

Advancing Sub Surface Drainage Technology through Public-Private Partnership in India

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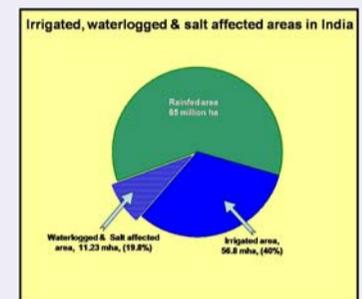
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INTRODUCTION

India has the world's largest irrigated area (56.8 million ha), but the drainage provisions were not given adequate attention. As a result, currently, some 4.5 million ha are suffering from waterlogging of varying degree and 6.73 million ha are salt affected. Various structural measures including surface, subsurface, and bio-drainage systems have been adopted to prevent/ mitigate and reclaim the affected areas. Experiences from the large-scale sub-

surface drainage (SSD) installations in the northern states of India have evidenced that the technology can be successfully adopted in reclaiming saline and waterlogged lands. However, due to high investment cost and non-availability of automatic/ high speed drain laying machines in the country, there is a general indifference to implement SSD, limiting its further expansion on large-scale. Here, we briefly explain the emerging role of private agencies in promoting the SSD technology in India.

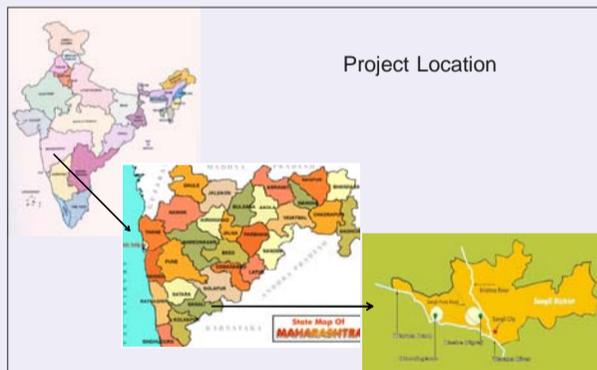


PROJECT RATIONALE

In India, the Central and the State Governments carry out the land drainage works, mainly in the command areas of large public irrigation schemes. There is no provision for financial assistance to install SSD in the command areas of small and pumped (lift) irrigation schemes. However, of late, in Maharashtra, a southern state of India, a private entrepreneurship has emerged in providing SSD

installation on turnkey basis. Of the state's 0.85 million ha of sugarcane cultivated area, the five south-western districts (Ahmednagar, Kolhapur, Pune, Sangli, and Satara) share more than 50% of the sugarcane area. Main source of water supply is rivers (Krishna and Warna). Owing to assured procurement of sugarcane by large number of cooperative sugar factories in the region, farmers find it as more profitable than other crops. However, due to

cultivation of sugarcane year-after-year and excessive application of water to the crop, some 0.33 million ha of sugarcane farmland in these five districts have been affected due to waterlogging and salinity. As a result, not only the productivity of sugarcane has drastically reduced but some lands are on the verge of going out of production.



PUBLIC-PRIVATE PARTNERSHIP

The SSD installation was taken up with partnership of the State Government, Farmers' Cooperative Society for Saline Land Development, and a local Private Project Management Consulting Agency (Rex Polyextrusion Ltd., Sangli). The agency has its own manufacturing facility of perforated corrugated plastic laterals, owns a trencher and a modern lateral laying machine, and provides the services of planning, design and installation of SSD. The agency in 2002, liaised with the State Government on behalf of the Farmers' Society to garner funding support to install SSD on 2000 hectares, of which the installation on 1000 hectares has been completed (see box) and work in another project is in progress.

Dudhgaon Project, Reclaim - I	
Total waterlogged and saline land	1100 hectares
Number of farmers benefitted	1326
Diameter of lateral	80 mm
Total length of laterals	240 km
Diameter of collector pipes	80-455 mm
Total length of collector pipes	30 km
Length of main drain (Open)	5200 meter
Cost sharing - Central Government / Farmers /State Government	60:20:20
Total project cost	Rs. 44.83 million (US\$ 1.1 million)
Project duration	2004-2007

Before SSD Scenario	After SSD Scenario
<ul style="list-style-type: none"> Waterlogged and salt affected fields, growth of wild trees / shrubs Poor or no crop growth Land abandoned by farmers Low market price of the land <p>Salt affected land</p> <p>Growth of wild trees/shrubs</p> <p>Poor growth of sugarcane</p>	<ul style="list-style-type: none"> Farmers can grow high value crops, including sugarcane profitably Significant increase in crop yields Cost of land boosted more than 3 times <p>Turmeric crop</p> <p>Sorghum</p> <p>Sugarcane</p>

Realising the benefits, farmers from adjoining areas got the SSD installed on 200 hectares without financial support from the government. Currently, an average cost of SSD installation is about Rs.50, 000 (US\$ 1250) per hectare, which is much less than the cost of the land.

WAY FORWARD

Despite of well known benefits of drainage provisions in irrigated areas, it has always been considered as subsidiary work. However, more and more sugarcane growers are willing to invest in the drainage works for sustainable land and crop productivity. This has prompted the emergence of private entrepreneurship in drainage works. There is a small but steady demand for installation of SSD through private agencies in India. It is necessary to reduce the cost of SSD works, so as to make it affordable by small holders. In order to provide a fillip to public-private partnership, effective farmers' societies, dedicated involvement of the private sector and a strong support by the Government are crucial.