

Combating desertification through spate irrigation system

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What is Spate Irrigation?



Spate irrigation is a water diversion and spreading technique that makes use of seasonal floods for agricultural production. These floods which spring from highland and mountainous areas are diverted to irrigate adjacent land in the arid lowlands, using diversion structures.

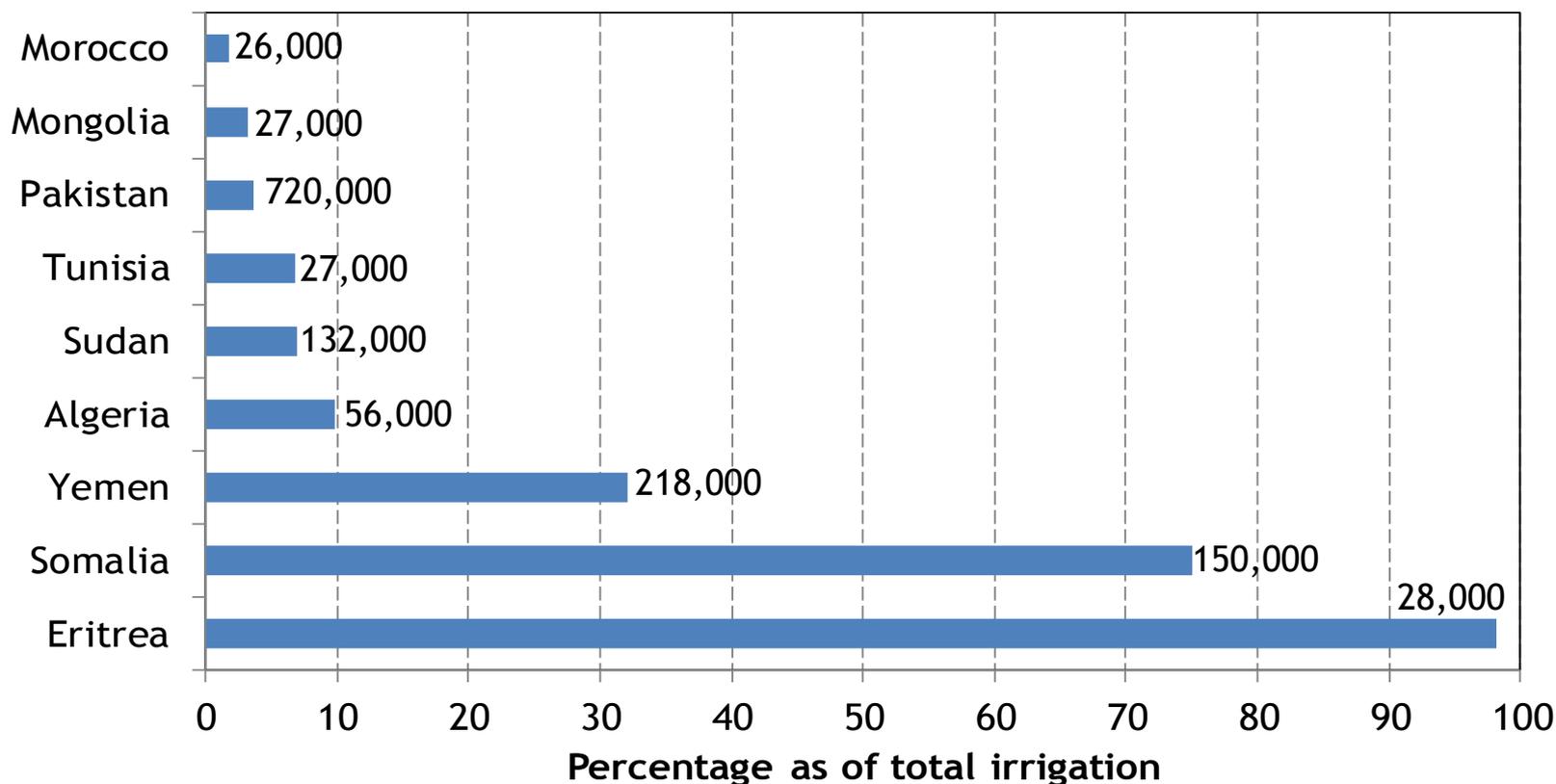


Fig.1. Spate irrigation area in % and ha in some countries (FAO-AQUASTAT, 2010).

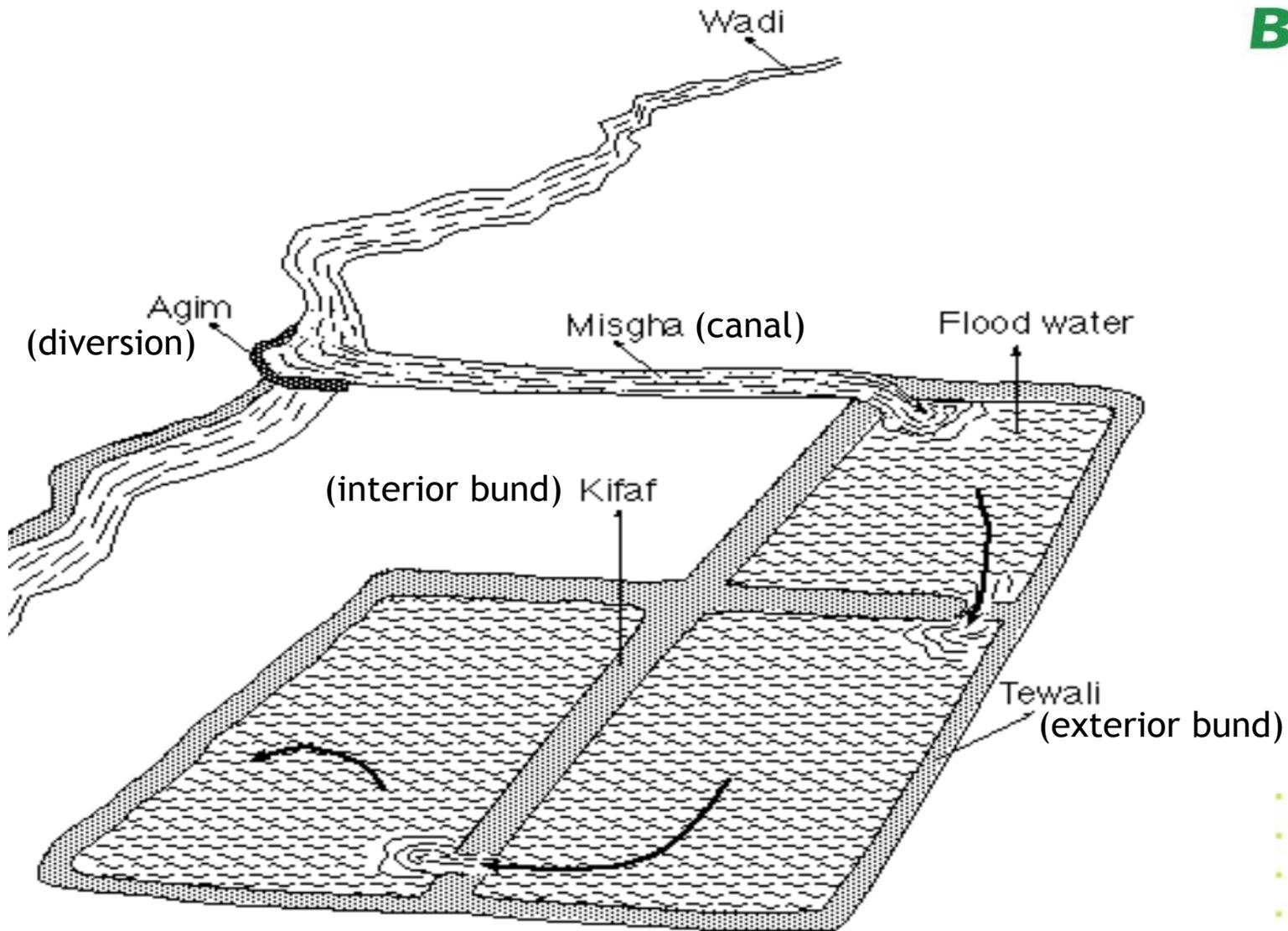


Fig 2. The traditional spate irrigation system (in Eritrea)





Modern Spate Irrigation Diversion Structure (Wadi Laba, Eritrea)

Spate irrigation

Facts (some)

▶ Provides water for one or more crops in arid areas

▶ Production of sorghum main crop and ratoon crops

▶ Builds up agricultural land by depositing fertile soils

▶ Deposits ~ 143 t of soils $\text{ha}^{-1} \text{yr}^{-1}$

▶ Controls development of salt-affected soils

▶ Average soil $\text{EC}_e < 4 \text{ d S m}^{-1}$, pH: 7-8

▶ Combats desertification and land degradation

▶ Supports biodiversity where annual RF is < 200 mm and ET > 2000 mm

▶ Adapts to climate change and variability

▶ Practised for more than 100 years in Eritrea



Remarks

- ▶ **Little attention** has been given on spate irrigation, despite its importance to combat desertification and contributions to food security (≥ 13 million people).
- ▶ **Climate change/variability** : Rainfall variability in the highlands and floods uncertainty in the lowlands are the biggest threat to spate irrigation development



Thank You!



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www.spate-irrigation.org