Medicon Agriculture & Environmental Sciences
Volume 3 Issue 5 November 2022
Editorial

Water in Agriculture

Paras Hirapara*

Junagadh Agricultural University, Junagadh, India

***Corresponding Author:** Paras Hirapara, Junagadh Agricultural University, Junagadh, India.

Received: November 03, 2022; **Published:** November 04, 2022

Water is an essential component of agricultural productivity and is crucial to food security. Twenty percent of all farmed area is used for irrigation agriculture, which generates forty percent of all food produced globally. The productivity of irrigated agriculture is often at least twice that of rain fed agriculture per unit of land, allowing for greater crop diversification and output intensification.

Competition for water resources is anticipated to increase as a result of population expansion, urbanization, and climate change, with an emphasis on agriculture. By 2050, the world's population is projected to reach over 10 billion, and whether they live in cities or the countryside, they will all require food and fiber to meet their fundamental needs. By 2050, it is predicted that agricultural production will need to increase by roughly 70% due to these factors, as well as the rise in calorie and complex food intake that comes along with economic growth in the developing countries.

However, the future demand for water across all sectors will necessitate the reallocation of up to 40% of water from lower to higher productivity and employment activities, particularly in areas with a shortage of water. Due to agriculture's significant proportion of water demand, such reallocation is typically anticipated to originate from this sector. Currently, agriculture uses 70% of all freshwater withdrawals worldwide (on average) and much more of "consumptive water usage" because of crop evapotranspiration.

It will be necessary for water to move both physically and virtually. Changes in the initial distribution of surface and groundwater resources, mostly from agricultural to urban, environmental, and industrial users, can result in the physical movement of water. Water can theoretically travel as well since the production of food, goods, and services that require a lot of water is concentrated in water-abundant regions and traded to water-scarce regions.

Improvements in water use efficiency and advancements in water delivery systems will also need to go hand in hand with inter-sectoral water re-allocations and large shifts of water away from agriculture. The effectiveness of water utilization in agriculture will also depend on how well main system (off-farm) upgrades are matched with suitable incentives for on-farm expenditures aimed at bettering soil and water management. To implement such options, it will be necessary to upgrade water delivery systems to deliver adequate on-demand service. It will also be necessary to use cutting-edge technologies (such as soil moisture sensors and satellite evapotranspiration measurements) to increase the productivity and efficiency of water use in agriculture.

It is necessary to completely reevaluate how water is handled in the agricultural sector and how it might be repositioned in the context of overall water resources management and water security in order to address the issues of the future. Furthermore, irrigation and drainage plans, big or little, are notable examples of spatially scattered public works in rural areas. They thus serve as a sensible means of bringing employment possibilities to communities.

Practical challenges for water in agriculture

Inadequate policies, severe institutional underperformance, and funding constraints are frequently barriers to enhancing water management in agriculture. Important governmental and private entities, such as basin authorities, irrigation agencies, water users'

and farmer associations, agricultural and water ministries, typically lack the supportive atmosphere and essential resources to perform their duties.

For instance, basin authorities frequently have insufficient power to assemble stakeholders and enforce water allocations. Instead of creating options for small-scale private financing and irrigation management, institutions tasked with promoting irrigation sometimes restrict themselves to capital-intensive bigger scale schemes. Additionally, extremely distorted incentive frameworks for water price and agricultural assistance programmes are frequently the response of farmers and their organizations, which further impedes the sector's good advances.

Additionally, the majority of water users and governments do not make sufficient investments in irrigation and drainage (I&D) system upkeep. While insufficient management and operation may contribute to the underwhelming performance of I&D systems, it is particularly the inability to adequately maintain systems that causes their performance to decline and the ensuing requirement for rehabilitation. The industry-wide "build-neglect-rehabilitate-neglect" cycle is a result of the failure to allocate appropriate cash for I&D system upkeep.

Given the aforementioned limitations, the agricultural water management industry is currently repositioning itself in order to provide modern and sustainable services. It suggests a unique method to managing risks associated with larger social and economic water-related repercussions while also constructing resilient water services and maintaining water supplies. This can be accomplished by improving incentives for innovation, reforms, and accountability. It also supports the management of watersheds and the greening of the industry.

Volume 3 Issue 5 November 2022