



## Water erosion and soil protection technology in the agro-industrial farms around the Wadi El Ouaar, Taroudant sedimentary fan, Morocco

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Soil erosion is a phenomenon of global order. Similarly, it affects the soils around the Mediterranean, by removing considerable amounts of arable land and reducing their fertility. Thus, it reduces their agricultural productivity. In the Maghrebian countries, the erosion continues to degrade soils despite the techniques adopted by farmers and state efforts initiated since the 1940s in the field of erosion control. The negative impacts of this phenomenon increase by the combination of natural (climate, topography, lithology and soils) and anthropogenic factors (forest clearance, overgrazing, inappropriate and artificial development).

The sedimentary fan of Taroudant (in the south of the High Atlas) is in a morphological imbalance. Therefore, the recent morphological activity leads to a threat of the agricultural development. The resulting forms are leading to a large wadi. Around the Wadi El Ouaar, there are currently situated both types of oppositional farms, traditional and modern ones. Indeed, traditional agriculture is still practiced by the majority of the inhabitants of the 11 population groups (douars) installed in this area. Modern agriculture is installed there since 1960, but since the 1990s, the number of farms is exploding. Clearing for farming purposes and pastoralism, combined with climatic conditions and soil formation mainly of silt have accelerated the phenomenon of gullies formed by erosion in this area. Thus, in the occasion of each precipitation event, gully growth is triggered enormously. In addition, farmers and residents are feared to lose their land. In this context, farmers are fighting hard against the gullies to protect their property.

A survey of farmers conducted in the region of Taroudant shows that gully growth requires them to spend a high portion of their profits to constantly fight against the erosion. Despite the diversity of the used resources (concrete, gabion, vegetation, etc.) to prevent the arable land from soil erosion, there is still no final solution found. In this area, the results of erosion control are not always satisfactory due to lack of study, consultation and experience in the conservation of soil and water of the farmers. Under these conditions the government is virtually absent and farmers are not organized or supervised in their fight against the gullies. The random effort and uncoordinated interventions of farmers emphasize occasionally the socio-economic and environmental impacts of this phenomenon.