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**World Water Day 2017 Climate
Change Linkages with Water and
Agriculture**

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Climate Change Linkages with Water and Agriculture

By

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“Water holds the key to sustainable development. We need it for health, food security and economic progress. Yet, each year brings new pressures. One-in-three people already lives in a country with moderate to high water stress, and by 2030 nearly half the global population could be facing water scarcity, with demand outstripping supply by 40 per cent. Competition is growing among farmers and herders; industry and agriculture; town and country; upstream and down- stream; and across borders. Climate change and the needs of populations growing in size and prosperity mean we must work together to protect and manage this fragile, finite resource.” (Message of UN Secretary General, March 22, 2013 New York)

In Pakistan, climate is already changing and the impacts being felt as reflected in changing seasonal cropping pattern, greater occurrence of floods and droughts (too much or too little water) and rise in temperature. Further, research tells us that climate change is inevitable in the coming decades. Climate change poses challenges to the growth and development of the economy of Pakistan. Pakistan loses almost 6% of GDP per annum due to environmental degradation and more than half of the population depends on the use of natural resources for its livelihood. Its long term food security depends on how we use our valuable resources – land and water– to generate livelihood for present and future generations.

During the last thirty years (1980-2010), Pakistan has produced enough food to ensure food availability for all. However, the county has failed to translate this achievement into sufficient reduction of hunger, poverty and malnutrition. The main objectives have been food self-sufficiency, stable food prices for consumers and suitable prices for farmers. A number of measures have been used for this purpose such as direct subsidies, price controls, minimum support prices, restrictions on the movement of food and agricultural goods, etc. On the other hand, Pakistan is still a net food importer in spite of being an

agrarian economy with good natural resource capital and varied ecological regions. This fact has been emphasized in various policy documents. In this brief note, we would highlight that the present state of food security would be negatively affected by (1) climate change and growing water scarcity and appropriate policy and action oriented measures need to be taken.

The bad news that is largely coming from environmental and social scientists is that massive growth in the region— led by China – is causing melting of the Himalayan glacier, leading to catastrophic changes in weather patterns and larger occurrence of floods and droughts. Too much or too little water is becoming a feature that agriculture and economy is coping with. Since the Himalayan glaciers feed the river system sustaining this country's agriculture economy, and putting it at greater risk facing negative impact of global warming. On the other hand Pakistan, with its carbon footprint a lot smaller than the permissible levels, may not have to worry about emission targets, but the country faces the ecological consequence of its two nearby polluters with climate change.

The water and food security link is obvious. Water scarcity is one of the most critical challenges for food production. The projected increase in Pakistan's population growth rate suggests that higher food demand is expected in the future, with a direct effect on agricultural water usage. Ensuring food security for the fast growing populations of Pakistan with shrinking water resources is a daunting task. This fast changing scenario calls for using the finite water resource in an efficient and sustainable manner. The challenge is to produce more in a more sustainable way.

What we need to do:

Pakistan stands to benefit from integrated climate adaptation, mitigation and development approaches. A broader framework is provided, which expected to developed further

At national level:

Incorporate sustainable development goals (SDGs) with the objectives of greening the economy and growth. At macro and micro levels, agriculture and water sector be geared towards

Developing Smart agriculture:

The mitigation and adaptation investments can take several forms – altering farming practices and crop varieties, practice conservation agriculture building water reservoirs, enhancing water use efficiency, promoting water harvesting and reuse of waste water. In future less water would be available for agriculture, has to feed more people with less water, enhancing productive and allocative efficiency of water use is key.

Create Grain Storage:

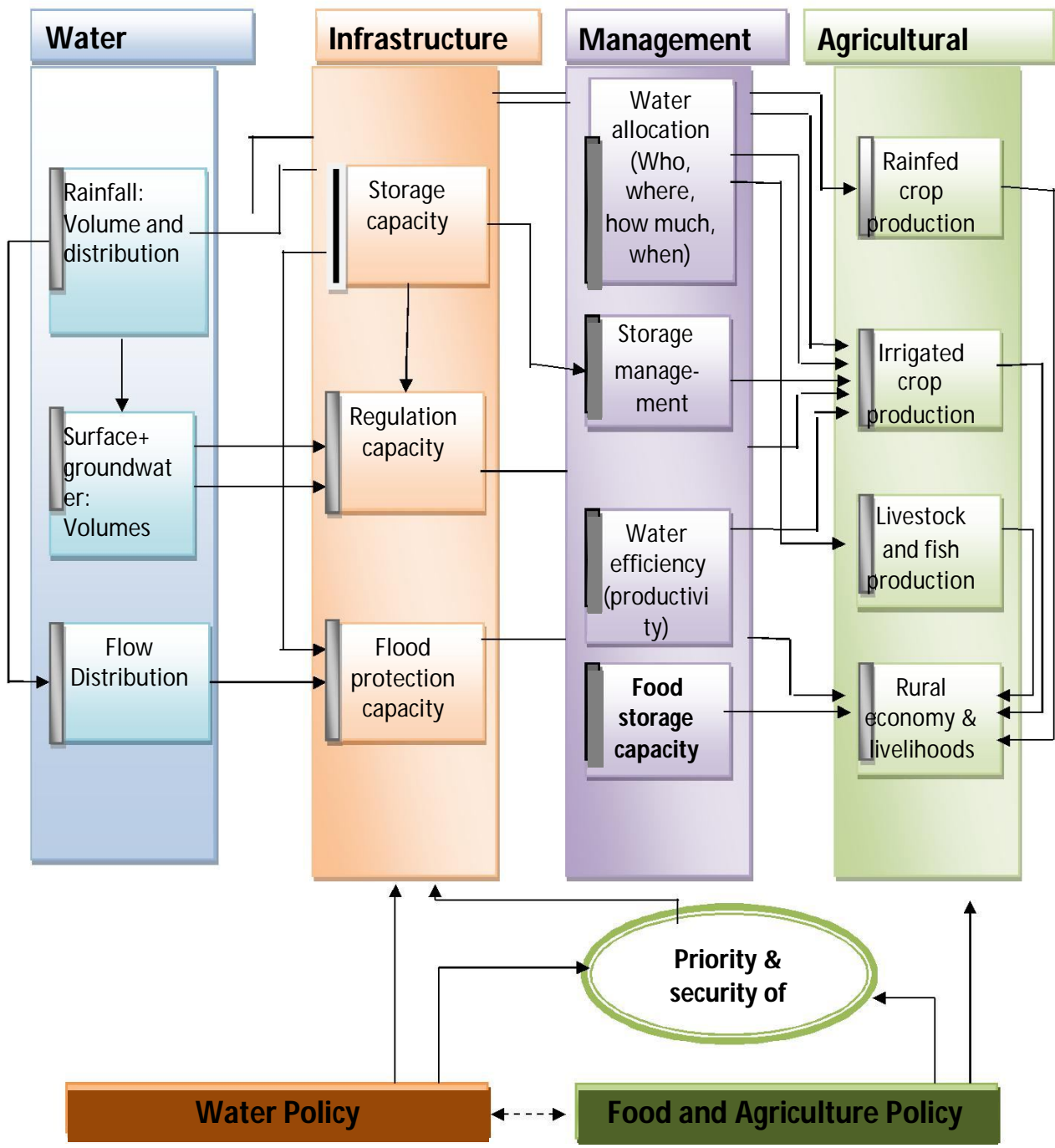
Pakistan needs to enhance crop storage from household level to national reserves. Present storage capacity is not enough to hold excess supply as has been the case of wheat and the cost of food security has been enormous in terms food losses and the embedded water that goes with it. The extent to which individual nations rely on the global market (virtual water) will depend on many factors: the politics of self-sufficiency; diversification in the economy; ability of the nation and its rural and urban dwellers to purchase imported foods; and price levels or, more importantly, price volatility in the market.

Understanding fully water linkages:

The link between water and food policy is getting the importance it deserves. A latest report by Water Resource Group 2030 on “Charting Our Water Future: Economic Framework to inform decision-making” clearly spell out reforms in agriculture is key to solving the problem of growing excess water demand. The argument is simple, agriculture use the bulk of water (95% in case of Pakistan), rationalizing water use, starting with agriculture has significant water and cost saving. Figure below provides a broader framework.

There are a number of policy directions that can be observed from the following figure (1) water and food policy have implicit linkages at present, which need to be made more explicit in the context of competing demands for water and rising needs to maintain or restore environmental water allocation. (2) Strategic alternatives between food storage and water storage will be one of the key links between agricultural and water resources policy in the future. (3) A system of water accounting (and the supporting hydrology) should be in place to monitor and predict change and additional stress. (FAO water report 36)

Impact assessment Response



Source: FAO Water Report,36

Developing green policies:

The prevailing configuration of markets and policies for environmental goods leaves many resources outside the domain of markets, un-owned, un-priced and unaccounted for and more often than not, it subsidizes their excessive use and destruction, despite their growing scarcity and rising social cost. This results in an incentive structure that induces people to maximize their profits not by being efficient and innovative but by appropriating other peoples' resources and shifting their own costs onto others. Common and public property resources (e.g. groundwater, forests, and fisheries) are being appropriated without compensation; the cost of growing scarcity is diluted through subsidies paid by the general taxpayer and the cost of ultimate depletion is borne by the poor who lack alternatives (FAO). The punch line is that we have to start valuing the natural resources and its sustainable use by

1. Ensuing adaptation to climate change and improved resilience
2. Phasing out fossil fuel subsidies
3. Encouraging renewable energy and energy efficiency
4. Ensuring effective environmental and carbon pricing
5. Promoting and adapting climate finance

