

A JOURNEY FROM SAND DUNES TO GREEN VALLEY

Almost four years back in 2016, Mr. Muzaffar Ali, a progressive grower of Bahawalpur, cannot imagine that he could convert his 15 acres (6 hectares) barren land - in the middle of Cholistan desert - into a green valley. Nothing could grow on these land - Mr. Muzaffar was downhearted based on his years long farming experience.

About six kilometers away from the main Hasilpur-Bahawalpur Road, west of the desert branch of Bahawalpur Canal in Bahawalpur district, Mr. Muzaffar Ali, inherited from his parents, is involved with the farming operations since his childhood. Traditionally, they used to grow some barani crops owing to rains because underground water was brackish and canal water source is inefficient to irrigate undulated sandy dunes.

In pursuit of suitable technology to cultivate his barren land with limited resources, Mr. Muzaffar did research, discussed with his fellows, and visited some nearby farms. In this journey, he discovered that farmers are benefitting from Drip Irrigation System (DIS) to cultivate desolate sandy lands. "Although the government is providing subsidy of 60% of total system installation cost and construction of water storage pond, I was, nevertheless, a little worried about the success of DIS adoption on my land" Mr. Muzaffar shared.

While sharing his successful experience, Mr. Muzaffar expressed that "in the beginning, many people discouraged me because our societal archetype does not encourage you to opt for new technology, trend, or innovative idea easily. Voices of some my fellow farmers around me were like "are you mad --- investing in such system will lead to pauperization -- rich man with poor mind throwing away his money. They are now flabbergasted to witness my bloomy citrus orchard



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in desert".

"My citrus orchard is matured in about two years' time, paying me **back over PKR 80,000 per acre from my first harvesting in last season.** However, this year my orchard is on full bloom--**hopefully my earnings would be almost double than last year (PKR 140,000-160,000 per acre)**". Mr. Muzaffar happily shared his success.

Introduced under the World Bank funded Punjab Irrigated-Agriculture Productivity Improvement Project, high efficiency (drip and sprinkler) irrigation systems are helping farmers all over the Punjab to cultivate their barren lands situated in challenging terrains. Since 2012, these multi-solution technologies have helped farmers to transform their conventional farming practices and mindsets to attain high economic returns through efficient use of limited crop input resources.

Mr. Muzaffar's dune is a now sight to behold - **with drip irrigation fruit orchards have flourished successfully in sand, irrigation is precise, no evaporation, no runoff, and no wastage of inputs** as prevalent

under conventional flood irrigation method. Water mixed with fertilizer is conveyed through pipes with heads known as drippers, explained Mr. Muzaffar, which release a certain amount of water per minute directly to roots of each plant across the orchard field. He admitted that "**without drip irrigation my sand dune would have had never ever produced anything.**" Scarcity of freshwater is the major limiting factor to transform barani areas into productive and profitable lands. Under the escalating water shortages and changing climate, drip irrigation is the most suitable technology to rejuvenate sandy dunes in the Punjab.

