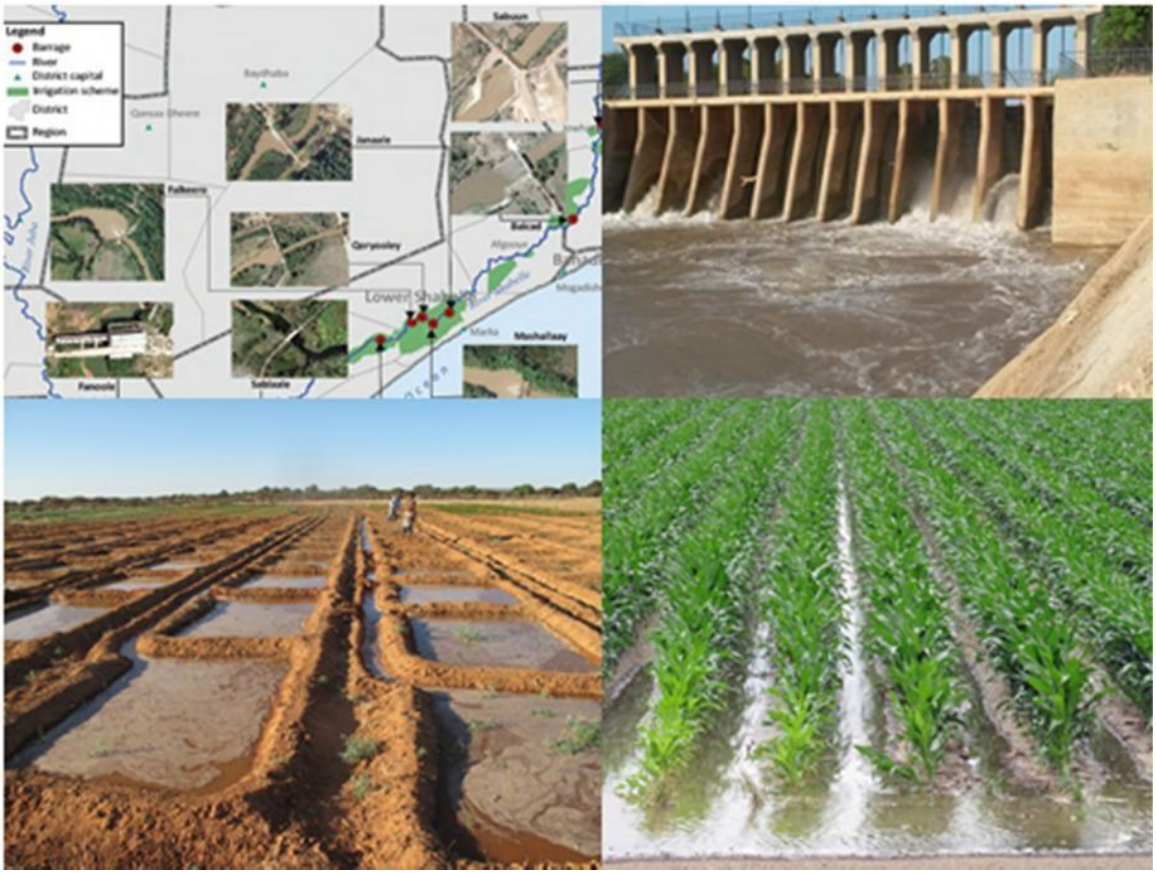
MINISTRY OF AGRICULTURE AND IRRIGATION

NATIONAL IRRIGATION POLICY



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FOREWORD

The Federal Ministry of Agriculture and Irrigation has the mandate and responsibility for management, development, coordination and reconstruction of Agriculture and Irrigation sector in Somalia whose institutions, and infrastructure and farms were destroyed during the years of civil strife. It is also mandated to establish an enabling environment that will encourage, facilitate and promote agriculture, value-addition, and agriculture business opportunities. Agriculture is the dominant sector of the Somalia economy and its performance is the major determinant of overall GDP growth rate. The sector has crucial role in ensuring food security, job creation, income generation and foreign exchange earnings. In fact, an estimated 70% of the country's population, more than 8.5 million, live in rural areas and derive their livelihoods from agriculture, livestock and related activities.

Currently, government gives emphasis to develop the irrigation sub-sector to fully tap its potentials by assisting and supporting farmers to improve irrigation management practices and the promotion of modern irrigation systems. As a result of the prolonged civil war, most of the prewar infrastructure for flood control and irrigation (embankments, gates, canals, and water reservoirs) has not been maintained and is not currently functioning adequately. On this basis, The Federal Republic of Somalia found it is necessary to enact the National Irrigation Policy due to the unregulated and mismanaged irrigation sector, traditional irrigation practices, and alarming water shortages in the Shabelle and Juba river basins.

Whilst recognizing the numerous challenges facing irrigation development, the overall goal of this policy is to contribute to sustainable economic growth and development by enhancing irrigated agricultural production. The policy focuses on four priority areas, namely; Institutional capacity development within the irrigation sector at both the National and State level, Rehabilitation of existing irrigation infrastructure and development of new schemes, Sustainable Irrigation Development and Management, and Irrigation Research and Information Management.

It is my firm conviction that the policy will be critical in attaining economic and social development of Somalia. It is pertinent, therefore, that all sectors of the economy play their respective roles to transform Somalia by being committed to the implementation of this Policy.

Hon. Said Hussein Iid
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Federal Government of Somalia

1.0 INTRODUCTION

1.1 Country Context

Somalia is a country situated in the Horn of Africa that covers an area of 637,660 km^2. It has the longest coastline on the African continent (3333.333 km) and its terrain consists mainly of plateaus, plains, and highlands. The country is bordered by the Gulf of Aden to the north, the Indian Ocean to the east, Kenya to the south, Ethiopia to the west and Djibouti to the north-west. The climate in Somalia is mainly arid to semi-arid, with an average annual daytime temperature of 27ºC. It is hot and dry in the interior and on the Gulf of Aden, but cooler on the Indian Ocean coast and inland on the river floodplains. The mean annual precipitation is 282 mm, with 50 mm along the northern coast, 150 mm in the interior plateau and 350-500 mm in the southwest.

The bimodal rainfall pattern has two rainy seasons, the Gu (April to June) and the Deyr (October to December), and two dry seasons, the Hagaa (July to September) and the Jilaal (January to March). The population relies on the long Gu rains and the shorter, but important, Deyr rains for agricultural production, pasture regeneration, and the replenishment of rivers, dams, and ground water supply. Traditionally, the Gu was the main rainy season. However, there has been a general decline in long rains, explaining the frequency of drought and floods in the Horn of Africa. Historical trends show that droughts occur regularly at intervals of 2-3 years in the Deyr and 8-10 years in consecutive Deyr and Gu seasons, extending seasonal hardships. Currently, there are recurrent droughts due to climate change and variability.

The agriculture sector is the backbone of the Somali economy. Agriculture is the dominant sector of the Somalia economy and its performance is the major determinant of overall GDP growth rate. The agricultural sector has a crucial role in ensuring food security, job creation, income generation, and foreign exchange earnings. Indeed, about 70% of the country's population lives in rural areas and derives its livelihood from agriculture and related activities. The agriculture sector is the key to addressing poverty and food insecurity. To meet these challenges, Somali agriculture must be transformed from traditional production to modern commercial and competitive production.

Some 3 million hectares are cultivable, almost 2.3 million hectares produces or could produce crops under rainfed conditions, and 700,000 hectares could produce crops under pump or recession-controlled irrigation, mainly along the two main rivers, the Shabelle and the Juba. It is important to highlight that almost two-thirds of cultivable lands, both rainfed and irrigated, is in the fertile areas along and between the two major rivers in the southern regions. A smaller cultivated area in the northwestern regions and some oasis and coastal cultivated areas in the northeastern regions constitute the remaining third.

1.2 Background

The Federal Republic of Somalia gives emphasis to develop the irrigation sub-sector to fully tap its potentials by assisting and supporting farmers to improve irrigation management practices and the promotion of modern irrigation systems. On this regard, the National Irrigation Policy (NIP) is the first edition of its kind developed in Somalia. The Federal Republic of Somalia found it is necessary to enact this policy due to the unregulated and mismanaged irrigation sector, traditional irrigation practices, and alarming water shortages in the Shabelle and Juba river basins. There is also a lack of coordination among various stakeholders, as well as a lack of advocacy and funding.

The NIP is in line with the aspirations of Somalis as reflected in the National Development Plan (2017-2019), the National Agricultural Strategic Plan (2016-2020), as well as the regional and international strategies and initiatives, such as the Comprehensive African Agriculture Development Programme (CAADP) and the Sustainable Development Goals (SDGs).

The policy recognizes the provisions of the draft constitution and other by-laws of the country. Above all, the policy seeks to provide guidance to all stakeholders in the provision of irrigation goods, works, and services, as well as interventions that will facilitate improved food security, increased nutrition, and sustainable economic growth and development.

The formulation and development of the National Irrigation Policy was based on the potential for the irrigation sector in contributing towards socio-economic growth through institutional capacity development. This will be done through strengthening the capacity

of the National and State Irrigation departments, rehabilitation of existing irrigation infrastructures (canals, sluice gates, culverts, barrages and reservoirs), sustainable irrigation development and management as drawn in the National Agricultural Strategic Plan and the National Development Plan.

1.3 History of Irrigation Context of Somalia

Historically, the Juba and Shabelle rivers have been used for irrigation by small scale farmers in Southern Somalia. Large-scale commercial irrigation was introduced during the colonial era (1880-1960) and irrigated bananas and fruit trees (limes) were the major crops. Irrigation development and management started in 1920 with the implementation of the Jowhar Sugar Estate and construction of the irrigation barrages along the Shabelle and Juba river basins, which ushered in a new crop production system based on commercial farming for export. During the 1960s through the 1980s, this area was the breadbasket of the country, and given an enabling environment, could well reduce the food dependency for the country. Irrigation water is extracted either by barrages with weirs controlling water flow into primary canals, or by pumped intakes drawing water from the rivers into primary canals that commandeer water into secondary canals.

The ten barrages on the Shabelle and Juba Rivers are probably the most significant forms of irrigation infrastructure in Somalia. They were constructed to increase the water depth in the river and divert the flow for irrigation purposes. The barrages were built of concrete with mechanical, metal gate structures that can be opened during flood conditions. Good topography permitted gravity irrigation through a network of canals. A total of nine barrages were built on the Shabelle River, and one on the Juba River. Irrigation development expanded gradually from the mid-1970s to 1990. Between 1980 and 1990, irrigated areas benefited from a well-established network of canals and drains, allowing a consistent supply of water that was supplemental due to scarce and unreliable rains. For many years, the fertile soils and climate had sustained good performance of both cash and food crops under irrigated conditions, while extra water was used for leaching practices that kept salinity build-up under control.

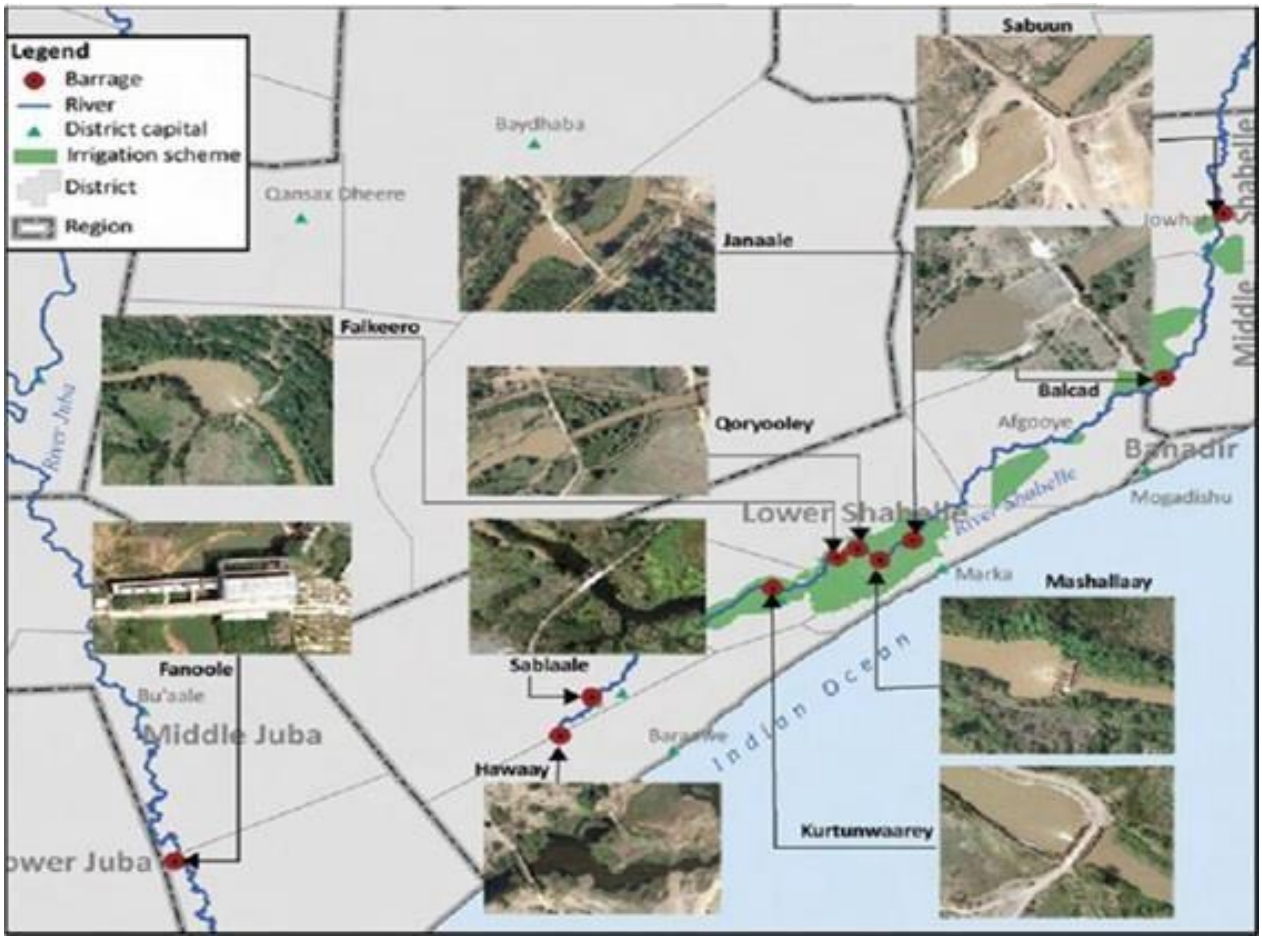

Figure 1.1 Map of geographical location of barrages and irrigation schemes

The Middle Shabelle region had some of the best irrigation and flood control infrastructure in the country. Gravity irrigation was frequently used; where it was not possible, pump irrigation was used. The Lower Shabelle region was one of the main producing areas for major export crops, such as bananas, grapefruits, and watermelons. Major infrastructure included seven barrages and various primary and secondary canals to facilitate gravity irrigation to large areas along the Shabelle River. On the other hand, the middle and lower reaches of the Juba River cut through rich alluvial soils, which made this region one of the most productive agricultural areas of the country. Pump irrigation was a common. The Fanoole dam and its associated infrastructure were the main gravity irrigation facilities in the Juba Valley.

In contrast to the infrastructure in southern Somalia, irrigation infrastructure of Northern Somalia was very limited. The development of date palm plantations was a major intervention in North-East. It included improvements in associated irrigation infrastructure through small canals that provide water from shallow wells or water springs to small-scale

farmers. Moreover, the development of soil banding, which was used mostly by sorghum farmers to conserve moisture and stop soil erosion, was among the few agriculture interventions in North-West.

Before the war, the Somali Ministry of Agriculture estimated that 222,950 hectares were the total irrigated area for both land under controlled pump irrigation and land under flood-recession irrigation. At the time of the civil war in 1991 there were a total of nine functioning barrages along the Shabelle and one along the Juba. Somalia had large-scale flood control and irrigation schemes, consisting of barrages, canals, and other infrastructure in the middle and lower reaches of the Juba and Shabelle rivers. The area equipped for irrigation was 200,000ha in 1984, of which 50,000ha full/partial control surface irrigation and 150,000ha spate irrigation. However, much of the infrastructure has deteriorated causing agricultural productivity to be well below potential. Of the remaining infrastructures, many are not in use due to lack of maintenance and most of the formerly irrigated areas are now used for rainfed farming and grazing.

1.4 Challenges of Irrigation Sector

The following are the key identified irrigation challenges in Somalia:

- Weak institutional capacity development at both the National and State level, including weakness and/or absence of irrigation systems, regulations, policy, and law enforcement.

- Excessive and unregulated irrigation water usage following the traditional flood irrigation system that is a common practice in Somalia. This leads to a considerable loss of water and can result in dryness of the river.

- There is continuous conflict between the farmers in the upper stream and lower stream areas of the rivers. This conflict is mainly due to a lack of water use management and regulations.

- Most of the irrigation canals are so badly silted up and choked with vegetation that they can only operate when the river is at its highest, thus greatly reducing the irrigated area of crops.

- Shortages of water also lead to conflicts when farmers block the canals and breach the banks for irrigation, thus depriving farmers further downstream of water.

- Presently, only a small part of the high potential areas along the floodplains of Juba and Shabelle is utilized for agricultural production. Hence, there is a great potential for expansion and development. The policy intends to support the migration of farmers from subsistence farming to commercialization.

- Traditional irrigation practices rather than modern irrigation technology in Somalia leads to using more water without consideration of crop water requirements.

- Lack of river embankment programmes and river maintenance since 1991, which results in frequency of flood and recurrent droughts.

- Silted up of primary and secondary canals in other irrigation networks.

- Lack of fully functional barrages along the Shabelle and Juba River Basins.

- Lack of irrigation committees at the National, State, and Community level.

- Lack of river basin authorities in the Juba and Shabelle River Basins.

- Lack of effective agriculture water resource management.

- Poor coordination of irrigation programmes and sustainable irrigation management and development.

- Poor water management in irrigation sector.

- Water shortages and insecurity.
- Poor shallow wells and dug/bored wells.
- There are plenty of water that is lost during the rainy season.
- It is crucial to carry out survey before digging the wells. This will help to recognize the availability of groundwater by using the meteorological data.
- Poor water catchments particularly stream water.
- Poor water management and poor storage systems in the irrigation sector.
- Limited technology utilization such as the use of the solar energy to reduce the cost of the fuel.
- Luck of maintenance of the irrigation infrastructures such as wells, dams and reservoirs.
- Lack of effective investment in the irrigation sector.
- Many shallow wells established along wadis were damaged by floods and abandoned. In order for local people with prior farming experience to restart farming, the rehabilitation of the existing shallow wells is one of the priorities, and its prompt implementation is required.
- The irrigation system using shallow wells are the high fuel cost for pump operation and damage by floods.
- The biggest constraint of irrigation systems using surface water is the instability of the water amount impounded in the pond or berkeds.

- In order to reduce agricultural water use and manage water resources effectively and efficiently, it is crucial to adopt the improvement of the irrigation techniques and also to select the appropriate crops.

- Lack of large-scale infrastructure, including dams, diversions for irrigation, and boreholes.

- Poor of community-level infrastructure, including berkeds, shallow wells, ponds, and other technologies, ensuring that a mechanism for maintenance is in place.

- Lack of embankments/gabions and check-dams to protect flood-prone areas.

1.5 Opportunities of Irrigation sector in Somalia

Agriculture is an important economic activity in Somalia not only in terms of meeting the food needs of the population but also in terms of generating income through crop sales and agricultural labour opportunities. With roughly 50% of population's cereal requirements are met through domestic production.

With an estimated 8.1 million hectares of fertile lands around the Shabelle and Juba rivers and surrounding regions, farming has the potential not only to cover domestic food demand, but also to play an important role in the export market. Moreover, millions of people depend on agricultural production for their livelihoods. Most of these are small subsistence farmers working in rain-fed areas. Commercial small and medium-scale irrigated farms situated alongside the two main rivers (Shabelle and Juba) also play an essential role in fulfilling the food gaps as well as contributing to the national economy. These commercial farmers produce commercial crops such as banana, sesame, lemon, grapefruit, mango, papaya, and other vegetables and fruits intended for local as well as international markets.

In dry lands, most of the irrigated agricultural farms are along the seasonal streams. Water is channeled directly from the springs and/or shallow wells constructed close to the streams in the valley bottoms. They also rely mostly on groundwater extraction, rainfall

harvesting, and moisture retaining techniques. The recent drought affected very large parts of these areas. Local farmers in these states, had already practiced small-scale surface irrigation as well as oasis farming in dry riverbeds or adjacent areas, using water pumped from shallow wells and in some cases by tapping the sub-surface river flow directing it through channels into the fields. These farms produce mainly fruits and vegetables for neighbouring villages and urban centres. Since the farmlands are established in areas where irrigation water is available, most of the farmlands exist along wadis. The farms established by individual residents are usually small and have shallow wells as irrigation water sources.

Shallow Groundwater is frequently pumped from shallow wells that are excavated in the beds or terraces of wadis at 5-7m depth. Seasonal changes of the water level and water volume are not large except in very severe series of drought. Constant use of the water for irrigation may be possible. Many shallow wells established along wadis were damaged by floods and abandoned. In order for local people with prior farming experience to restart farming, the rehabilitation of the existing shallow wells is one of the priorities, and its prompt implementation is required.

1.6 Rationale for Irrigation Policy

In Somalia, some 3 million hectares are cultivable, almost 2.3 million hectares produces or could produce crops under rainfed conditions, and 700,000 hectares could produce crops under pump or recession-controlled irrigation, mainly along the two main rivers, the Shabelle and the Juba. The water sources from both rivers offer employment, economic growth, and livelihoods for thousands of small scale and commercial farmers. Due to water shortages in the dry season, the rivers become a source of conflict between the farmers and the pastoralists who travel for miles in search of water for their livestock.

Food insecurity is the most challenging of the problems facing the country. There are many causes, including the collapse of irrigation infrastructures such as main canals, barrages and reservoirs along the river basins. To further compound the problem of water availability, over 99% of Somalia's total water withdrawal is used for irrigation purposes with river basins and groundwater resources currently over-burdened.

2.0 THE NATIONAL IRRIGATION POLICY AND STRATEGY

2.1 Policy Vision

An irrigation sector that is sustainable, dynamic, efficient, demand driven, and acting as the transforming force in the development and diversification of agriculture, to create national wealth and food security.

2.1 Policy Mission

The National Irrigation Policy provides a comprehensive framework that will usher in economic growth in the agricultural sector through a functional and high performing national irrigation system.

2.2 Goal and Objective of the Policy

2.2.1 Goal of the Policy

The overall goal of the National Irrigation Policy is to contribute to sustainable national economic growth and development through enhanced irrigated agricultural production and productivity.

2.2.2 Objectives of the Policy

The objective of this policy is sustainable best practice methods paired with attainable reforms that will lead Somalia to be economically successful. The objectives of the National Irrigation Policy will focus on:

- Strengthening and improving institutional and organizational capacity
- Developing and reforming irrigation practices throughout the country
- Gradual reforms that will establish national regulations and standards

- Promoting water use efficiency in communities through education and training, particularly women and those vulnerable to poverty

- Upgrades in the use of technologies that are cost-efficient and effective in reducing water use

- Access to information and participation in irrigation reforms for water-users

- Growth in opportunities for the private sector and communities within the irrigation sectors

- Promoting water use efficiency through strengthening the traditional water management systems

- Rehabilitation of irrigation hardware

- Water management plans during extreme weather events

- Development of seasonal rivers (waadi) that are used for irrigation purposes

- Development of groundwater resources for purposes of sustainable irrigation water

2.3 Policy Outcomes

The policy outcomes are:

- Strengthened institutional capacity of the irrigation sector in Somalia.

- Increased irrigated agricultural production and productivity.

- Improved agricultural water management through modern irrigation technology and efficiency of water use and management with regulations.

- Improved irrigation service delivery and increased employment opportunities.
- Improved water security of the Juba and Shabelle basins through irrigation development and management.
- Reduced conflicts and disputes that are related to irrigation sector
- Improved seasonal rivers (waadi) used for irrigation proposes
- Improved groundwater for purposes of sustainable irrigation water

2.4 Policy Priorities and Target Areas

In order to achieve the overall goal, the policy focuses on the following key four priority areas: 1. Institutional capacity development within the irrigation sector at both the National and State level, 2. Rehabilitation of existing irrigation infrastructure and development of new schemes, 3. Sustainable Irrigation Development and Management, and 4. Irrigation Research and Information Management.

2.4.1 Institutional Capacity Development

The development and management of irrigation schemes require adequate technical, administrative, and financial capacity, among others. The technical competence within the public and private sectors including training institutions and beneficiary communities is critical for sustainable irrigation development and management.

The main institutional capacity challenges include

- a lack of an irrigation master plan, irrigation law, irrigation strategic plan
- undocumented irrigation materials and training needs for irrigation stakeholders
- unavailability of national irrigation standards, code of practice and guidelines for irrigation development,

- inadequate availability of irrigation expertise
- lack of irrigation research center/institute and extension services,
- lack of heavy machineries for irrigation and river embankment,
- Inadequate irrigation service providers.

Organized governance is needed for the development and growth of the irrigation sector. The Federal government must strengthen capacity building and fill in the missing gaps in the services provided by the private sector, community workers, donors, and others. The capacity of all relevant parties must be further developed by initiatives between the federal, regional, and local governments in partnership with water users.

2.4.1.1 Policy Strategic Objective

To develop systematic trainings, improve the technical competence within the public and private sectors, including training institutions and beneficiary communities, and get heavy machinery supply for irrigation and river embankments.

2.4.1.2 Policy Statements

The policy will therefore:

- Develop and implement an irrigation master plan through community engagement and needs.
- Develop and improve training programmes (including on job training) to address capacity gaps in the public and private institutions, including training institutions.
- Develop irrigation standards, code of practice and irrigation development guidelines, and ensure that these are adhered to by all irrigation stakeholders.

- Ensure that there is a greater presence of irrigation experts at the National, State, district, and village level.

- Develop and adapt irrigation technologies and best practices, taking into account the financial and technical beneficiary limitations, and disseminate through a robust extension system.

- Encourage irrigation stakeholders to acquire the necessary equipment and irrigation technologies.

- Encourage registration of irrigation service providers (i.e. consultants and contractors) with relevant professional bodies.

- Facilitate farmer training programmes so as to transform the mind-set of farmers from using traditional irrigation practices to using modern irrigation technology, and from subsistence to commercial irrigation.

- Establish a National Irrigation Board that will usher in a PPP with the inclusion of all water users.

- Develop and improve upon existing training programmes with an emphasis on targeting the public and private sectors.

- Expand technical abilities of government staff in the planning, design, monitoring, and evaluation of all areas of the irrigation sector.

- Provide easy access to the planned national database on water use in the irrigation sector.

- Create a standardized national code of practice and guidelines in order to sustain irrigation reforms.

- Encourage a working relationship between irrigation experts and farmers with an emphasis on the dissemination of crucial information such as sustainable methods.

- Expand and reinforce the role of government institutions in the development and growth of the irrigation sector.

- Establish water user associations in all communities with particular attention to small-scale farmers.

- Coordinate a dialogue between associations, particularly the groups that are upstream and downstream of one other, as well as agriculturalists and pastoralists.

- Involve all stakeholders, including user group representatives, in policy reform discussions and decisions with government representatives.

2.4.2 Rehabilitation of Existing Irrigation Infrastructure and development of new schemes

Since the collapse of the central government of Somalia, almost over half of the irrigation infrastructures are not functional due to the collapse of irrigation systems, including canals, barrages, culverts, and sluice gates. Most of the irrigation canals are so badly silted up and choked with vegetation that they only operate when the river is at its highest, greatly reducing the irrigated area of crops. Another result of the non-functioning canal system is the breaching of riverbanks by farmers to obtain irrigation water, which is resulting in uncontrolled flooding and wastage of water. Crops irrigated in this way are unlikely to get a second irrigation water application. Shortage of water also leads to conflict when farmers block the canals and breach the banks for irrigation, thus depriving farmers further downstream of water. Rehabilitation and maintenance of canals, diversion structures and off-takes are very necessary and critical.

Somalia's irrigation infrastructure is in need of comprehensive rehabilitation. Prior to the Civil war, it was estimated that the irrigation potential was approximately 240,000 ha. However, only 65,000 ha of agricultural land is currently under cultivation.

2.4.2.1 Policy Strategic Objectives

To rehabilitate existing irrigation infrastructures/schemes, including canals, barrages, sluice gates, and reservoirs, to increase agricultural production and productivity and reduce the recurrent drought and flood in Somalia.

The Policy Statement:

i. Identify and update rehabilitation requirements for all major irrigation schemes using a standardized system of data collection.

ii. Restore structures in stages with focus first on the most problematic areas.

iii. Engage water users and the respective organizations in the rehabilitation efforts and provide training for infrastructure operation and maintenance.

iv. Educate water user organizations on the consequences of negative environmental conditions on irrigation structures.

v. Rehabilitate priorities of irrigation infrastructure such as canals, sluice gates, barrages, and reservoirs to restore the physical status and functioning of canals to develop and expand overall irrigation infrastructure and to increase the yield of the crops for both subsistence and commercial purpose.

vi. Support and encourage the mobilization of financial resources for the rehabilitation of irrigation infrastructures and facilitate the establishment and operationalization of the Irrigation fund to finance irrigation projects.

vii. Promote the effective management and system utilization of water resources for agriculture.

viii. Support and encourage the application of environmental and social impact assessments for the rehabilitation of the irrigation infrastructure.

xi. Support and encourage the private sector, Civil Society Organizations (CSOs) and beneficiary community participation in the irrigation sector.

2.4.3 Sustainable Irrigation Development

Sustainable irrigation development entails construction of new infrastructure to put more land under irrigation. The irrigated area has been reducing steadily since the collapse of Somali central government in 1991.

The development of irrigation has been less than the desired level due to a number of factors, including a lack of financial resource mobilization, un-harmonized irrigation development activities, environmental and land degradation, and limited participation of stakeholders.

Currently, the irrigation water use efficiency is low compared to prewar in Somalia. Flood irrigation, the traditional method used to cultivate crops, has resulted in minimum productivity and loss of crops.

2.4.3.1 Policy Strategic Objective

To develop more irrigation infrastructures and put more land under irrigation in order to achieve sustainable development of irrigation infrastructure and create a financial resource mobilization unit.

2.4.3.2 The Policy Statement:

i. Introduce and test low-impact, simple systems, such as drip irrigation, in randomized sectors.

i. Promote conjunctive use of groundwater, rainwater, and treated wastewater through educational workshops.
ii. Research the applicability and effectiveness of water storage systems, such as artificial swales and wet season run-off.

iv. Use demonstration plots when necessary to introduce water users to efficient technologies and methods.
v. Support and encourage the mobilization of financial resources for irriga-tion development and management.

vi. Facilitate the establishment of the Somali National Irrigation Committee and that will advise government and stakeholders on policy matters relating to irrigation and drainage.

vii. Facilitate the establishment and operationalization of the Irrigation Fund to finance irrigation development projects.

viii. Support the implementation of the Irrigation action plans mentioned in the National Development Plan and the National Agricultural Strategic Plan.

ix. Support and encourage the application of environmental and social impact assessments and implementation of environmental management plans.
x. Support and encourage the private sector, Civil Society Organizations (CSOs), and beneficiary community participation in irrigation development through provision of irrigation development support and extension services in aspects such as feasibility studies, design, and construction.

xi. Facilitate development of water resources for sustaining water availability throughout the irrigation season.

2.4.4 Sustainable Irrigation Management

The management of irrigation projects is affected by a number of challenges thatinclude the lack of Shabelle and Juba River Basin irrigation system maintenance, which impacting the availability of water resources, beneficiary community unwillingness or capacity limitations to operate and maintain the systems, irrigation challenges, land tenure issues, and lack of irrigation extension services, which cause loss of systems capacity.

The developed areas of irrigated schemes should be well managed to sustain productivity. The beneficiary community should operate and maintain the infrastructure so that the designed capacities are maintained to support desired crop production levels.

2.4.4.1 Policy Strategic Objective

To develop sustainable irrigation management that can prevent degradation of the land and environment through river basin management, which will increase the availability of water resources. To maintain the infrastructure by the beneficiary community so that the designed capacities are maintained to support desired crop production levels and strengthen irrigation extension services.

2.4.4.2 Policy Statements

The policy will therefore:

i) Encourage the establishment of River Basin Authority and promotion of watershed management practices for the benefit of irrigating and non-irrigating communities.

ii) Empower farmer organizations through technical and administrative knowledge to ensure effective community participation.

iii) Establish irrigation committees at the village level and a water user association for effective water use and management.

iv) Explore alternatives to the handling and marketing of farmers' produce for maximum profitability of irrigated crops.

v) Strengthen extension services for irrigated agriculture through awareness and outreach of irrigation technologies.

vi) Support beneficiary communities where major rehabilitation is needed through upgrades or the modernization of irrigation infrastructure.

2.4.5 Irrigation Research and Information Management

Despite the well-elaborated importance of irrigated agriculture for crop production, productivity, and profitability, appropriate interventions including research are not yet being pursued in those areas. There is no comprehensive research in the irrigation sector to ensure proper planning, design, development, management, operation, and maintenance of irrigation schemes. Consequently, there are few appropriate recommendations that integrate water and other resources relevant to irrigated agriculture.

Due to a shortage of irrigation research scientists, inadequate funding, and a lack of appropriate irrigation research facilities and equipment, research activities undertaken by institutions in the country do not adequately address irrigation issues. Research activities undertaken before the collapse of the central government in 1991 cannot provide required technological support for improvement of productivity and profitability.

With the help of international agencies and institutions, pertinent data and information related to irrigation statistics for Somalia is variable.

Creating an irrigation information management system is crucial in Somalia. The aim of the work is to set up a comprehensive countrywide Information System for Irrigation. The system combines the existing and available information on Somalia, focusing its attention on the two river plains that are the most significant agricultural areas. In spite of the lack of some detailed data, the present Information Irrigation System can be considered a first effort to build up a useful tool to control, plan, manage, and monitor the land. In this

prospect, the main tasks of the work will be collecting all the existing and available information of Somalia and critically evaluate the usefulness of this information in the context of the future system.

2.4.5.1 Policy Strategic Objective

To introduce and strengthen research and information on irrigation development and management, whose findings will contribute towards the attainment of optimal irrigation efficiency, provision of information on new and appropriate technologies for irrigation practices that lead to more crop production, and sustainable productivity in irrigated agriculture.

2.4.5.2 Policy Statements

In order to achieve the above objective, the following will be undertaken:

i) The establishment of an irrigation information management system.

ii) Launch a program with the support of the federal government where state members compile collected data on water use, extreme weather event patterns, and irrigation efficiency into a national database.

iii) Provide continued training for relevant staff at data centers to improve irrigation water management analysis.

iv) Work in conjunction with relevant agencies and institutions to promote data collection of newly introduced practices and cost-efficient technologies.

v) Educate farmers on observed patterns of water use in regional irrigation schemes.

vi) Ensure that research in irrigation is initiated and sustained with a focus on enhanced performance of irrigation interventions.

vii) Support and coordinate irrigation research for irrigation development, with the aim of improving land and water productivity in a sustainable manner.

viii) Ensure that irrigation research findings are properly documented for the purpose of utilizing the already compiled technical information.

ix) Promote and institutionalize a mechanism for the coordination and dissemination of irrigation research findings.

x) Initiate and strengthen irrigation research in collaboration with relevant stakeholders, which includes local and international research institutions.

3. INSTITUTIONAL ARRANGEMENT FOR POLICY IMPLEMENTATION

3.1 Roles and Responsibilities at Different Levels

3.1.1 National Level

The Ministry of Agriculture and Irrigation is responsible for the implementation and coordination of the National Irrigation Policy. The National Ministry works in close collaboration with the State Ministries of Agriculture and Irrigation and in partnership with pertinent stakeholders. Stakeholders include donors, implementing agencies, the private sector, academic and research institutions, and civil society organizations.

The Ministry of Agriculture and Irrigation has the lead mandate for the implementation of the National Irrigation Policy. The Ministry will determine policy orientation and development, and from time to time, review the policy and legislation, and prepare a conducive environment for sectoral coordination and integration. It will take into account the availability of different legal and regulatory frameworks and standards, which depend on legislation, regulations, and procedures for irrigation development. This policy recognizes different sectoral policies, as they are important in achieving its objectives.

The implementation of this policy will be harmonized with other sectoral policies and coordinated with the work of different stakeholders interested in the development of the irrigation sector. The Ministry will provide technical services to the state level Ministries.

The Ministry will undertake awareness raising and advisory services to Federal Member State (FMS), irrigation committees, water user associations (WUA), and the private sector on all aspects of irrigation development, research, and capacity building. It will also provide technical backstopping on studies and detailed designs of irrigation infrastructure, preparation and processing of tender documents for irrigation schemes, construction and supervision of irrigation infrastructure, service provision to the users of irrigation investments, and advisory services to private sector in irrigated agriculture. The Federal Ministry will, in collaboration with the relevant Federal Member States' Ministries, promote Integrated Water Resources Management in the Basins.

The Ministry will be at the center of irrigated agriculture development. As such, the Ministry will be responsible for ensuring close coordination amongst various Ministries/agencies such as: the Ministry of Energy and Water Resources, the Ministry of Livestock, Range, and Forestay, the Ministry of Fishery and Marine Resources, the Ministry of Humanitarian Affairs and Disaster Management, the Ministry of Interior, the Ministry of Planning, Investment Promotion, and Economic Development, and the Ministry of Public Works and Reconstruction, among others.

To ensure the success of reforms, particularly those that encourage technologies and methods not traditionally used by farmers, it is imperative that policies be implemented systematically. Strategies should be supported by evidence and research as this will induce water users. Furthermore, deploying a phase system that targets changes by the ranking of the most critical problems will allow for the gradual introduction and implementation of policy reforms.

Any and all development of irrigation reforms will be undertaken in conjunction with water user organizations and representatives from the private sector. The development, rehabilitation, and execution of schemes and technologies will include the full participation of farmers dependent on irrigation.

The procedural and evaluation strategies for the policy focus areas will be undertaken with support from water user organizations, donors, and all relevant institutions, agencies, and private sector partners. The main areas for coordination will include:

- Survey and assessment of irrigation sector
- Promotion and planning of irrigation development and management in potential areas
- Promotion of irrigation technologies
- Promotion of integrated water resources management

- Capacity development for the irrigation professionals and experts
- Irrigation research, extension, and studies
- Sensitization and beneficiary mobilization
- Irrigation water management practices

3.1.2 State Level

State governments will play an increasingly important role in the implementation of the National Irrigation Policy. The State governments have been given the responsibilities of developing and implementing irrigation development interventions by outsourcing expertise from the public and private sector. The FMS have the major role of assisting farmers in the overall process of the identification, implementation, and management of irrigation schemes.

The FMS will be responsible for the preparation and enforcement of irrigation by-laws and the establishment and maintenance of database for irrigation development. Furthermore, the FMS will be responsible for training staff and irrigators on issues related to irrigation development at the district and village level.

3.1.3 Private Sector

Private sectors could play a crucial role in irrigation development and management in Somalia. Since the collapse of the central government of Somalia in 1991, the country changed from public to full private sector involvement in different sectors including irrigation agriculture therefore this policy gives consideration for the involvement and participation of irrigation management and development.

3.1.3.1 Consultants and Contractors

a. The capacity in planning, designing, and implementing irrigation projects in the private sector will be improved through contractual services.

b. The private sector will become more involved in irrigation activities that include carrying out studies, surveys, design, and construction work.

c. Consultants (both national and international) will be engaged with clear Terms of Reference (ToRs). No foreign consultant shall work in the irrigation sector without partnering with national consultants who are registered with the National and State Ministries. In addition, at least 30% of key personnel shall be Somali nationals.

d. After detailed designs and engineering works are completed, contractors registered with National and State Ministries will work together to complete projects. This will combine their funds and implementation timeframes. Foreign contractors will be encouraged to form joint ventures with local contractors.

3.1.3.2 Equipment and Spare Parts Suppliers

a. The private sector and CSOs will be encouraged to increase stocks of new irrigation equipment, spare parts of acceptable standards, and provide training to farmers and communities who purchase equipment if necessary.

b. Pricing mechanism of equipment, spare parts, and services will ensure affordability by the smallholder farmers.

3.1.3.3 Credit and Banking Institutions

a) Credit institutions will be encouraged to respond to the needs of small-scale irrigation beneficiaries by providing affordable credit facilities for agricultural inputs acquisition through their legal community organizations.

b) Banking institutions will be encouraged to recognize the local community organizations for purposes of providing credit for capital development using terms that are affordable to the small-scale irrigation farmers.

3.1.3.4 Commercial and Large-Scale Farmers

a. The commercial and large-scale farmers will be encouraged to share their experience in irrigated agriculture for the benefit of the smallholder farming communities.

b. Contract farming will be one of the alternatives to absorb the extra labour and also provide estates with alternative land management.

c. Large-scale farmers will take on the added responsibility of acting as centers where the surrounding community can access farm inputs, provide storage and/or processing facilities of farm produce, and as marketing outlets of farm produce.

d. Large-scale farmers will be encouraged to invest more in irrigated agriculture.

3.1.3.4 Civil Society

Efforts will be made to promote CSOs-development partner collaboration. The private sector and CSOs will also be encouraged to provide services, equipment, and materials for development of irrigated agriculture. Their involvement will encompass community level support including:

- Capacity building
- Demonstration of irrigated agriculture
- Implementation of small-scale irrigation projects
- Networking for the transfer of irrigation technology

- Promotion and management of labour saving technologies

- Assistance to the Ministry responsible for agriculture and irrigation development in the distribution of agricultural inputs

A platform for dialogue with CSOs will be established and an enabling environment will be created for these dialogues to operate effectively through involvement in irrigated agriculture programmes. In addition, cooperation shall be established with CSOs to avoid duplication of efforts and to encourage them to participate in the implementation of the national program for irrigation development.

3.1.3.5 Agriculture Cooperative Union

The National Agriculture Cooperative involved in irrigation will be required to participate in the sector of planning and review of the irrigation sub sector for effective information sharing.

3.1.3.6 Development and Implementing Partners

Non-Governmental Organizations are encouraged to support the pilot programmes and will encourage greater support to Agriculture Cooperatives through government and donor funding. All cooperatives embarking on the development of irrigation projects shall have to pass their plans through the Department of Irrigation to ensure adherence to standards and specifications. In addition, their work will be subject to monitoring and evaluation by DoI. Implementing partner expectations are as follows:

a. The support from development partners for development of irrigation will be directed by the policies and strategies outlined in this policy.

b. The Federal Government of Somalia will indicate areas of priority for funding to development partners. At the same time, they will outline their areas of interest in order to harmonize national needs with preferred areas of support.

c. Development partners will have to coordinate, among themselves, support rendered to the irrigation sector, and to this effect, there is a need for a coordinator from FGS for irrigation funding.

d. An Irrigation Fund (IF) will be set up for effective investment in irrigation development with contributions from FGS and development partners.

e. FGS will be responsible for managing the fund by directing irrigation investment programmes.

4. COORDINATION, MONITORING AND EVALUATION

4.1 Coordination Process

It is important that all actors of this policy are coordinated throughout implementation. The Ministry responsible for the development of irrigation is responsible for coordinating all stakeholders of this policy. The agricultural and irrigation sector Lead Ministries at the Federal and State level have an important role to play in ensuring a holistic approach in the implementation of the policy. Proper coordination on the implementation will lead to awareness of stakeholders to accrue a number of benefits, which include integral and optimal utilization of the efforts and resources from all players. This will avoid duplication of efforts amongst the stakeholders, conflicts on the use of resources and interventions, and ensure a holistic approach to land and water resource development and integrated water resource management.

4.2 Monitoring and Evaluation

The Ministry of Agriculture and Irrigation will be responsible for monitoring and evaluation by overseeing a quarterly report of policy reform implementations shared with all relevant stakeholders. Institutions, agencies, and water user organizations will be responsible for sharing results with regional representatives appointed by the Ministry.

Following each report, a review will be conducted by relevant appointees within the irrigation sector in order to advise on necessary solutions and to implement the next phase of a policy focus area.

The policy shall be reviewed and revised as necessary on an annual basis for the first five years. If significant improvements, stagnations, or failures occur in a focus area, modifications may be made following the recommendation of the Ministry of Agriculture and Irrigation.

The implementation of the policy will be monitored through a monitoring and evaluation system with a necessary feedback mechanism so as to effectively track sector

performance indicators. Joint Sector Review meetings will be used for information sharing and effective engagement of stakeholders in irrigation development.

The Ministry responsible for irrigation will coordinate and lead the monitoring and evaluation process of the policy and ensure timely reporting and dissemination of results. An Irrigation Monitoring and Evaluation Systems Report will be prepared annually. All agencies implementing programmes relating to this policy will report periodically to their respective coordinating bodies. The Monitoring and Evaluation Systems results will be used to inform all irrigation stakeholders to influence programme planning and design processes, as well as resource management.

This Policy will be reviewed based on a five-year cycle as established in the policy formulation process. However, this policy, or parts of it, may be amended if there are significant changes in the operating environment during the course of its implementation. The Ministry responsible for irrigation will review the policy.

4.3 Cross-Cutting Issues

Proper management of water resources used in the irrigation sector is critical in light of embedded factors that exacerbate problems related to access. For rural communities that have limited resources to begin with, cross-cutting issues must be taken into account when implementing and evaluating policy reforms. The issues identified are:

i. Extreme Weather Events

ii. Health

iii. Conflict and Security

iv. Illiteracy