) Increase of population of both livestock and humans leading to conflicts over diminishing pastures, water and other natural resources
e) Hard panning of soils and impermeable crusting of land surface
f) Formation of wastelands, gullies and poor soils
g) Transfer (from humid areas) and application of inappropriate agricultural technologies into marginal areas
h) Inadequate agricultural and veterinary extension services
i) Low remunerative market outlets for products generated by the pastoral economy, and
j) Decline in land productivity leading to increased incidence of food insecurity and widespread poverty with over 60% of the population living below the poverty line.

3.1.3 Ocean and Other Water Bodies Issues

The key issues are:

a) Coastline erosion (beach and cliffs), debris flows and deposition (e.g. on beaches rendering them unattractive), sedimentation, and anthropogenic destruction of marine flora and fauna especially in the coral reef beds.
b) Episodic intrusion of saline waters into agricultural lands and human settlements.

3.1.4 Cross-cutting Issues

The key issues include:

a) Lack of sustained assessment of potential political, social, economic, environmental and technological impacts of land reclamation plans.
b) Inadequate incorporation of indigenous knowledge in community mobilization for reclamation programmes.
c) Lack of confidence building and conflict resolution in the sub-sector.
d) Lack of responsive institutions to manage and regulate land reclamation interventions.
e) Inadequate gender and disability mainstreaming in all decision-making forums in the sub-sector, especially on issues of the management of reclaimed lands, and equal access to and control over such resources in order to alleviate poverty.

f) Information deficiency on the stock of reclaimable lands and selection of appropriate reclamation systems (approaches and strategies) for different agro-ecological zones.
g) Lack of integration of land reclamation in related sectors such as, agriculture, forestry, industry, wildlife, tourism and other human activities.
h) Inadequate legal control mechanisms to govern areas under reclamation and safeguard such lands from reverting back to the state of degradation.
i) Linkage of watershed management to soil and water conservation, land tillage and efficient use of inorganic fertilizers.
j) Absence of a research and development culture in land reclamation.
k) Securing investor confidence including FDIs and PPPs arrangements in land reclamation programmes.
l) Transferability of control of reclaimed lands with utilization and management conditionalities e.g. specifying approved land use practices under a secure land tenure system implemented under a legal entity.
m) Insufficient harmonization of policies that is likely to impact on collaborative efforts for multi-sectoral intervention land reclamation.

3.2 POLICY AREAS

Land use practices have not conformed to recommended land carrying capacities specific to agro-ecological zones. It is expected that this policy, as is the case with the National Land Policy 2009, the National Water Policy 2012, the National Environment Policy 2012, and other related sustainable land management policies, shall incorporate ecological principles to guide land reclamation practices in marginal lands, degraded lands, ASALs, wastelands and wastewater. Community participation, research and development, investment environment, and implementation approaches shall also main yardsticks.

3.2.1 Marginal Lands

(a) To correct the reliance on inappropriate land use practices in marginal lands, the government shall:

- Ensure that appropriate and sustainable land reclamation and rehabilitation practices, are adapted by all land users.
- Promote education and public awareness through participatory approaches to inculcate land management, rehabilitation initiatives and reduction of land degradation.

(b) In the context of land tenure systems as defined in the National Land Policy 2009 and the new land Statutes, the government in ensuring appropriate conservation and reclamation of marginal lands according to this policy shall:

- Ensure all public, community and private lands are inspected and monitored for any signs of degradation, inappropriate uses, illegal encroachment of invasive or alien species that would lead to its degradation and other deleterious impacts.
- Provide a framework to ensure that all categories of marginal lands are mapped, and shall be protected from natural or induced man-made degradation and where any degradation is detected; the owners of affected land are required to take remedial and necessary restitution.
- Provide guidelines to address externally induced degradation and conflict resolution as a result of implementing land disturbing activities with "***degrader pays principle***" application, regardless of tenure systems.

3.2.2 Degraded Lands

(a) Concerning degraded lands, the government shall:

- Identify and map all degraded lands and place them under a reclamation program.
- Integrate the use of improved indigenous knowledge and latest research to manage degraded areas.
- Create an enabling environment for active participation of all stakeholders including the private sector in determination and reclamation of such lands.

(b) Given land disturbing activities such as soils salinization, human settlement concentration e.g. at refugee camps, shorelines erosion, pipelines' installation, road and bridge construction, irrational utilization of trans-boundary lands, oil spills and effluent pollution, and military exercises with abandonment of ordinances, the government shall:

- Develop rules and regulations to ensure disturbed lands are reclaimed.

3.2.3 ASALs and Wastelands

(a) ASALs and wastelands are fragile and susceptible to land degradation. Therefore the government shall:

- promote mobilization of resources for reclamation of such lands and wastelands with increased investment in rainwater harvesting and storage.

(b) In practice, the application of '***Polluter Pays Principle (PPP)***' to identify liable parties for the cleanups is not without problems, especially for active or operational mines, where people tend to ignore the actualization of the concept of clean-ups. There is a tendency for environmental rules and regulations to address only symptoms of the pollution rather than political, economic and technological causes. In broad context, the government shall:

- Inventory all wastelands by agro-ecological zones.
- Regulate wastelands reclamation operations and interventions and eliminate conflicting approaches.

Specifically:

(i) *On abandoned quarries and open cast mine fields:* The general principle for miners is to adopt land reclamation as a standard practice of operations. In order to encourage the combination of both the command and control approaches and economic incentives to stimulate best practices in the mining sub-sector, the government shall**:**

- Create a national inventory of all abandoned mines for purposes of developing responsive reclamation plans.
- Encourage better use of energy and natural resources and guarantee sustained mining operations.
- Ensure legal aspects of mining including the mine permit, the water permit, the environmental impact assessment permit, the waste permits, among others.
- Ensure that post-mined land has a viable self-sustaining future with respect to both environmental and socio-economic benefits (e.g. developing public land for recreation, historic purposes, conservation purposes, open space benefits, or for constructing public facilities in communities).
- Provide for economic incentives such as performance bonding, trusts or financial sureties for mining companies to conduct environmentally acceptable operations;

- Require mining companies to:
  - develop comprehensive environmental management plans, to install expensive environmental technologies, and even to hire outside expertise and desist to attach more importance to '***end of mine***' pollution control, or '***post-closure***' reclamation;
  - eliminate health and safety hazards (e.g. dismantling all facilities and structures threatening human health and safety);
  - eliminate off-site environmental impacts (e.g. cleaning up sites to conform to the community's surrounding landscape);
  - rehabilitate impacted land and water resources by progressive re-vegetation and residues stabilization to reduce potential of acid mine drainage or water contamination.

The following are additional features of the Foreign Direct Investors (FDI) Policy, specific for mine lands, in the context of land reclamation. An FDI company shall be:

- Allowed to own land but only local partners may use such land as equity contribution;
- Defined as one that has a minimum of 20% foreign equity;
- Required mandatorily to rehabilitate and restore lands disturbed during mining or forfeit their bonds or any pre-determined instruments.

(ii) *On land submerged under sand dunes and deserts*: The government shall:

- Create a national inventory of frontiers and extent of sand dune encroachment and desertification.
- Provide for a comprehensive programme for desertification control.

(iii) *On stony or leached or gullied lands*: The government shall:

- Create a national inventory of Stony or leached or gullied lands to enable a comprehensive programme for rehabilitation and reclamation.

(iv) *On lands devastated by landslides or earthquakes*: The government shall:

- Create an inventory for areas prone to landslides or earthquakes and provide for emergence evacuation plans and a resettlement programme.

(v) *On marshlands and coastal lands invaded by sea water:* The government shall:

- Create an inventory of susceptible and existing terrestrial marshlands with view to providing for strategic reclamation.
- Synchronize implementation of this policy with the Climate Change Policy and other appropriate policies, with regard to inventorying areas already or likely to be affected by water-logging and salinization by sea water; and provide for a comprehensive programme for rehabilitation and reclamation of affected lands.

(vi) *On lands adulterated by military exercises or bombed in war:* The government shall:

- Map and ensure forensic environmental and social impact assessment of lands affected by adulteration due to military exercises or bombing during territorial wars.
- Provide for rehabilitation and reclamation programme for lands affected by military exercises or bombed in war.

3.2.4 Wastewater

Given the abundance of wastewater in Kenya which is not properly utilized, the government shall:

- Develop legislation, regulations, rules and guidelines on treatment of wastewater and ensure recycling and re-use of reclaimed water.
- Promote the design and construction of bio-degeneration structures and any such appropriate technologies for household sewage treatment and recycle reclaimed water for use in any other appropriate use such as irrigation.

3.2.5 Community Participation

To ensure compliance with the CoK 2010, the National Land Policy 2009, the National Water Policy 2012, other related public policies including this policy with its related Statutes, the government shall:

- Put in place appropriate incentives for active community participation of all stakeholders in land reclamation efforts.

3.2.6 Research and Development

The major challenges facing research in the sector is lack of an organization or unit to coordinate research, frequent and unpredictable restructuring of public institutions, low priority in funding of the sector. The continued support for land reclamation research to Centre for Integrated Training and Research in ASAL and Development (CETRAD) by both Kenya Government and Swiss Government is meant to transfer results by researchers from Kenya, Tanzania, Rwanda, and Switzerland. The water sector, in collaboration with universities, is establishing the Water Research and Resource Center (WARREC). WARREC in collaboration with other stakeholders will implement annual national and international scientific conference to capture new and emerging issues, trends and technologies in the broad water sector issues.

Take-up or utilization of the research findings has been a challenge irrespective of the enormous investment made and the data generated through research which should go unused for efficient policy and decision making support to development. Given existing inadequacy of research and development efforts towards land reclamation, the government shall:

- Mobilize resources for investment in Research & Development.
- Provide relevant and adequate training of professionals to spearhead research in land reclamation.
- Policy makers and development practitioners to take up the research results and apply to improve welfare of citizens.

3.2.7 Investment Environment

In recognition of the fact that land reclamation is a long term initiative necessary for sustainable development and given the low investment by the private sector in reclamation programmes, the government shall:

- Increase public investment in land reclamation sub-sector to at least 1% of the annual national budget.
- Create an enabling environment increasing private sector investment, more so through Public-Private-Partnerships (PPPs) arrangements, and
- Promote the role of FDIs in land reclamation.

3.2.8 Extension and Training Services

The Government shall:

- Promote extension and training services on land reclamation. It will also ensure creation of the necessary capacity in terms of qualified personnel.

3.2.9 Coordination

Land reclamation involves many sectors and stakeholders drawn from the public and private sectors. In recognition of the role to be played by citizens through public participation forums, the government shall:

- Develop coordinating mechanisms which may include developing Memoranda of Understanding (MoUs) that would promote coordination and harmonization.

4.0 LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 THE CONTEXT

Under the stipulations of the CoK 2010, the Ministry responsible for land reclamation and related sub-sectors shall play a crucial role in facilitating national development and the realization of the Vision 2030 and other development frameworks. The mandate shall include, among other aspects; environmental protection and governance; integrated natural resources management; flood control, storage of harvested rainwater, and groundwater recharge; land reclamation, and land management and control. Various earlier legislations and institutions focused on conservation and protection than degradation and reclamation. Hence, there is need to incorporate appropriate legal and institutional frameworks to anchor rehabilitation and reclamation into the national development agenda.

The CoK 2010 enshrines comprehensive consideration of the land question. Of significance to this policy is the establishment of the National Land Commission, whose implementation with the adoption of this policy should usher sustainable reforms in the sub-sector.

Regulatory effectiveness over land reclamation performance is dependent, to a large extent, on sound cooperation among players at all levels of government towards common reclamation objectives, and also by a clear definition of responsibilities. The sub-sector is associated with the following public agencies: Environment, Natural Resources, Lands, Agriculture, National Environmental Management Authority (NEMA), among others. Unfortunately, these institutions individually function sub-optimally with regard to land reclamation; a justification for independent institutions for the purpose.

To cope with emerging challenges the government developed the Water Sector Strategic Plan (WSSP) 2010 – 2015; premised on the hope that all stakeholders will conserve water and water sources, within the framework of the Bill of Rights of the CoK 2010. The Plan provides for an enabling environment framework for guidance and decision making consisting of an Inter-ministerial Water Coordination Committee (IWCC) and a National Water Sector Standing Committee (NWSSC) which will make use of existing dialogue platforms such as the WSWG and the Annual Water Sector Conference.

The outlined reforms have implications on land reclamation as it impacts on land ecology, building of water-delivery infrastructure; management of degraded land resources by rehabilitation and restoration interventions; harnessing PPPs interventions; among others. Indeed, more reforms are envisaged as demonstrated by development of several policies including the National Water Policy 2011, National Land Policy 2009, among others. While recognizing privatization of water delivery and sewerage services, this policy sets out to coordinate related and other land reclamation activities.

4.2 INSTITUTION FRAMEWORK

The Ministry responsible for Land Reclamation shall be responsible for policy formulation, coordination, and mobilization of resources. Currently many actors, both in the public and private sector play a role in land reclamation, albeit in an un-coordinated manner. The lack of a regulatory framework to drive the process and ensure consistency and quality standards indicates a responsive institutional mechanism is necessary. This policy establishes an institutional framework as shown in Figure 1 below which, *vide* an Act of Parliament shall vest land reclamation affairs in the National Land Commission as per Article 67(2) (a), 67 (3) and 68(c) (vii).

4.2.1 Responsibilities of the State Department Responsible for Land Reclamation

The mandate of the Ministry responsible for land reclamation shall:

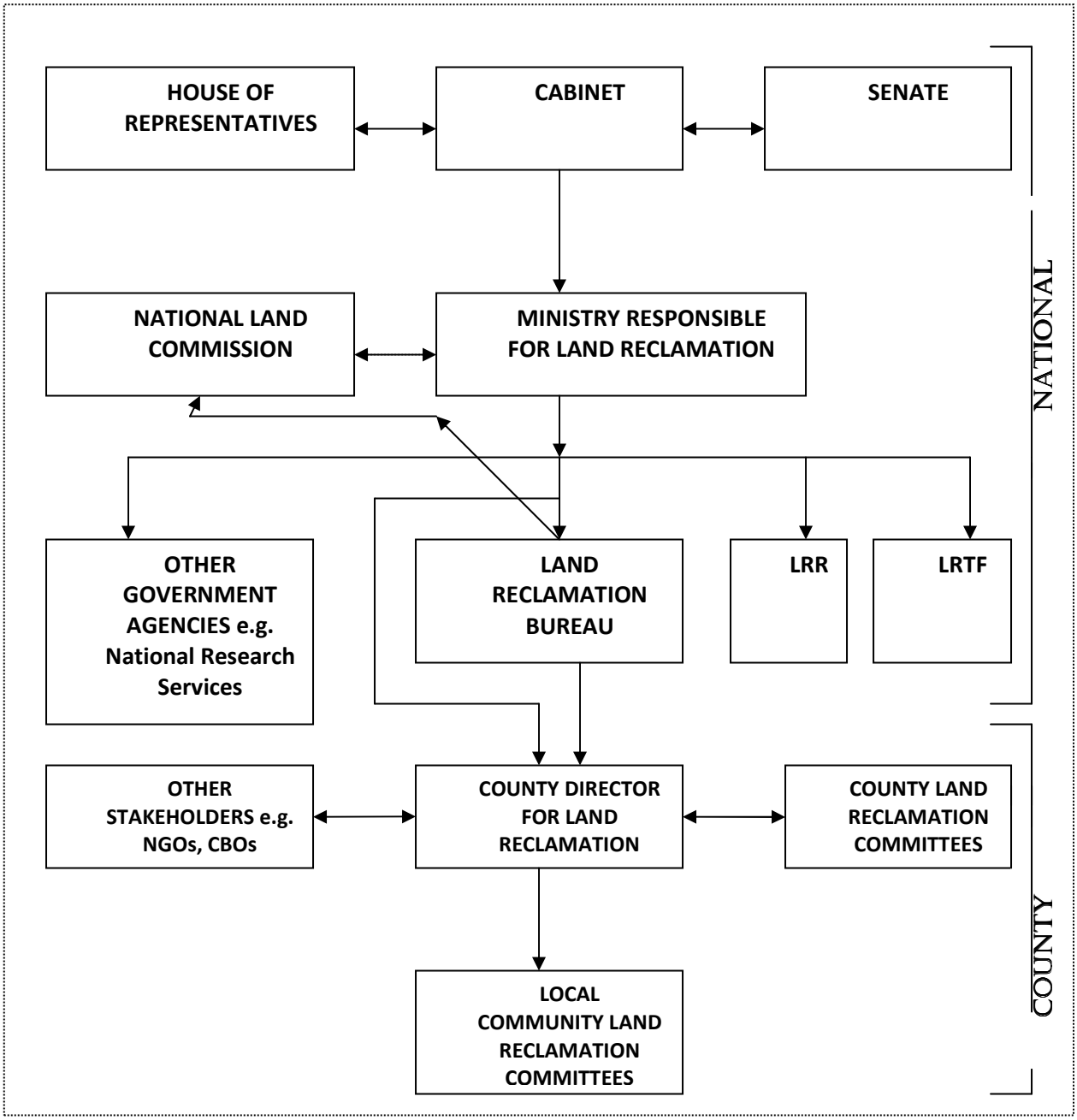
- Include among other aspects, public policy, and coordination, mobilization of resources, and monitoring and evaluation (M & E).

4.2.2 Responsibilities of the National Land Commission

The National Land Commission (NLC) shall be governed as stipulated in the NLC Act. With regard to this policy the Commission shall be responsible for coordination of processing and allocation of reclaimed State lands, and classifying and controlling developments of any other reclaimed lands. It shall;

(a) Adequately articulate the dangers of how the ever increasing problem of land degradation is depriving the nation of a critical resource.
(b) Collaborate with the Ministry responsible for land reclamation with regard to implement of policy guidelines on land reclamation
(c) Ensure broad representation, expertise, integrity, equity and efficient service delivery in land reclamation programmes;

Fig. 1: Organogram for National Land Reclamation Institutions



NOTE: **LRR is Land Reclamation Regulator**
LRTF is Land Reclamation Trust Fund

4.2.3 Responsibilities of the Land Reclamation Bureau

The Land Reclamation Bureau (LRB) is established, and through this institution, the National Land Commission shall maintain indispensable significance in influencing land reform and restoration, serving as a reliable mediator that negotiates settlements, to compensate citizens for past injustices; experienced and preventing recurrence of such injustices, especially under marine and terrestrial petroleum exploration and extraction, and large-scale mining and agricultural projects. The LRB shall be responsible for implementation of land reclamation in the country and shall be guided by a Parliamentary Act covering:

(a) Enabling legal and regulatory framework.
(b) Enabling national plan of operation and financial resources.
(c) Implementing capacity building strategy.
(d) Integration of land policy with this land reclamation policy.
(e) Promotion of inter agency network.
(f) Provision of technical support services (data management, methodology).

Additional operational aspects of the Act shall vest the following legal authority into the Land Reclamation Bureau (LRB):

(a) Acquisition and valuation of land and related assets;
(b) Building capacity for all stakeholders in the management of reclaimed land for sustainability;
(c) Carrying out periodic assessments/surveys of land in Kenya to obtain a clear and accurate mapping of existing degraded and ASAL lands requiring reclamation;
(d) Collection, collating, processing and creating a database on degraded land for ease of dissemination;
(e) Complying with Article 67(2)(d) of the CoK 2010, creation of a Centre for Research and Training on Land Reclamation handling the sub-sector's research agenda, while affiliating with the National Research Services;
(f) Developing and deploying methods of compensation for reclaimed lands;
(g) Developing dispute resolution and grievance mechanisms;
(h) Ensuring stakeholder participation and accountability in land reclamation;
(i) Formulation of guidelines and standards for restoration and reclamation of degraded land;
(j) Monitoring status of land degradation;
(k) Participation in networks for coordination among government agencies and other entities on matters of land reclamation;
(l) Promotion of enhanced utilization of reclaimed land;
(m) Restoration of land productivity in all areas where degradation is a major challenge.

4.2.4 Responsibilities of the Land Reclamation Regulator

There shall be a Land Reclamation Regulator (LRR) to formulate rules and regulations governing land reclamation sub-sector, and for quality assurance; so established as per this policy. The National Land Commission shall:

- Engage the Regulator in compliance with Article 67(2) (h) of the CoK 2010 and in operationalization of any national legislation as per Article 67(3) of the CoK 2010.

4.2.5 Responsibilities of the Land Reclamation Trust Fund

There shall be established a Land Reclamation Trust Fund (LRTF), an institution responsible for consolidation of sources of funds and equipment to assist land reclamation initiatives in the country. A Fund Secretariat shall:

- Be established to mobilize and deploy resources.

4.2.6 Responsibilities of Other Government Agencies

The other government agencies such as the National Research Services shall be responsible for their specific mandates some touching on collaboration on matters concerning land reclamation as shall be defined in the statute based on this policy.

4.2.7 Responsibilities of the County Director for Land Reclamation

The responsibilities of the County Director for Land Reclamation shall be defined by the Ministry responsible for land reclamation, and shall:

- Include but not limited to implementation of this policy, coordination of land reclamation activities, deployment of resources and gathering of reports for M & E. This office shall be the main link between the County and National levels.

4.2.8 Responsibilities of the County Land Reclamation Committee

The County Government shall be responsible for the management of natural resources within its jurisdiction. In this regard technical issues pertaining to land reclamation will require national collaboration of efforts. A County Land Reclamation Committee shall be established to work and link with the National Land Commission, Land Reclamation Bureau, Other Stakeholders and Government Agencies on matters concerning land reclamation associated with utilization of natural resources within the County. The Committee shall:

- Adapt relevant national laws
- Mobilize, advocate, sensitize and promote land reclamation initiatives, while the the Regulator holds jurisdiction on matters within its mandate
- Appraise land use options and land tenure systems for reclaimed lands.
- Articulate decentralized responsibilities.
- Identify and coordinate disused land and provide technical support to local communities.
- Enhance coordination capacities for integration of statutory law and customary rights.
- Undertake institutional capacity building.

4.2.9 Responsibilities of the Local Community Land Reclamation Committee

Local Community Land Reclamation Committees shall be established at the district level, comprising of interest groups. Its mandate shall include:

- Achieving more effective implementation of land reclamation programmes.
- Addressing and resolving existing natural resource use conflicts.
- Coordinating individual decisions within the community.
- Empowering people who are traditionally excluded.
- Enabling the community to organize itself by creating a sense of belonging.
- Encouraging a greater understanding of land.
- Ensuring more rapid and more appropriate response to needs.

- Involving local people in handling local issues of land reclamation.
- Taking full account of local capabilities, attitudes and customs.

At all times the County Reclamation Committee and Land Reclamation Bureau shall be included as part of the common interest groups.

4.2.10 Responsibilities of Other Stakeholders

This shall include Non-Governmental Organizations (NGOs), Community-Based Organizations (CBOs) and other Civil Society Organizations (CSOs) who may have interests from time to time concerning the implementation of this policy and/or any matters arising from the corresponding Statutes. This will ensure informed and full participation of the general public in matters of land as enshrined in the Constitution.

4.3 LEGAL FRAMEWORK

4.3.1 Required Statutes

An appropriate legal framework for land reclamation requires the following measures implemented:

i) Address land reclamation issues as per this policy by legislation to assign responsibilities to the National Land Commission (as per Article 68 of CoK 2010), and other formed institutions. An Act of Parliament compliant with this policy and harmonization of related laws undertaken to enable effective coordination. The Statute so developed shall define coordination and communication mechanisms for land reclamation at all levels.

ii) Establish a Restitution of Land Rights Act to regulate the management of lands irregularly acquired from original owners, including previously degraded lands due to quarrying, extraction mining, bush encroachment, flood plains, wetlands, eroded hills, badlands, as well as lands colonized by invasive species, among others; which on rehabilitation and restoration, should revert possession to communities or people who previously owned it or had exclusive rights in the past, and to ensure no dispossession and disenfranchising of certain groups, depriving people of the land entitled to them by any means. The Bill of Rights in the CoK 2010 places emphasis on democratic and libertarian principles, and thus guarantees '***equitable redress and correction of historical injustices***'.

The National Land Commission shall provide oversight to the laws so designed and enacted and ultimately function as a representative, advocating equitable land rights for citizens.

4.3.2 Compensation Mechanisms

Rules and regulations shall be developed for specific operations (e.g. oil extraction sites, mining sites, quarrying sites, etc.) with regard to the method of computing compensation for land set aside for such purposes. The Acquisition and Valuation of such lands and related assets shall be done by the law so established. Compensation may be accomplished by the purchase, prior to occupation (e.g. for mining), of a non-cancellable, premium prepaid insurance policy.

Environmental offences shall be criminalized and civil action provided for as a way of seeking compensation for harm to the environment or people who suffer injury, physical or otherwise, resulting from actions or omissions of persons. The costs of the third parties in the form of

reparation, restoration, restitution or compensation as may, from time to time, shall be determined by the Land Reclamation Regulator.

In collaboration with NEMA the Land Reclamation Bureau shall:

- Seek Restoration Orders issued by NEMA to require persons not to undertake an activity which could or is likely to do harm to the environment, to restore such environment to its previous status or pay the cost of restoring the environment incurred by authorized persons or organizations if such action has already been taken and award compensation to the persons whose environment or livelihood has been harmed by the activity. While NEMA takes the primary decision as regards such compensation, the Land Reclamation Regulator shall provide guidelines for compensation for specified land degradation categories.

4.3.3 Dispute Resolution and Grievance Addressing Mechanisms

The regular courts shall continue to see violations of environmental laws susceptible to criminal and civil action through a judicial administration system that encourages establishment of special chambers for such cases. It is equally important that the framework law based on this policy provides for mechanisms for dispute settlement or addressing grievances arising out of administrative decisions of the Land Reclamation Bureau or any other organ with decision-making powers regarding land reclamation matters. The Statute shall:

- Provide for appellate rights.
- With regard to water affairs arising from land reclamation activities, the Water Services Regulatory Commission (WSReC) and Water Appeals Tribunal (WAT) are independent institutions to regulate and deal with disputes, respectively.
- Other disputes will be handled by NEMA, National Bureau of Standards, National Land Commission or Environment and Land Court.

4.4 AWARENESS CREATION

Awareness programme constitute a continuous process and is an important activity in policy implementation. On assessment of the overall knowledge of inhabitants of an area affected by degraded lands needing land reclamation practices, the established institutions shall put in place mechanisms of creating environmental awareness, application of policy frameworks and the adoption of environmental education, to largely assist the successful implementation of land reclamation policy and legislations.

5.0 FINANCING ARRANGEMENTS

5.1 THE CONTEXT

Adequate funding shall be earmarked for investment in and development of Land Reclamation Programmes. Sources of funding will include Kenyan Government through the exchequer, donors, private sector, community contribution in kind, and climate change related carbon or green credits. Funding shall cover institutional reforms, capacity building, extension services, land reclamation programming and research. The Government will ensure that strategic plans are prepared periodically to prioritize Land Reclamation development.

5.2 PUBLIC FINANCING

In the process of land reclamation, a source of funding will be required for acquiring capital inputs, labour and hiring managers to carry out the process of reclamation. In the initial stages, the Government is the most likely source of funds, but as the project gets commercialized, other sources of credit will be required. For instance, most of the land reclamation structures in the ASALs are for water conservation for agricultural production and therefore financial institutions offering credit will be established. In addition the government shall administer funds acquired from civil penalties in the form of bonds forfeitures collected from mining operators and other developers who violate regulations governing land rehabilitation and restoration. These bonds would have been initially set aside to assure that funds are available for reclamation in case the operator fails to implement the land reclamation plans e.g. after closure of mining activities. In addition, a proportion of revenues from mineral sales shall be collected and put into a fund, with the intention of funding environmental reclamation efforts. Another viable source of funds is to make polluters pay for waste discharge into the environment.

5.3 THE SECTOR WIDE APPROACH PLANS

The first Sector Wide Approach Plans (SWAPs) were used mainly in highly aid-dependent poor countries in sub-Saharan Africa and Southeast Asia. Since the late 1990s the approach has been extended to less aid dependent countries such as India, Brazil and Morocco, more so for social sectors such as health and education. However, SWAPs are becoming increasingly attractive for use in such ‘green’ sectors as energy, land, water, environment and natural resources, agriculture, rural development and decentralization/local government - which are more complex and dynamic than social sector.

Their application entails a wider range of heterogeneous stakeholders. Given the cross-sector nature of land reclamation, this will require developing a joint strategy and reaching consensus on implementation of this policy through harmonization of mandates and transparency of resource allocation and decision-making processes. However, planning processes for SWAPs are time- and energy-consuming, involving the development of strategies and instruments. The process could delay attainment of this policy’s outcomes.

Indeed, less than 15% of the Kenyan national budget comes from external funding and it is not eligible for debt relief. Development partners continue to be less enthusiastic to provide budget and /or sector budget support due to concerns about the robustness of the public financial management system. The introduction of the Medium-Term Expenditure Framework (MTEF) as part of management reforms - including public expenditure reviews and further accountability measures - improved public financial management, but in 2005-6 only the European Union (EU) provided direct budget support, which was suspended following allegations of high-level corruption. Thus the

development of SWAPs for the sub-sector has been accomplished, in some instances using joint 'basket funds' administered by independent financial management agents. The setting up a 'basket fund' to consolidate sources of funds to assist communities in land reclamation activities is envisaged.

5.4 RESTORATION BONDS AND OTHER INSTRUMENTS

The government shall issue a special restoration bond to attract funds from investment investors including FDIs to be used in land reclamation. The development of related instruments such as performance bonuses, and insurance-based policies are proposed. The mining policy will explore viability of introducing a performance bond to cover compensation for the damage caused by mining. This will ensure integration of reclamation plans or comprehensive environmental management plans including reclamation into licensing with bonding schemes. Such a bond could be collected on a per-ton basis or through total sales value based deduction. Alternatively a bond could be conditioned and posted in the application for the mining license.

Bonds shall take any of the following forms: paid either by cash refundable with interest, financial guarantees such as certificates of deposit, government bonds, irrevocable letters of credit, and other liquid assets or by a guarantee by an institution such as a bank, a financial institution or an insurance company. However, bonds if not carefully designed might not always be adequate as the cost of waste treatment may not be included in the bond or when corporate guarantees that constitute part of the bonding requirements become worthless when a company declares bankruptcy.

The relevant Statute shall provide for:

1) Establish requirements and procedures pertaining to reclamation performance bonds, their release and forfeiture,
2) Implement, administer and enforce a system of performance bonds or other equivalent guarantees.

5.5 TRUST FUNDS

The establishment of a Land Reclamation Trust Fund is proposed. This trust shall be established with Government trust funds for the accomplishment of functions that are essential as per constitutional requirements, this policy, Acts of Parliament, rules and regulations and guidelines. The governance of the funds shall ensure that no part of the:

- Net earnings of this trust shall inure or be payable to or for the benefit of any private entity or individual other than a beneficiary, except that the trustees shall be authorized and empowered to pay reasonable compensation for services rendered.
- Activities of this trust shall be the carrying on of public awareness, or otherwise attempting to influence legislation.
- Activities of this trust shall be the participation in, or intervention (including the publication or distribution of statements) in any political campaign on behalf of (or in opposition to) any candidate for public office. The trustees and the trust shall not engage in any transaction or activity which would cause the trust to lose its tax exempt status under the Kenya Revenue Authority (KRA), as the same may be in effect from time to time.

5.6 PRIVATE SECTOR FINANCING PRODUCTS

An individual private sector or a group of such investors may fully finance a venture as well as provide for reclamation of those lands that may become degraded in the cause of implementation of commercial or industrial activities. The same applies to Direct Foreign Investors (FDIs). However in the latter case there may be that category of investors whose interest is to restore degraded lands in exchange for a long-term lease (of the same) for commercial or industrial use. The Statute shall specify these differences. In addition the new Statute on PPPs has opened opportunities for responsive financing products that could be harnessed for land reclamation. This policy recognizes the said Statute and its benefits.

6.0 MONITORING, EVALUATION AND REPORTING

6.1 THE CONTEXT

Reclamation of degraded land should be based on an evaluation of the present undesirable conditions, for a number of reasons.

First, evaluation may be the first step towards diagnosis and cure. By identifying those aspects of land structure and function that work well in degraded ecosystems, and those in need to be fixed, then the efficiency of restoration programmes can be greatly enhanced.

Second, evaluation allows the identification of priority areas for ecological restoration. It is surprising that diagnosis and prognosis, procedures that are well established in other fields like medical care, economy, and other areas such as artistic and archaeological restoration, have received much less attention in ecological restoration. It should be considered as unreasonable to implement large-scale land reclamation in a degraded area that has not been previously and carefully evaluated, just as prescribing a major medical intervention on the sole basis of expert judgment.

6.2 MONITORING AND EVALUATION

Monitoring and evaluation will provide an indication of progress made on Policy implementation. The Government will prepare an Implementation Frameworks schedule to form the main reference for monitoring and evaluation processes.

6.2.1 Strategic Partnerships

To ensure maximum success in restoration of degraded lands in Kenya, it is important to bring on board the wider stakeholder base. Cultivating strategic partnerships is premised on:

- All natural resource based government ministries. The County Land Reclamation Committees will include representation from these ministries and other stakeholders. This will greatly enhance visibility of the land reclamation initiatives and guarantees adequate financing.
- At the community level, creation of partnerships by setting-up Local Community Land Reclamation Committees shall include community representatives, county government representatives, and local stakeholder groups, active in natural resource conservation work in and around degraded areas.

6.2.2 Incentives

Involvement of the community in the planning, implementation and management of land reclamation programmes is necessary for success and sustainability of the projects. The Government shall:

- Provide incentives and technical assistance to viable community initiatives in land reclamation. For instance, incentives may include provision of tools for construction of water conservation structures.

6.2.3 Sustainability

Land Reclamation and efforts to combat degradation are continuous processes. The following measures will ensure the sustainability of reclamation efforts in the country:

- Setting up a 'basket fund' to consolidate sources of funds, hence the establishment of a Land Reclamation Trust Fund.
- Formation of Private-Public-Partnerships (PPPs) to ensure the goodwill of both parties at all times.
- Establishing capacity building initiatives especially for the local communities to change their mindsets and attitudes.
- Creating an environment whereby funding will be demand-driven by the local communities.
- Establishing participatory land reclamation committees at the local level, whose composition involves CBOs, NGOs, local professionals, private sector, local administration and county representatives.

6.3 REPORTING MECHANISMS

The monitoring and evaluation systems shall be informed by reports from the Land Reclamation Bureau, Land Reclamation Regulator, Land Reclamation Trust Fund, National Research Services covering land reclamation issues, other government agencies and stakeholders. The State Department responsible for land reclamation affairs shall analyze these reports and improve on policy implementation as well as reviews. The Department shall ensure that land related conflicts are reduced drastically so as to enhance natural resources development, especially the provision of water to population.

In order to strengthen M & E processes, the different stakeholders shall:

- Be responsible for implementation of different aspects of land reclamation as outlined in their Strategic Plans that shall be derived from the main Land Reclamation Policy Strategy.
- The progress made shall be through annual joint progress reviews and meetings to inform resource allocation and policy feedback necessary for the MTEF budgeting process.

6.4 IMPLEMENTATION MECHANISMS

6.4.1 The Strategy

The Strategy based on this policy shall develop a matrix of results indicators - outcome and impact indicators to guide the development of the land reclamation reporting mechanisms for the monitoring and evaluation framework for the various implementation institutions, each one of which, shall be on the other hand, the implementing institutions will also be required to mainstream the indicators in their respective M & E systems, thus enabling common monitoring, implementation and feedback.

6.4.2 Knowledge Management

Knowledge will be generated through all activities involved in implementation of the policy- in addition to M & E data. There will be mechanisms to capture, synthesis, package and dissemination of this information for purposes of enhancing the implementation of the policy and future reviews.

6.4.3 Capacity Building for M & E

There shall be established mechanisms for capacity building for implementing institutions to adequately undertake reporting mechanisms, preparation of documents for joint annual reviews, undertaking knowledge management and other M & E processes as stated in this policy.

6.4.4 Policy Review

The State Department responsible of Land Reclamation shall be the custodian of this policy. The subsequent reviews shall be carried out from time to time based on the outcome of implementation and emerging issues as determined during joint annual reviews and related national needs.

Definition of Terms

Term	Definition/Brief description
ASALs zones	These are areas in Kenya covering about 80% of total land surface and are predominantly inhabited by the pastoralists and agro-pastoralists. The very arid zones receive an unreliable average rainfall of 0-400mm/year; the arid zones receive an average rainfall of 300-600mm/year; and the semi-arid zones receive average rainfall ranging from 200mm/year in the semi-arid zones to 1000mm/year in the dry sub-humid zones. The cumulative evapotranspiration of these areas ranges from 600 to 900 mm/season, explaining the persistent water scarcity coupled with droughts, poor vegetation, and low crop yields. Natural water resources distribution is low and unreliable for economic activities.
Climate change	The ongoing changes in modern climate, including the average rise in surface temperature
Collateral bond	An indemnity agreement in a sum certain payable to the Government executed by the permit holder (for an activity that may cause land degradation) and which is supported by the deposit with the Government in cash in a duly insured or equivalently protected account, negotiable bonds of the Republic of Kenya (through the Central Bank), negotiable certificates of deposit, or an irrevocable letter of credit of any bank organized or transacting business in the Kenya.
Community land	Community land is land that a specific community holds, manages and uses but the ownership of which is placed in the community, while individuals have rights of use. Community land is governed by customs and traditions of different communities, which have been undermined over the years by the process of individualization of land tenure. It is all that land that is not private or public land as defined in the national Land Policy of Kenya.
Desertification	The phenomenon or process by which once arable or habitable lands are transformed into barren land or desert as a consequence of various factors including climatic change or human activities such as deforestation and overgrazing. It results into severe biodiversity loss, and loss of productive capacity, such as the transition from grassland dominated by perennial grasses to one dominated by annual grasses, the latter which are less productive and more susceptible to effects of drought conditions.
Driving forces	Drivers are causes either natural or human-induced that influence the alteration of state of environment – positively or negatively. These constitute natural occurrences (earthquakes, volcanic activity, etc) and human induced factors. Driving forces determine basic trends in land degradation.
Ecosystem	A system formed by the interaction of a community of organisms with their physical environment.
Environment	A combination of the various physical, geographic, biological, cultural and political elements that affect the life of an individual or organism.
Equity	The fairness, the standard by which each person and group is able to maximize the development of their latent capacities. Justice is the vehicle through which equity is applied, its practical expression.
Food security	Is when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life
Fragile lands	Geographic areas containing natural, ecologic, scientific or aesthetic resources that may easily suffer damage or destruction by land degradation.

Term	Definition/Brief description
	Examples of fragile lands may include arid and semi arid lands, uncommon surface geologic formations, valuable habitats for fish or wildlife (e.g. mangrove ecosystems), critical habitats for endangered or threatened species of animals or plants (e.g. Turtle breeding grounds, coral reef ecosystems, encroached rainforests, etc.), environmental corridors containing a concentration of ecologic and esthetic features, areas of recreational value due to high environmental quality, and buffer zones (e.g. Arabuko Sokoke Forest in Malindi County, Mt. Kulal in Marsabit County, etc.).
Garbage	A receptacle where waste can be discarded **or** any waste materials that if not properly processed or handled may contribute to causes of environmental degradation.
Groundwater	Subsurface water that fills available openings in rocks, soil materials or unconsolidated sediment to the extent that they are considered water saturated. It may occur in underground streams and aquifers.
Humid zones	These are areas (ecological zones I – III) with relatively high rainfall averaging well over 1000mm/year. They have increased water abundance but with rapidly increasing demand due to population growth and economic development. The potential for agricultural development in these zones lies in upgrading agriculture.
Impacts	Describe effects of a change on a specific type of land that are likely to affect the functioning of an ecosystem or human health and safety. Impacts may be positive or negative with intensive or relative magnitude.
Integrated Water Resource Management (IWRM)	A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.
Irrigation	Irrigation is any process other than natural precipitation, which supplies water to crops or any other cultivated plants.
Land	Land is finite resource that constitutes the basis of human society as it provides food, water, energy, clothing and shelter. Inappropriate land uses, population growth, over-exploitation of natural assets and environmental degradation are exacerbated by linkage with poverty, inequality and social conflicts associated with inadequate access to land or to the benefits from its use by many people. This is a manifestation of insecure land tenure systems. As per Article 60(1) of the CoK 2010, land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable. Land in Kenya includes— (*a*) the surface of the earth and the subsurface rock; (*b*) any body of water on or under the surface; (*c*) marine waters in the territorial sea and exclusive economic zone; (*d*) natural resources completely contained on or under the surface; and (*e*) the air space above the surface. There are three classifications of land in Kenya: public land, community land and private land.
Land cover	The observed bio-physical phenomenon on the earth's surface that includes vegetation and man-made features.
Land degradation	A phenomenon characterized by the reduction in the capability of the land to provide goods and services, and/or benefits from a particular land use under a specific form of land management such us agricultural, wetlands, grasslands/pasture, forest land, shrub land, mangrove forests, beach, among others. Or the long-term loss of ecosystem function and productivity caused

Term	Definition/Brief description
	by disturbances from which the land cannot recover unaided.
Land reclamation	The process of gaining land area from marshes, mine fields, sea creeks, quarries, water or any other ecosystem, and conversion of wasteland into land suitable for economic use. It concerns all categories and classifications of land as defined, and will in future become more common, as property costs continue to climb due to increased demand and constant supply.
Land tenure	How property rights in land are allocated within societies. Land tenure systems determine who can use what resources for how long, and under what conditions. Land tenure is a relation of human beings, individuals, and groups to the soil which they cultivate and use. This relation often transforms the land through subdivisions, classification and apportionment as may be influenced by legality issues, sentiments and mythological beliefs. Also peoples' relation to the soil makes, determines livelihoods and demographic transition of communities. Thus land tenure is a physical, social and economic construct.
Land use	Specific uses or management-related activities rather than the vegetation or cover of the land. Land uses may be identified in combination when joint or seasonal uses occur. Examples of land use include cropland, pastureland, rangeland, forestry, residential land, industrial and commercial land, recreation land, fish and wildlife habitat, developed water resources (e.g. storing water – stock ponds, irrigation, fire protection, flood control, and water supply), and undeveloped land.
Marginal-quality water	This term includes urban wastewater, agricultural drainage water, and saline/sodic surface water and groundwater.
Marginal lands	These are lands characterized by poor productivity. For instance in agriculture it signifies poor-quality land that is likely to yield a poor return. Examples are found on the fringes of uplands and deserts that are difficult to cultivate. Marginal areas can also be defined in terms of other economic activities such as livestock production.
Mining	The act of extracting ores or industrial minerals from the earth.
Performance bond	A surety bond, collateral bond, or self-bond or a combination thereof, by which a permit holder assures faithful performance of all the requirements of an Act of Parliament, appropriate Rules and Regulations, the permit, and the reclamation or management plan approved by the Land Reclamation Regulator.
Policy	A Policy provides the 'roadmap' for sector development. It is a concise, formal statement of principles which indicates how a sector's objectives and how rational outcomes will be achieved.
Policy making	Policy making is an inherently a political activity, with sequential steps from problem formulation, to evaluation of alternatives, to implementation.
Poverty	The inability to satisfy basic needs, such as food, shelter, water and sanitation, clothing, and is usually described as people living on the equivalent of less than 1$ a day.
Public-Private-Partnerships (PPPs)	This are investments arrangements by which the public and private sector may negotiate for collaboration and contribute jointly to a venture such as reclamation of degraded lands, which when restored and rehabilitated, it may be put to economic use for the benefit of both investors.
Pressures	These constitute a wide range of external factors caused by human activities affecting land. Examples are economic, political, cultural and gender-related factors influenced by societal developments such as demographic, production and consumption, population, poverty, urbanization,

Term	Definition/Brief description
	industrialization, technological developments, governance, conflicts, trade, globalization, finance and information. Certain policies save for the Environmental Policy, Water Sector Policies, Land Policy and this Policy, are also known to cause pressure on land.
Prime farmland	High quality land which has been historically used for cropland or agricultural production as recognized by the Agricultural Act.
Rainfed agriculture	In rainfed agriculture, local rainfall, which falls directly on a given field is the predominant source of water for growing crops, trees or pasture on that field.
Reclamation	Any activity or procedure required to achieve compliance with a reclamation plan approved under NEMA regulations and/or a Parliamentary Act and appropriate rules and regulations based on this policy.
Reclamation Plan	Any activity or procedure required to achieve compliance with a reclamation plan approved under NEMA regulations and/or an Land Reclamation Act, and appropriate rules and regulations based on this policy. It may also be referred to as Management Plan.
Responses	Refer to actions undertaken or proposed to address impacts on different categories of land, including assessment of effectiveness.
Revegetation	Revegetation is a principal goal of reclamation and results in many desirable secondary water quality and aesthetic benefits.
Rills and Gullies	Rills and gullies or landslips or borrow pit sites range from small to large depressions caused in the land surface by widespread soil erosion uncontrolled running rainwater or by mining practices, and are predominant on slopes; and some gullies may occur on the spoil piles in mining areas and in ASALs of Kenya are known as *laghas*. The main concern is the water flowing in the gullies that often flow as a flood wave for a short duration of time. This type is normally called runoff from macro or external catchment. Rills and gullies result into disrupted land use and may be reclaimed by topsoil backfilling, regarding, stabilizing or surface drainage design with revegetation with specialized species able to tolerate the prevailing conditions before many of the original species can be restored.
Salinity	This describes the content of soluble salts in the soil. Salinity may be caused by the presence of salts in the soil or from irrigation water.
Salinization	The increased accumulation of excessive salts in land and water at sufficient levels to impact on human and natural assets (plants, animals, aquatic ecosystems, water supplies or agriculture).
State	This refers to observable values of land. A single or combination of indicators can be used to identify and measure the State of different categories of land.
Surface water	Water that is either flowing or standing on the surface of the earth.
Upland areas	With respect to alluvial valley floors, those geomorphic features located outside the flood plain and terrace complex, such as isolated higher terraces, alluvial fans, pediment surfaces, landslide deposits, and surfaces covered with residuum, mud flows or debris flows, as well as hilly/highland areas underlain by bedrock and covered by physical, chemical or metamorphosis residual weathered material or material deposited by sheetwash, rillwash, or wind.
Wastelands	These are lands that are desolate, barren, or ravaged, uncultivatable or without vegetation, often neglected, improperly managed, etc. Examples include abandoned quarries and open cast mine fields, land submerged under sand dunes, lands bombed in war, lands devastated by landslides or

Term	Definition/Brief description
	earthquakes, coastal lands invaded by sea water (e.g. during Tsunami episodes), etc.
Water control	The physical control of water by measures such as conservation practices on the land, channel improvements, and installation of structures for reducing water velocity and trapping sediments.
Water harvesting	Activities where water from rainfall and/or surface runoff is collected, stored and utilized.
Water logging	State of land in which the water table is located at or near the surface resulting in poorly drained soils, adversely affecting crops production. Drainage can be used to solve the problem.
Water resources	Is water that is available in rivers and aquifers, and having good quality to be used for human purposes.
Water resources management	The decision-making, manipulative, as well as non-manipulative processes by which water is protected, allocated, and/or developed.
Water scarcity	Water scarcity is a location specific concept that signifies the relationship between demand for water and its availability for a sector such as agriculture, industrial, urban settlement, among others. The higher the demand for usage the more likely the affected location shall experience water scarcity compared to another location even under similar climatic conditions without such demands. It can be measured in terms of 1000 m^3/year/person or more than 40% use relative to supply, below which, is a situation of severe scarcity.
Water shortage	Describes an absolute shortage where levels of available water do not meet certain defined per capita minimum demand or requirements. However this may differ from one place to another as may be determined by social, economic and environmental factors, specific to a given location.