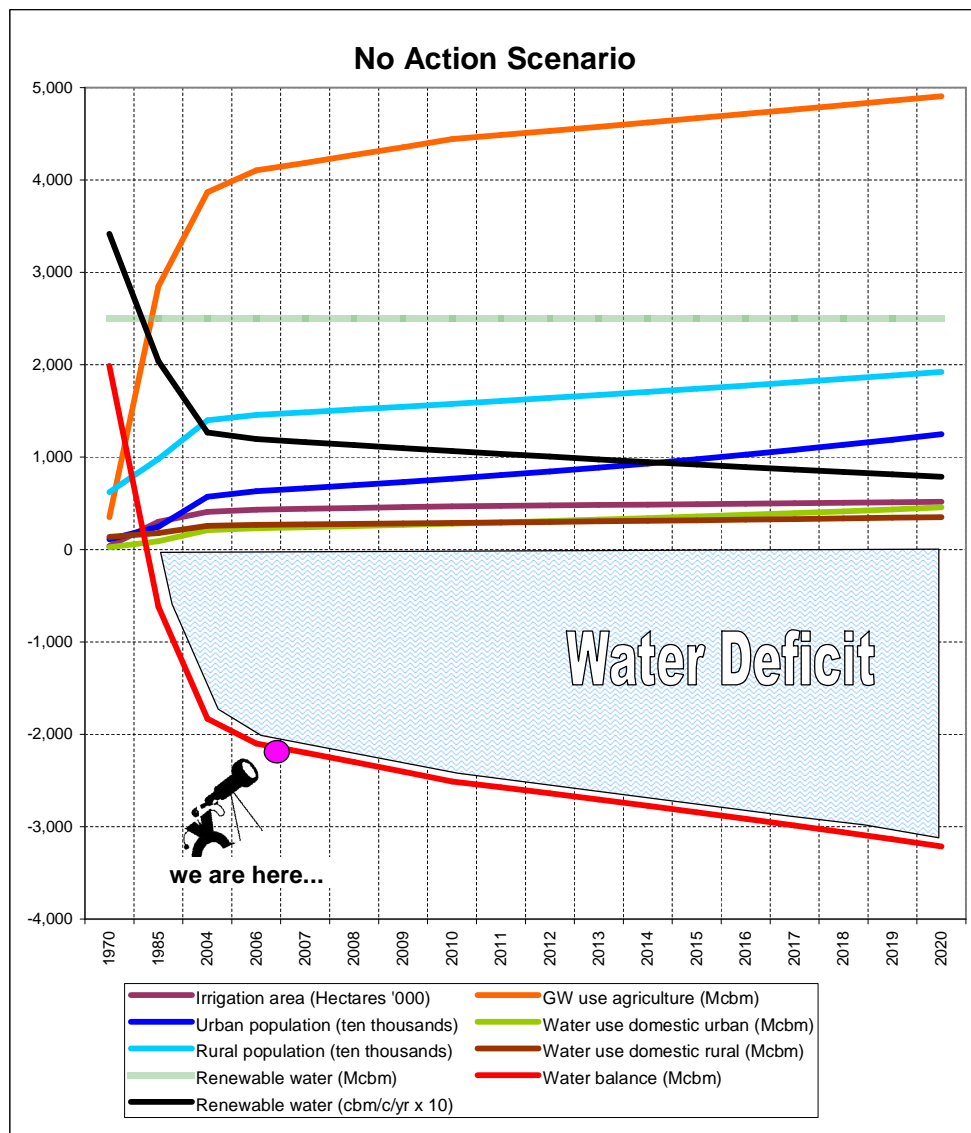




Annex 2.1: Action Scenarios / Scenario 1 - No Action on Water Deficit

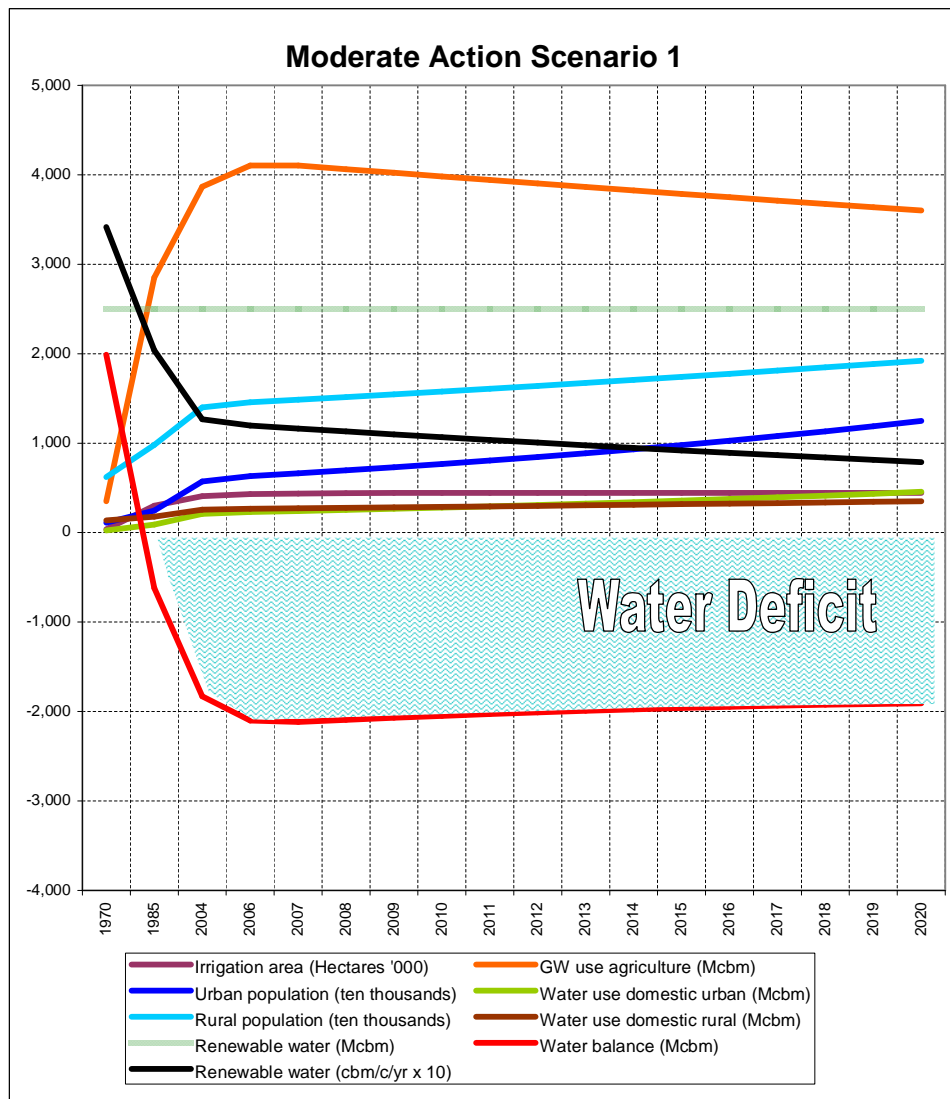
Everything is cool... No enforcements on limiting the agricultural frontier, irrigation area continues to grow, although slowing down to 2% per year. Irrigation water demand continues at a rate of 9,500 cbm/hectar/year and groundwater continues representing at least 75% of irrigation water share. Increasing water scarcity on marginal land induces concentration of agricultural holdings in detriment of poor farmers. Agriculture prospers on an artificial bubble of export cash crops, exporting virtual water. Qat holds the country in its social and agriculture in its economic claws. Population growth is contained but does not reduce much further, rural population growth continues at a rate of 2.2% per year and urban population growth at least with a rate of 5.0% per year. Rural domestic water use stagnates at 50 l/c/d since service coverage growth is slow and many schemes fall short of water resources. Urban domestic water use is 100 l/c/d which includes network supply to industry/commerce (non-network industrial water abstraction is neglected, but may grow with diversified economic structure and increasing unreliability of urban networks). In critical basins, water related conflicts are building up rapidly. No substantial additional renewable water resources are being tapped, and per capita renewable water availability drops to some 79 cbm/year by 2020.





Annex 2.2: Action Scenarios / Scenario 2 – Moderate Action on Water Deficit

We are getting worried... growth of irrigation area begins to slump, but mainly because critical areas are given up, which offset newly developed areas. Qat is not affected substantially because we don't mind trucking water to the fields if necessary, but of course, Qat gets more expensive by the year. In a combined application of options (water savings, fiscal measures, cropping etc), all in all we manage to bring agricultural water use down by 1% per year in a linear row. Irrigation water demand thus drops from 4.0 Bcbm in 2006 to 3.6 Bcbm in 2020. Agricultural prosperity still relies on cash crops, but food security increases given more coherent support to spate irrigation and rain-fed farming. Population growth remains unchanged, whatever rural decline occurs is compensated by urban sprawl. Domestic water use stagnates, but in critical basins resource related conflicts are on the rise. No substantial additional renewable water resources have been tapped, and thus per capita renewable resources continue to go down to 79 cbm in 2020. At least, the downward trend in water balance deficit is contained, but the deficit still remains substantial.





Annex 2.3 : Action Scenarios / Scenario 3 – Dynamic Action on Water Deficit

The crisis has finally gripped our minds and business as usual is over ... growth of irrigation area has stopped completely, and decrease has started as from 2010. High prices have started to curb demand for Qat, although Qat substitution is not yet working on a large scale. In irrigation, substantial drop in subsidies have claimed their toll on pumping costs, and irrigation water use efficiency is growing on a considerable path. By this, we manage to bring agricultural water use down by 3% per year in a linear row. Irrigation water demand thus drops from 4.0 Bcbm in 2006 to 2.6 Bcbm in 2020. Agricultural prosperity still relies on cash crops, but food security increases given more coherent support to spate irrigation and rain-fed farming. Population growth declines gently, but domestic rural water contraction is compensated by urbanization with its higher per capita water use. Domestic water use thus stagnates, but in critical basins resource related conflicts are sharpening. Additional renewable water resources are being tapped at a rate of 0.5% per year (water harvesting, desalination, effluent reuse), and the loss of per capita renewable resources slightly decreases (still it goes down to 85 cbm in 2020). The downward trend in water balance deficit is reversed and the deficit in 2020 has dropped to some 725 Mcbm.

