

LAND AND WATER MANAGEMENT IN LIBYA

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Project focal point

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Regional gathering
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ITALIAN AGENCY
FOR DEVELOPMENT
COOPERATION

BASIC FACTS

Libya is one of the driest countries in the world

Average annual rainfall is 26 mm

Only 7% of the total area receives rainfall > 100 mm

Rain-fed agriculture is highly unreliable

Irrigation application rates
16,500 m³/ha (south)
6,500 m³/ha (north)

Total renewable water resources: 820 Mm³/yr

Total withdrawals 4309 Mm³ in 2020 mainly from reserve

80% of total withdrawal is used for agriculture

**Total irrigated area
371,000 ha (2020)**

**73% of total
irrigated agriculture
is in the northern
plains**

**Libya relies heavily on
imports to match food
requirements.**

**Agr. imports in 2017
cereals 27.4%,
live animals 15.6%,
dairy products 11.7%**

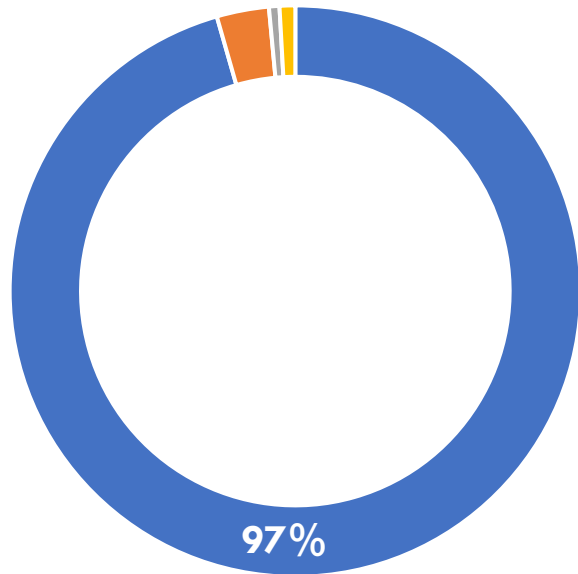
**The value of food
imports represents
25% of total imports
(2017)**

**The contribution of
the agricultural
sector to GNP
0.83 % (2010)
0.74% (2012)**

**severe food insecurity
was 16.8% in 2017-
2019 compared to
11.2% in 2014-2016**

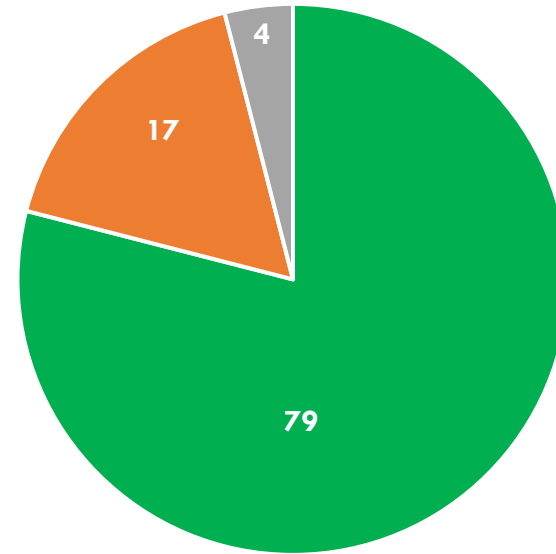
**Only 14,000 worked
in agriculture in 2013
0.8% of the total
workforce**

MAIN SOURCES OF WATER (%)



■ Groundwater ■ Surface water ■ Desalination ■ Treated WW

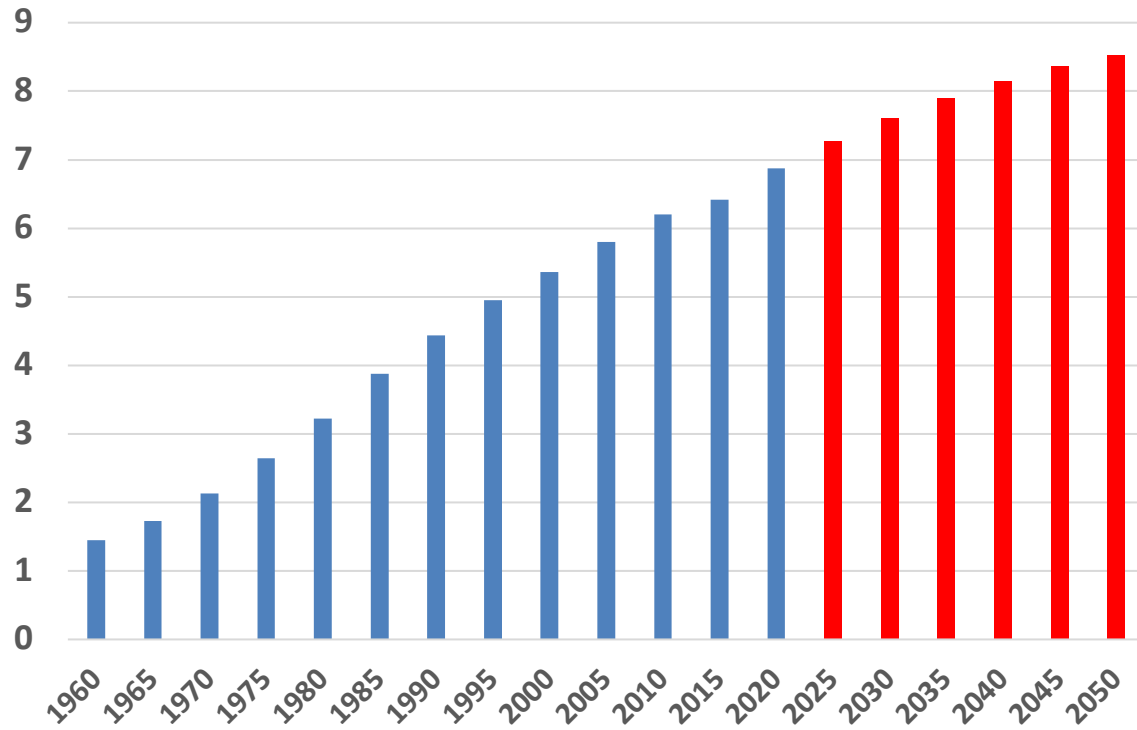
CURRENT WATER USE (%)



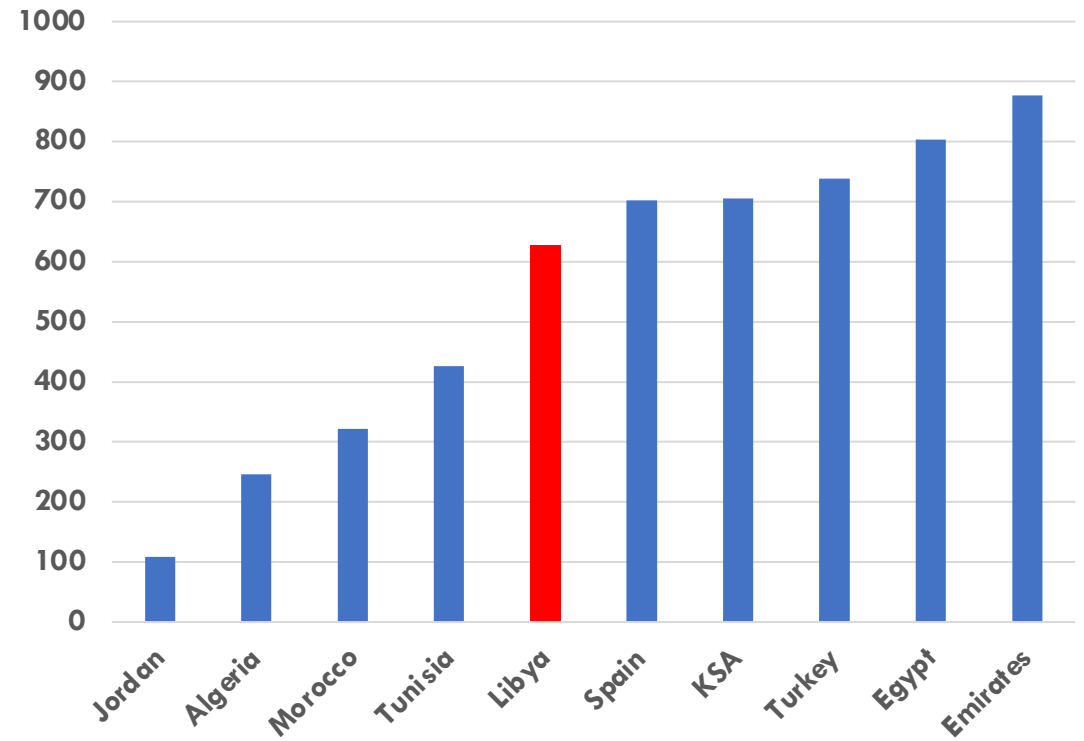
■ Agricultural ■ Municipal ■ Industrial

POPULATION TREND & PER CAPITA WATER USE

Population in millions

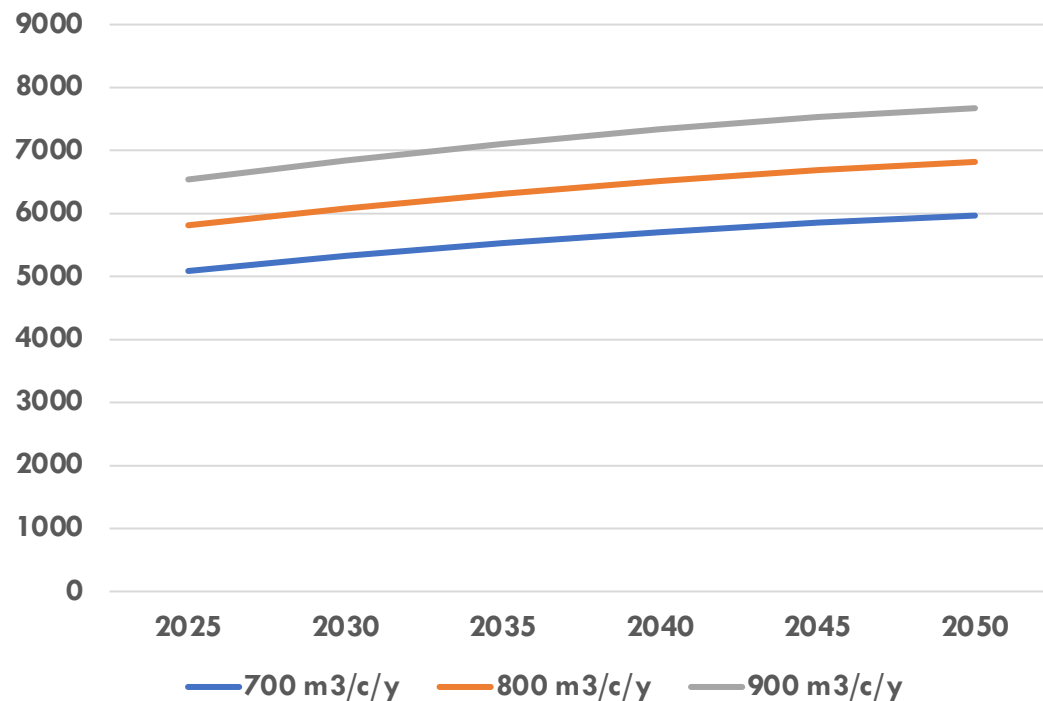


Per capita share of water used (m³/c/y)

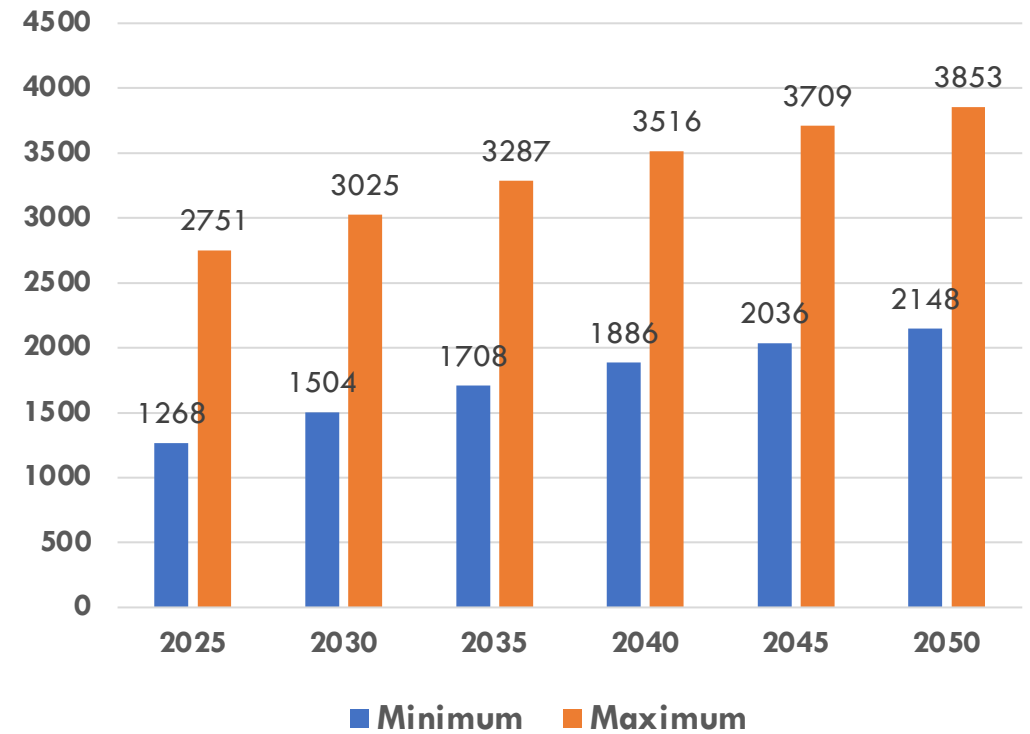


FUTURE WATER BALANCE DEFICIT (MM³/Y)

Future Demand



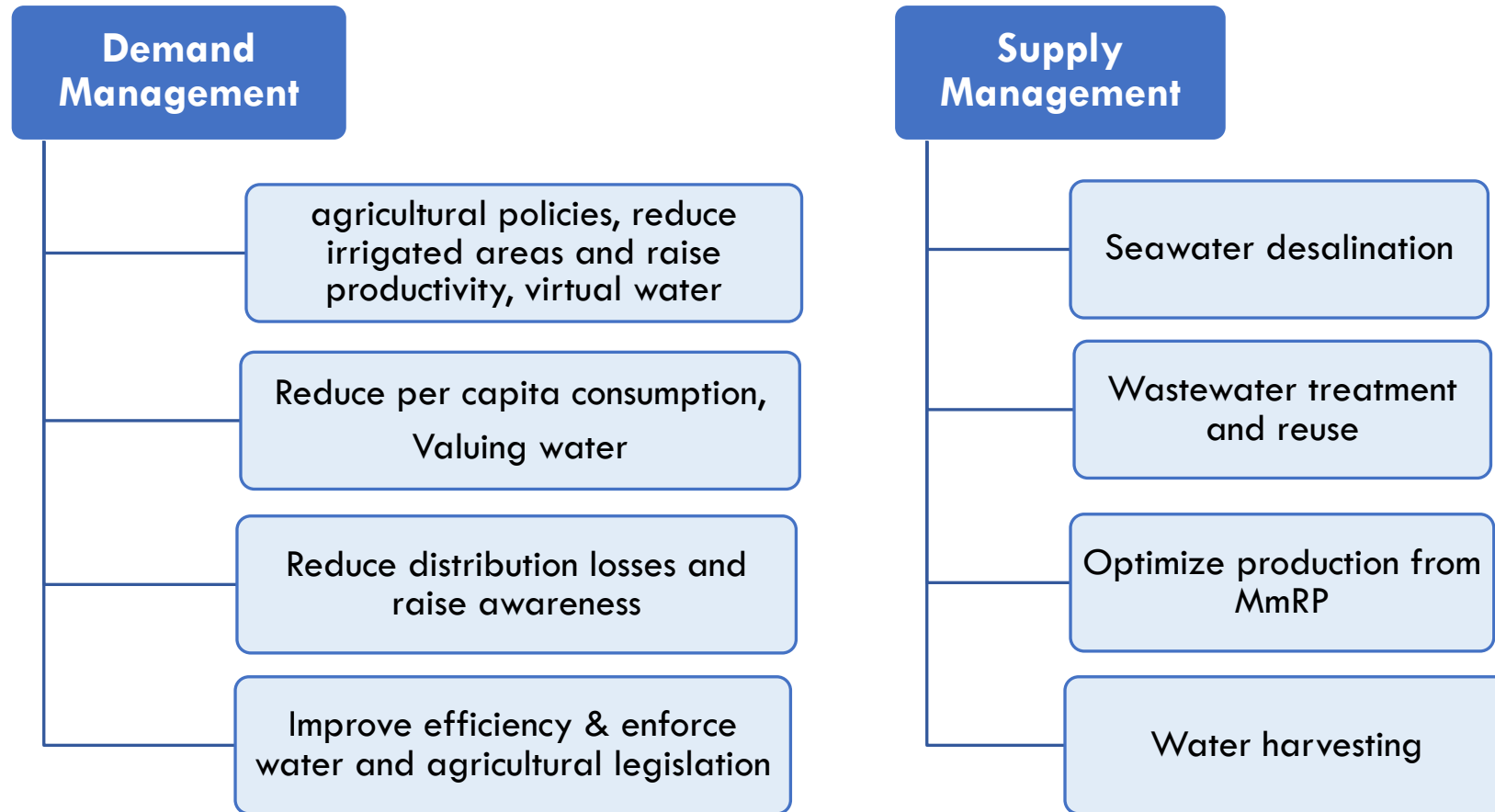
Water balance deficit



CONSTRAINTS & CHALLENGES OF THE WATER SECTOR

- **A growing gap between water supply and demand;**
 - **A growing water demand caused by demographic growth;**
 - **A growing agricultural water use;**
 - **Considerable water losses in the municipal and irrigation distribution systems;**
 - **Depletion of coastal groundwater aquifers, and continuous advances of the seawater intrusion front**
- **Disruption of operation and maintenance of the hydraulic infrastructure**
 - **Insufficient funds, ineffective water pricing, and irregular billing;**
 - **Overstaffing**
 - **Gaps in water resources monitoring, evaluation, and data gathering;**
 - **Absence of long-term planning and lack of coordination between sectors,**
 - **Ineffective institutional and regulatory frameworks**

MEASURES TO REDUCE WATER BUDGET DEFICIT



WATER RESOURCES STRATEGY 2000 – 2025

Objectives

- Reducing the water budget deficit
- Reducing the rapid deterioration of water quality

Action plan

- Development of non-conventional water resources
- Protection of water resources
- Recovering the cost of providing water
- Strengthening human and institutional capacities
- Developing and updating water legislation
- Reducing per capita use & improving water use efficiency
- Reconsidering agricultural policies and MmRP water allocation
- Promoting technical cooperation
- Regulating population growth

URBAN WATER & WASTEWATER STRATEGY 2007 –2025

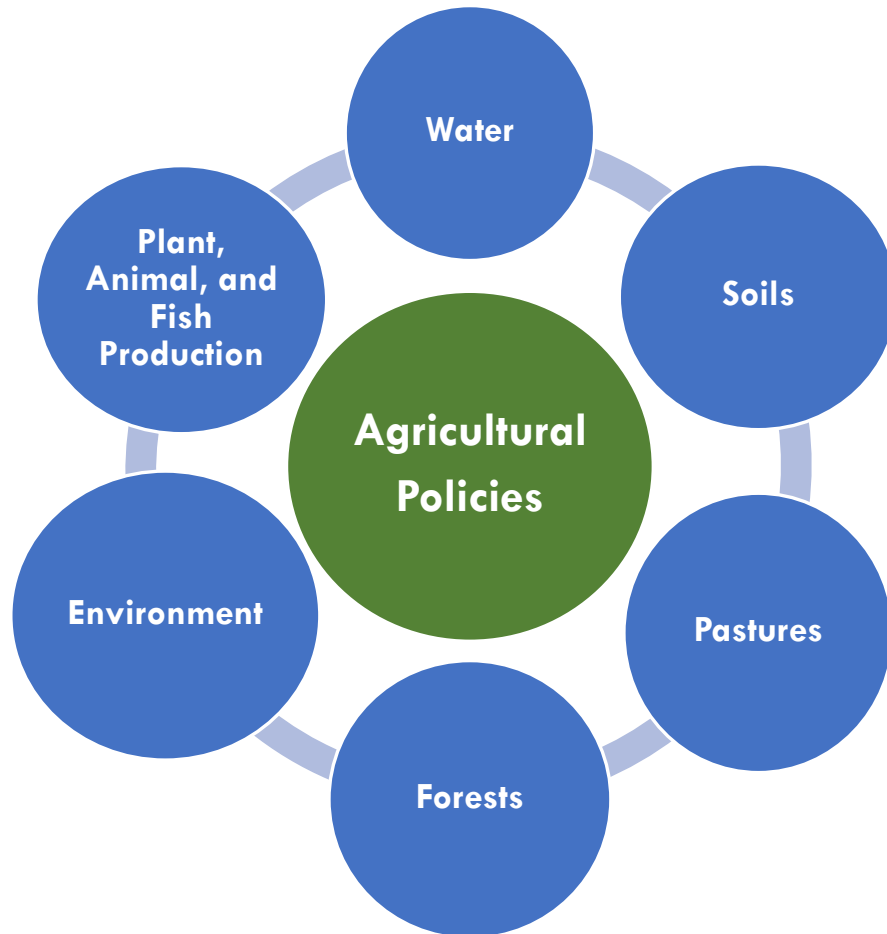
Demand:

- **Initiate a Consumption Management Programme (CMP) for bringing down consumption per capita in the long-term**
- **The long-term target for Supply per Capita (SPC) should be set around 250 l/c/d**
- **Coverage and reliability of supply should be raised to cover 90%+ of the population**

Supply:

- **Coastal wells need to be phased out**
- **GMMR supply maximized for regions that would only require feeder lines**
- **Desalination for coastal areas when the GMMR option becomes too expensive**
- **Adequate backup should be made**
- **Quality of water should be improved**

AGRICULTURAL POLICIES REPORT (2003)



KEY MESSAGES

- Sustainable agricultural development is directly dependent on the available natural resources;
- Increasing agricultural production through optimal use of natural resources without the need for horizontal expansion;
- The prevailing natural conditions do not allow for achieving self-sufficiency in some plant and animal products;
- Cultivation of high economic value crops to maximize the return per unit of water of MmRP;
- Encourage private sector participation;
- Developing a national program to combat land degradation and desertification.

POLICY ISSUES AND PROPOSED ACTION

Soils

- **Total agricultural areas: 3,645,000 ha (78% NW, 21% NE, 1% South)**
- **Areas under 200 mm rainfall: 3 Million ha, of which only 1.3 Million ha is arable (land capability classes I to IV)**
- **Land used for agriculture (2006): 2.1 Million ha, 29% irrigated or equipped for irrigation**
- **Pastoral lands: 13 – 15 Million ha**

Action Plan:

- **Land uses according to its productive capacity**
- **Protection of existing agricultural lands**
- **Developing a national program to combat land degradation and desertification aiming at:**
 - **Public participation in combating desertification.**
 - **Promoting regional programs and international cooperation in combating desertification.**
 - **Establishing specialized institutions in desertification**
- **Raise public awareness**
- **Support and encourage agricultural research**

Pastures

- 50% of pasture areas fall between 50 and 100 mm/year, which makes it very dry.
- Total forage productivity of the natural pastures north of the 50 mm line was estimated at about 517 million fodder units per year, or 16 % of the nutritional needs of all major animals (sheep, goats, cows, and camels) (2003)
- This deficit is provided at the expense of the pasture's production capacity resulting in overgrazing and deterioration of pastures

Action Plan:

- Reducing the current numbers of sheep and goats and focusing on their productivity
- Developing means of inventorying natural pastoral lands
- Create protected areas to produce seeds and to experiment and test processes
- Agropastoral integration
- Improving research conditions.
- institutional structure
- Develop appropriate legislation

Plant, animal, and fish production

- The climate and soil conditions of the northern regions are suitable for most vegetable crops but the availability of water is the determining factor for their cultivation.
- Winter crops are rainfed with supplementary irrigation and summer crops need full irrigation.
- The climate of Libya is predominantly moderate in the northern and mountainous regions and is suitable for growing many fruit trees.

Action Plan:

- Vertical expansion of the areas currently cultivated under irrigated and rain-fed systems for grains, fodder, and legumes.
- Leave barley cultivation to the private sector.
- Cultivation of fodder under the rainfed system in rainy areas and cultivation of limited areas of summer fodder.
- Due to the high cost of MmRP water, cultivate crops with high economic value to maximize return per unit of water.

Plant, animal, and fish production

- Cereals and fodder crops (oats) can be grown in areas of more than 250 mm/year, but often uneconomic and subject to failure due to fluctuation, and poor distribution of rainfall.
- Increasing production of cereals can only be achieved by vertical expansion under irrigation.
- Not possible to achieve self-sufficiency in main agricultural commodities, especially wheat.
- The prevailing conditions do not allow self-sufficiency in some animal products.

Action Plan:

- Focus on breeds that are adapted to local climatic conditions.
- Increasing the production of coarse fodder when water resources permit, developing pastures, regulating the grazing profession, and limiting livestock and poultry farming to the private sector.
- Increasing productive efficiency through vertical expansion of the animal unit and possibly reducing some of the current numbers to conserve natural resources such as water, pastures, and fodder.

Plant, animal, and fish production

- **Low performance and productivity of the fishing sector.**

Action Plan:

- **Focusing on fishing in deep water areas that have not been exploited before.**
- **Diversifying fishing activity to ensure optimal investment of fish resources and non-exhaustion.**
- **Conducting marine surveys to ensure optimal investment in fisheries.**
- **Encouraging the participation of the private sector in the fishing industry.**
- **Completion of infrastructure in areas known for their abundance of fish production.**

AfDB STRATEGY 2020-2040 – VISION & OBJECTIVES

Vision:

to secure equitable and sustainable use and management of water resources for socio-economic development, regional cooperation, and the environment.

Main Objective:

to improve the water resources management

Strategic Objectives:

- By 2030, achieve universal and equitable access to safe and affordable drinking water supply and sanitation services;
- By 2040, achieve a sustainable balance between water demand and water supply, minimizing non-renewable water resources withdrawals

Thank you for your attention

