

### GASH AGRICULTURAL SCHEME KASSALA STATE

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ECOSYSTEM

### The Contents:

- **1. Overview**
- 2. Basic Data
- 3. Threats & Practices Harming Gash
- 4. Opportunities and Supporting Practices



- □ The Gash Delta is a fan-shaped area which is flooded by the <u>Gash River</u> originating from the Eritrean Country to Kassala town for some <u>100 k.ms in northerly direction</u> and covers an area of some <u>700,000 feddans</u> (Map 1).
- □ The Gash River usually flows from <u>July to September</u>.
- □ Its course ends in the <u>Gash Dye</u> where the water vanishes
- □ An irrigation scheme designed to make use of the spate of the river was established <u>since 1926</u>.
- □ The scheme went into <u>serious decline</u> in the 1970s, irrigated areas have dropped to about **40,000** feddans as result of:

1. loss of control of river protection banks

2. Several canal head are not working satisfactorily

3. A series droughty years.

4. Steady <u>decline</u> in volume of water diverted for <u>irrigation</u>

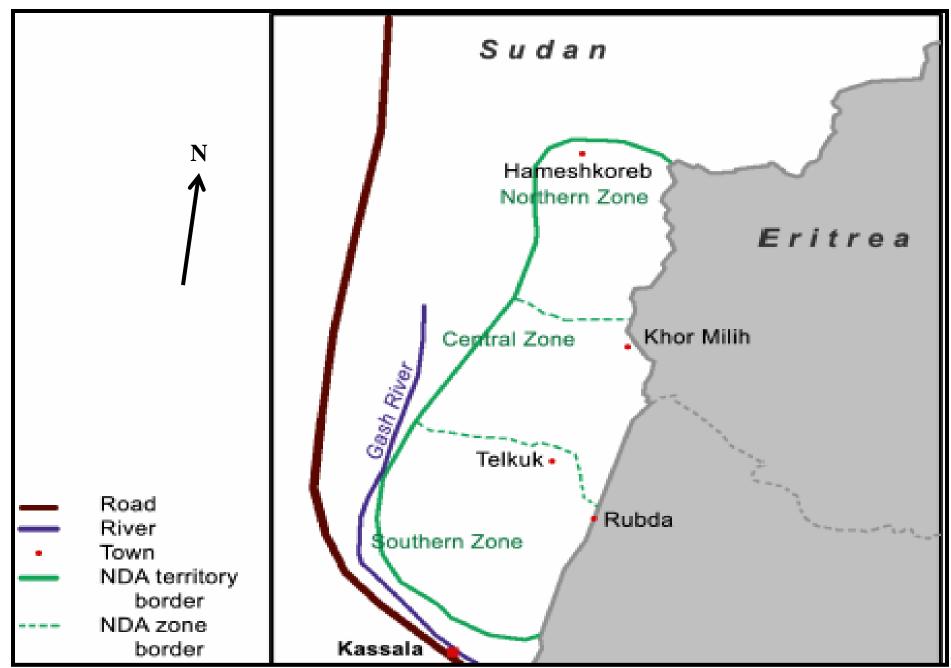
### Climate is **semi-arid to arid**.

- Maximum temperature ranging from 42°C in May to 34°C in August.
- Minimum temperature ranges from 25°C in May to 16°C in January-February.
- □ The average annual rainfall (between July and October) ranges from <u>260 mm</u> in the southeast to less than <u>100 mm</u> in the northwest.
- □ Flood water is diverted into Canals stems diverts water into pieces of land known as "<u>Messgas</u>", each messga is 500 m wide and from few km to 20 km long

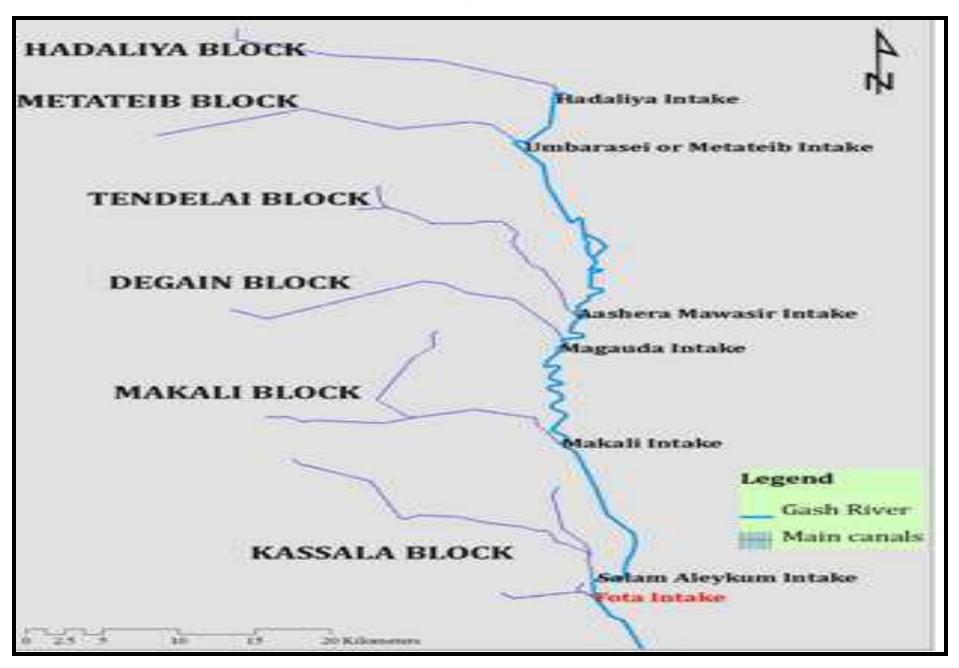
### **Layout of Gash Agricultural Scheme** (See Map 2)

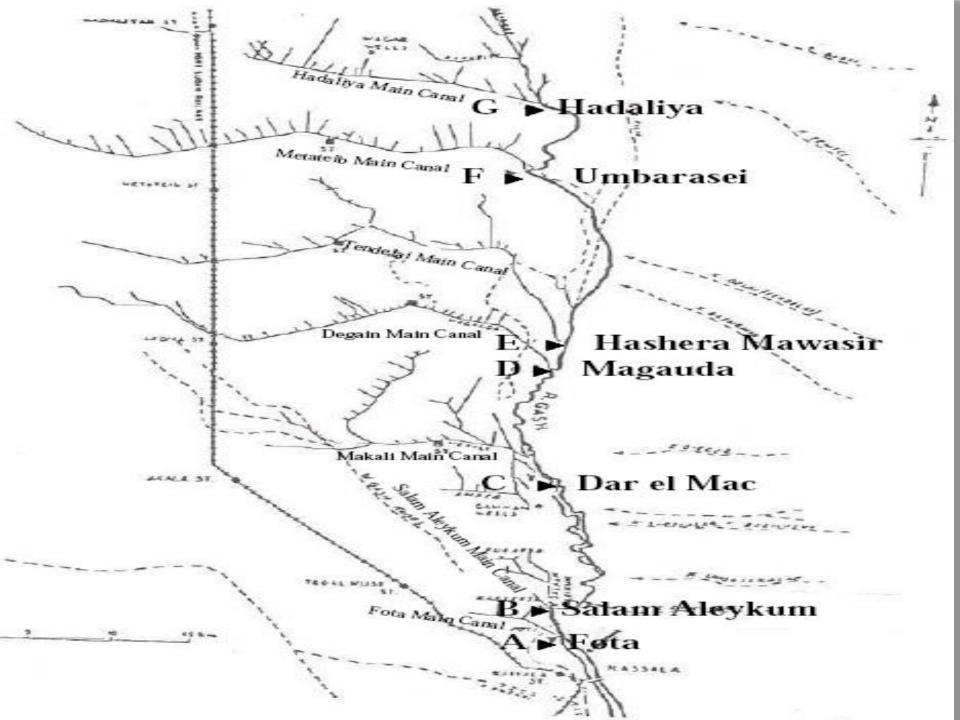
Layout of Gash Agricultural Scheme	
Kassala Block	16500 feddans
Mekali Block	21000 feddans
Degain Block	16500 feddans
Tendelai Block	24000 feddans
Metateib Block	21000 feddans
Hadaliya Block	21000 feddans

### **Map 1: GAS Irrigated Areas**



### Map 2: Layout of Gash Agricultural Scheme



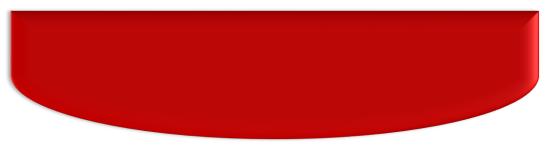


### 2. BASIC DATA

Estimated households in GAS	87.000 households
Estimated people inside scheme	480.000
Poverty Rate	90 %
The annual incoming of Gash River	650 million cubic meters
Targeted area	108.756 feddans
Irrigated area	70.750 feddans
Cultivated area (on average)	63.000 feddans
<b>Crop Yields (For Ordinary Sorghum (Aklamoi)</b>	2 – 15 bags per Feddan
<b>Crop Yields (For Improved Sorghum (Tabat)</b>	5 – 22 bags per feddan
The average slope of Gash river in Sudan	1.3 Meter per one kilometer



### Threats & Practices Harming Gash Area



### **Irrigational Problems**

- Fluctuation of incoming water from the main source. (as a result of fluctuations of rainfall and climate changes in the Eritrean plateau)
- 2. High level <u>of siltation</u> in the main and branch canals and within Mesgas.
- 3. <u>Drift</u> of main and branch canals and houses due to flood of water
- 4. <u>Disability to store water GAS</u>, water is penetrated within the soil (<u>High degree of soil permeability</u>)
- 5. Emergence of <u>coves and height lands</u> inside GAS

### **Agricultural Difficulties**

- 1. Spread of <u>mesquite trees</u> and harmful weeds.
- 2. Lack of treated roads and transportation means.
- 3. The emergence of <u>pests</u>, harmful <u>animals</u> and <u>birds</u>.
- 4. High degree of soil **<u>permeability</u>**
- 5. Most of rural farm households produce <u>less food</u> than they needed and rely on <u>non-farm activities</u> to fill their income gap.

### **Human Behavior and Social Habits**

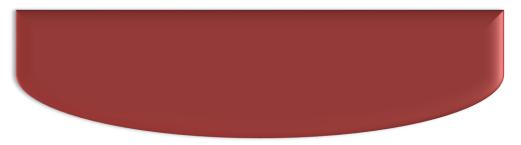
- Lack of cooperation, most of farmers are stick on satisfying their own personal needs more than social, community, and institutional needs.
- Conflicts within tribes and persons. (Increased pressure on meager resources)
- Reliance of farmers on planting a <u>single crop</u> and one <u>sample</u>.
- Most of households are <u>headed by men</u>, women role is neglected.
- Difficult to convince farmers for accepting <u>large</u> investments.

### Others

- □ **Far distances** between the villages and the nearest city centers (villages are highly spreads geographically).
- □ Most of farmers are <u>illiterate</u>.
- □ Duality and increase of **governmental fees**
- □ High **poverty rate.**
- □ **Squatter Settlement** inside Mesgas.
- Megative effects of Gash River on Kassala Town (During Flooded seasons).



### **Opportunities and Supporting Practices**



### **Spread of surplus water in Gash Dai area.**

- □ High soil **Fertility**
- Suitability of <u>soil and climate</u> for cultivation of different varieties of cash crops.
- Ability to Cultivate of <u>by-crops</u> within the same season (without need of substantial water for irrigation)
- Potential of <u>External markets</u>.
- □ Farmer's ability to coexistence with <u>Hard environment</u>
- Ability of specifying income generated by <u>Non-farm</u> <u>activities</u> into farm activities
- Gash River recharges <u>aquifers</u> and fills <u>hafirs</u> annually.
- Positive effects of Gash River on Kassala Town. (Contributing to the beauty of the town)

### Photos



Feeding the aquifer in Wagar area

# Utilization of aquifers for the use of human and animals



### Squatter settlement inside Mesgas







### Mesga (2) in Makali area





### **Crops after Cultivation of the First Crop** by-Growth of

## An Example of High soil Fertility of GAS



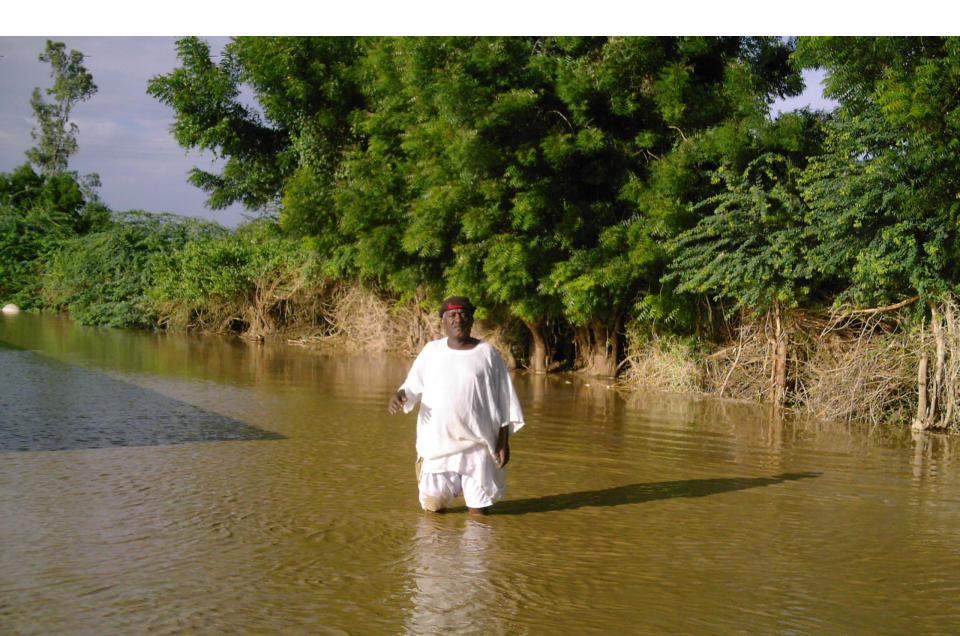




### CRISIS OF GASH RIVER INSIDE KASSALA TOWN







### CONTRIBUTIONS TO THE BEAUTY OF KASSALA







