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Sustainable Water Use in Syrian Agriculture

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Water resources as the most important natural capitals play the key role for sustainable livelihood for rural people. In the same context, they considered the main component of the pentagon capital for sustainable livelihood approach purposed by UK Department for International Development (DFID). For that, the paper aims at highlighting the agricultural water as to focus on the sustainable water use in Syrian agriculture.

The special features of water (bulkiness and mobility) as the difficulties in identify and measure it give water the elusive nature means that insure property rights as the basis to its economic market. Such mentioned characteristics have given governments the responsibility to manage water for the national welfare through appropriate actions and regulations. However, that does not ignore the role of the private water market beside the public one, which supposed to provide water to the agricultural as other sector of the economy. Different sector competing on water as competition inside each single sector have led to serious polluting and water shortage where the agricultural sector contributes by high rate to these problems.

Regarding the water scarcity, water sector needs to be reformed and treated as economic resource. In this regard, several criteria tend to play role in planning and managing the water system such as effectiveness, environmental impact, sustainability, administrative, feasibility, policy reform in agriculture and at the most important degree efficiency and equity. Efficiency and equity concern the total wealth that can be generated by water and distribution of this wealth among the society's member respectively.

With reference to the allocation mechanisms, the following criteria used to form the water allocation: Flexibility, Predictability, Equity, Political and public acceptability and the real opportunity cost of providing the resource is paid by the users. According to the mentioned criteria, the following allocation mechanisms are proposed:

- a) marginal cost pricing;
- b) public allocation;
- c) water markets;
- d) and user-based allocation.

Different mechanisms differ in term of their application and their advantages and disadvantages related to equity, efficiency, sustainability, and environmental conservation issues.

Focusing on the Syrian irrigation water, which had increased water provision during last decades at the aim of expanding the irrigated area in order to achieve self-food sufficiency, a pessimistic picture still there of huge water deficit balance especially in the productive Al Khabour water basin. Regarding that, the government has issued several laws and regulations aiming at reforming the sector including the national plan of converting to modern irrigation techniques in an attempt to convert the supply-side approach into more demand-oriented one.

However, technical, climatic, financial institutional and economic constraints have contributed of different share to the plan's failure. Motivating the adoption rate needs a combination of alternative economic policy option in addition to alleviate the negative impact of the other constraints. In this context, more recently the establishing of The National Project for Converting to Modern Irrigation Directorate in MAAR at 19/5/2005 comes to promote the converting processes through several financing, technical, and supervising actions that suppose to be the starting point for modern irrigation spreading.

Syrian water allocation mechanisms, in general, do not mach the sustainability and efficiency criteria of standard allocation, where the most irrigation water delivery take place through the

public irrigation schemes or by the private ground water. However, these water resources still need, in general, to rehabilitation, maintenance and water use rationalization. The public irrigation schemes combine the dams and the irrigation channels which suffer large quantity lose of water through the evaporation from the open water surfaces or leaching from irrigation channel. The other portion of irrigation water is extracted from wells where the high extracting rate result in deteriorating water provision and so to degrading water quality by increasing its salinity. As a result, the above reasons require to rationalize irrigation water use through new mechanisms and procedures.

By conclusion, there is a need to find ways to obliterate the negative balance in water irrigation sector by proposing the proper related studies focusing on specific critical water basins and analyzing the ability of applying more efficient water allocation mechanisms for public schemes in addition to restrict the withdrawaled water from wells by installing the suitable water metering system. Finally, one of the future possible solutions could be changing some current agricultural policies such as changing the cropping pattern at the aim of saving additional quantities of water.

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