Group Micro Irrigation
A Study of Telangana Farmers

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About WOTR

Watershed Organisation Trust (WOTR) is a globally recognized organization dedicated to transforming the lives of millions of poor across India through participatory watershed development and eco-systems restoration, climate resilient sustainable agriculture, integrated and efficient water management and climate change adaptation, with a special emphasis on building resilience of vulnerable communities, farmers, and women. It was established in 1993 and is headquartered in Pune, Maharashtra, India.

WOTR’s mandate is to reduce poverty through community mobilization for sustainable watershed development and integrated rural development. WOTR grew out of the Indo-German Watershed Development Project (IGWDP) launched in 1989 by Father Hermann Bacher, who is considered the father of the participatory watershed movement in India.

As of March 31, 2019, WOTR has worked in 3,368 villages and has impacted over 3.35 million people cumulatively since 1993. These figures cover projects in all its areas of implementation, trainings and capacity building activities.

About W-CReS

The WOTR Centre for Resilience Studies (W-CReS) Pune was established in December 2016, with a focus on Research-into-Use. It subsumes and builds on the Knowledge Management Unit’s work of the preceding 7 years. W-CReS closely engages with local communities, practitioners, scientific, governance and other institutional actors so that insights and good practices derived from ground experience contribute towards shaping effective policies and efficient program implementation.

W-CReS aims to bridge some of the gaps between science, policy and practice through rigorous trans-disciplinary applied research, policy engagement and capacity building leading to behavioural change.

The studies and research undertaken at W-CReS aim to promote adaptive responses and mitigate the impacts of climate change on ecosystems, water resources, agriculture, food and nutrition, health, livelihoods, gender, governance and local institutions. This is imperative in a country like India, whose nature-based and agriculture sector as well as water resources are expected to be severely affected by climate change in the years to come.
The intervention: In drought affected semi-arid areas, water is an invaluable resource. The Group Micro Irrigation intervention is designed to regulate water-use for agriculture while incentivising Good Agricultural Practices like organic inputs, drip irrigation, crop rotation and water-use efficiency to increase yield while saving water and impressing upon water-users how water is a Common Pool Resource rather than a private one.

The study: The current study is an assessment of the impacts resulting from the aforementioned intervention which also focuses on the barriers and enablers of the intervention- both biophysical and socio-economic. Focusing on Telangana, this paper attempts to enumerate the aforementioned impacts in terms of yield, income, reduction in costs on the financial side and the enablers and barriers on the qualitative side while cautioning against a one-size fits all approach and being wary of maladaptation.

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Abstract

Under the current regime of climate change, which is increasing in both frequency and intensity, the water resources in semi-arid areas have come under a lot of pressure. In the study area of Talakondapally of the Rangareddy district in Telangana, groundwater levels have dropped at alarming due to the region suffering from low rainfall, prolonged dry spells and droughts. A way for farmers to adapt to such conditions is through an efficient and co-ordinated use of water rather than privatisation of and competition for water in agriculture. The sharing of available water resources between farmers reduces establishment and input costs along with access to subsidies for setting up drip irrigation under the intervention. Setting up promoting the use of group micro-irrigation in such semi-arid areas comes with the promise of improving efficient water usage and better crop productivity. The current study aims to establish the benefits of pooling water resources for agriculture, identifying the factors that contribute towards a behavioural change among farmers transforming the ownership of water from a private to a common pool resource.

Keywords: Group Micro Irrigation, Common Pool Resource, Semi-arid regions, Water, Agriculture, Groundwater
Introduction

Agriculture in India is characterised as a sector dominated by small and marginal producers (Dev, 2012) where 85 per cent of farmers own less than 2 ha of land. Of the total area of operational holdings, 44.6 per cent is owned by these small and marginal farmers (Ministry of Agriculture and Farmers Welfare, 2015). India has two semi-arid zones, one in the north spread across the states of Rajasthan, Gujarat, Punjab, Haryana and Uttar Pradesh; the second lies in the rain shadow areas of the Western Ghats covering states of Maharashtra, Karnataka, Telangana, Andhra Pradesh and Tamil Nadu. Prone to droughts, the semi-arid regions spread across 99 districts in 14 states (CED, n.d.). A large proportion of villages across the semi-arid zones have limited irrigation potential. The high dependency on southwest monsoons (Indian Institute of Tropical Meteorology, 2015) and limited irrigation facilities automatically makes the success of agricultural seasons in India conditional upon weather regularity and availability of natural resources like ground/surface water. However, over time, climate change has resulted in increased intensity and frequency of weather related risks. (Huber & Gulledge, 2011).

The monsoons in the past few years have become erratic, unseasonal and abnormal. The impact is felt on the surface and groundwater resources, their use and overuse at times. Close to 90 per cent of groundwater extracted in India, is used for irrigation (Chindarkar & Grafton, 2019). In most semi-arid regions, farmers have started moving towards more water-intensive crops, horticulture and cash crops. This shift comes for various reasons- low agricultural prices for food crops, improvement in irrigation technologies, subsidies for building private water sources etc. To secure their livelihoods, farmers have little else in terms of alternatives (Singh, et al., 2018). The lack of access to resources, credit and education has left the farmer to face the vagaries of climate change and extreme events, thereby resulting in the overexploitation of ecosystem services like water, soil, land and forests.

The impact on water from agriculture, however, is the crux of this study and is founded in a system with numerous interlinkages between these ecosystem services, livelihoods and the perception on how these resources should be put to use. The ownership of water is a central theme in the study and has, until now, been linked to the ownership of land. Ownership of the water resource is a result of the legal regime in the country which continues to uphold a rule introduced during the British Raj, which gives near-exclusive rights to landowners, to extract groundwater (Cullet & Koonan, 2018). However, based on the sources that water is obtained from for both agricultural and domestic purposes, water needs to be understood as a common pool resource and a not a private one. However, competition in the use of water leads to its overexploitation and crises in times of drought and other extreme events.

The study aims to address the question of the ‘Tragedy of Commons’ in the context of agriculture and water use in Telangana, a semi-arid state in India, affected by severe droughts. The objective is to understand how water can be used as a common property resource in the field of agriculture and emphasise the gains, thereby, from micro-irrigation. The study hypothesis tests to see if group micro-irrigation as an intervention/arrangement improves agricultural yields, income and bargaining powers of farming households while saving costs and water. The paper is divided into three sections. The first section aims at describing the biophysical characteristics of the study area and the rationale behind the importance of Group Micro Irrigation in these areas. The second section is a reflection of the outputs of the household survey and Focus Group Discussions on the impacts of Group Micro Irrigation on agricultural costs, production and income as well as the barriers and enablers of Group Micro Irrigation. The third and final section discusses the conclusions, concerns and recommendations for a holistic and impactful Group Micro Irrigation project.
Study Area and Methodology

Telangana is characterised by hard granitic rocks whose permeability is dependent upon weathering patterns. (Pavelic, et al., 2012). The lithology severely affects the rate of groundwater recharge and availability, which is one of the major sources of water in this rain-fed state. In recent times, with the increase in the intensity and frequency of extreme climatic events such as droughts, the water resources are undergoing severe exploitation. To counter problems of water scarcity and to ensure increased agricultural productivity, the region has witnessed a phenomenal increase in the use of dug and bore wells over the past four decades (CGWB, 2016). Overexploitation for irrigation purposes has resulted in desaturation of shallow aquifers. With shallow aquifers drying out, farmers have resorted to deepening of wells that reach depths of beyond 1500 ft., which is counterproductive both ecologically and economically. In treating groundwater as private property coupled with frequent droughts, farmers operate under the constant need and pressure to drill and extract as much water as possible.

Study Area

Watershed Organisation Trust, an NGO working in Telangana, carried out an intervention on Group Micro Irrigation in the Talakondapally block of the Rangareddy district in Telangana. In five villages in Talakondapally, farmers came together to share the available water resources for irrigation. The Rangareddy district registered the highest fall in water levels in 2015 (CGWB, 2015). The primary source of water for these farmers are bore-wells during the winter and rainfall during the monsoon (CGWB, 2016). The intervention included 34 households with adjoining farm plots for which the water was extracted from one aquifer. The purpose was to enable the use of one water source by the beneficiary farmers for agriculture and reduce the cost of setting up pump sets while establishing drip systems on the farms. The presence of one water source and one pump set would enable farmers to coordinate their water-use. The model also incorporates a set of rules which lets the farmers determine their crop choices based on water availability and soil type. The rules also motivate farmers to adopt agricultural practices such as crop rotation, organic inputs, and regulation of water use and adoption of drip/sprinkler irrigation for water use efficiency. The broader aim of the intervention was to help change the perception of farmers towards water resources to help them view it as a Common Pool Resource rather than a private one. Group micro-irrigation would, in turn, help in conserving water and increase crop yield with the use of more efficient irrigation technology as well as save agricultural costs with lower water use and organic inputs.
Methodology

The study was conducted with six groups across the five intervention villages, with each group consisting of 3 to 8 members. A financial comparison in terms of input costs and derived benefits was carried out with a non-randomised, purposive sample of 35 households (HHs) from the Treatment (See Table 1 Group and 32 HHs from the Control Group). The sample was purposive because – i) the beneficiaries had to be adjacently located and possess a water source; ii) to capture benefits from irrigation and water sharing, a comparison of the treatment group and a comparison group was essential. To be able to accurately compare costs and benefits the two groups chosen had similar cropping patterns. For the purpose of this paper, the analysis focuses on cumulative benefits from the group as well as irrigation technology.

Table 1: Basic details of the Comparative groups (GMI beneficiaries and Non-Beneficiaries)

<table>
<thead>
<tr>
<th>Farmer Categories</th>
<th>Beneficiary</th>
<th>Non-Beneficiary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area Under Irrigation (acres)</td>
<td>No. of Farmers</td>
</tr>
<tr>
<td>Large</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Medium</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td>Small</td>
<td>38.9</td>
<td>16</td>
</tr>
<tr>
<td>Marginal</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Data collection from x-y, 2018

For this study, data was collected in two stages. The first stage of data collection involved household surveys of 67 households (35 in treatment, 32 in comparison or control) in each of the villages. The second stage involved four Focus Group Discussions (FGDs) across four of the five villages. The FGD consisted of a mixed group of male and female farmers belonging to the different landholding categories ranging from marginal to large. The purpose of the FGDs was to understand the perception of resource sharing, climate change, extreme events and other impacts that these groups have had on their members. Analysis of the data collected includes a comparison between treatment and control groups in terms of costs incurred and saved, benefits in yield and an increase in income as well subsidies, schemes accessed and water saved.

Observations from the Study Area

The Group Micro Irrigation (GMI) model is dependent on the presence of a water source, which is available mainly to large and medium farmers. Farmers in Telangana use bore-wells as their primary source of irrigation which requires hefty investments to the tune of a few lakhs. The high cost of drilling excludes a large number of small and marginal farmers from procuring water for cultivation. Those among the small and marginal households who have been included have been able to do so as a result of an informal agreement between the farmers to share water for agriculture, thereby, sharing installation, labour and maintenance costs amongst themselves.

Amongst the farmers in the Group Micro Irrigation groups, a majority of the beneficiaries belong to the Other Backward Caste category, and the remaining to the Scheduled Tribes category. A total of 77% of these households’ primary occupation is agriculture while the others, their primary occupation with livestock makes them dependent on agriculture (see Table 2 below).
Table 2: Beneficiary Groups Across Study Villages

<table>
<thead>
<tr>
<th>Village</th>
<th>Group Name</th>
<th>Size of the Group</th>
<th>No. of Male Farmers</th>
<th>No. of Female Farmers</th>
<th>Group Composition (Social Category)</th>
<th>Literacy Levels in the group</th>
<th>Primary Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badunapur</td>
<td>Nayiani Group</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td>OBC</td>
<td>Literates -7 (Secondary to Post Graduation)</td>
<td>Agriculture-5; Livestock-1; Agri.&amp;Live-stock – 1</td>
</tr>
<tr>
<td>Thalakondalpally</td>
<td>Swayam Krushi</td>
<td>9</td>
<td>6</td>
<td>3</td>
<td>OBC</td>
<td>Literates-7 Illiterates-2 (Primary to Secondary)</td>
<td>Agriculture-6; Livestock-2; Agri.&amp;Live-stock – 1</td>
</tr>
<tr>
<td>Suryanayak-thanda</td>
<td>Muthy-alamma Group</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>ST-7; OBC-1 (Upper Primary)</td>
<td>Literates-7 Illiterates-1 (Upper Primary)</td>
<td>Agriculture-8</td>
</tr>
<tr>
<td>Rampur</td>
<td>Srivenkateswara</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>OBC</td>
<td>Literates-2 Illiterates-3 (Primary &amp; Secondary)</td>
<td>Agriculture-5</td>
</tr>
</tbody>
</table>

Source: Data Collected in Telangana on November, 2018.

Quantitative Observations: Crops, Yields and Income

With agriculture being the dominant occupation, these farmers are heavily dependent on the southwest monsoons and subsequently their surface and groundwater reserves. The villages mentioned above lie in stark semi-arid areas and farmers with access to water can grow two or three crops (Kharif, Rabi, and Zaid- Monsoon, winter and summer respectively) a year. Farmers without access to water reserves are dependent on the single Kharif (monsoon) crop. The GMI model is a means of adapting to the water scarcity in the area. The caveat being that the GMI model is dependent on the presence of an existing water source which is rare amongst the more vulnerable small and marginal farmers. The rising frequency and intensity of extreme events, however, should also motivate the agricultural community to diversify their livelihoods and reduce the risks of climate change. (Qaisrani, et al., 2018; Kattumuri, et al., 2015)

Figure 2: Cropping pattern by area GMI Groups vs Control Group (Kharif);
The figures above show that there is greater crop diversity with GMI groups as compared to the Control Group throughout the year, across the three cropping seasons. The summer crops can only grow if there is ample irrigation. Since the control group mostly relies on monsoon and flood irrigation, the summer cropping pattern does not have as much diversity in the cropping pattern as compared to the GMI farmers. The intervention has, therefore, also resulted in higher cropping intensity for the beneficiaries with respect to the non-beneficiaries.

The focus on crops like paddy even in summer for both kinds of farmers is because rice forms an integral part of the local diet. Tomato, which is cultivated extensively is a horticulture crop which lasts throughout the year and yields higher returns in terms of revenue and market prices helping the farmer enhance their income. However, both crops being water-intensive, the pressure on the existing water resources is increasing. The stress of water resources is manifested, in the extensive digging of bore-wells and over-extraction of groundwater.
Costs and Benefits

Apart from cropping intensity, the intervention has helped farmers in accessing subsidy schemes aimed at improving irrigation in semi-arid areas. “Telangana State Micro Irrigation Project” was one such subsidy scheme that provided the farmers with 65.5 per cent subsidy for installing drip systems, while restoring/repairing their irrigation sources (mainly bore wells). The table below lays down the installation costs of drip irrigation systems in the intervention villages, the subsidy component and the support given to farmers through the intervention.

Table 3: Costs and Subsidies involved in Drip Irrigation Installation (Source: Authors’ own)

<table>
<thead>
<tr>
<th>State/Group</th>
<th>Total Land (acres)</th>
<th>Total cost for Drip</th>
<th>Subsidy Amount</th>
<th>Subsidy Percent</th>
<th>Project component</th>
<th>Beneficiary contribution</th>
<th>Installation Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telangana Without Subsidy</td>
<td>31.99</td>
<td>21,58,134.82</td>
<td>0.00</td>
<td>0.0%</td>
<td>21,58,134.82</td>
<td>0.00</td>
<td>1,04,600.00</td>
</tr>
<tr>
<td>Telangana With Subsidy</td>
<td>45.52</td>
<td>22,84,743.00</td>
<td>14,95,671.00</td>
<td>65.5%</td>
<td>4,14,937.00</td>
<td>0.00</td>
<td>1,60,300.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State/Group</th>
<th>Per Acre Cost for Drip Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telangana Without subsidy</td>
<td></td>
</tr>
<tr>
<td>Telangana With Subsidy</td>
<td></td>
</tr>
</tbody>
</table>

Source: Fieldwork conducted in November 2018

The Central and State Governments provide the subsidy based on landholding and caste of the farmer. The following table from the Department of Agriculture, Telangana establishes these considerations and the respective subsidy rates:
Subsidies have increased the farmers’ water-saving capacity while enhancing the water-use efficiency in agriculture (Martinez & Reca, 2014). The installation of drip systems has also resulted in higher production and Rs. 32,860.46 per acre reduction was saved in the setting up of the drip systems. The saving due to the use of agricultural inputs (mainly fertilisers and pesticides) would be Rs. 4982 on an average across crops for the sample data collected. Apart from these factors, another fundamental reason for the reduction in input costs is the increase in the use of organic inputs instead of the more expensive fertilisers and pesticides.

The charts below represent a comparison of costs between the GMI groups and that of the non-beneficiaries in the study area during the four stages of the agricultural cycle.

**Figure 5: Comparison of Land Preparation Cost between GMI beneficiaries and the Control Group**

Source: Fieldwork conducted in November 2018
Figure 6: Comparison of Crop Establishment between GMI beneficiaries and the Control Group

Source: Field work conducted in November 2018.

Figure 7: Comparison of input cost between GMI beneficiaries and the Control Group

Source: Field work conducted in November 2018.

Figure 8: Comparison of Harvesting Cost between GMI beneficiaries and the Control Group

Source: Field work conducted in November 2018.
The lower input costs can be easily explained because of the use of organic inputs by the GMI groups and the more expensive chemical inputs used by the non-beneficiaries. The lower cost of land preparation and crop establishment, however, is a direct benefit of the drip system and related agricultural practices of Systematic Crop Intensification (SCI) (Stoop, 2011) which have enhanced cost-saving and crop yields. The higher cost of harvesting amongst GMI groups can be, therefore, attributed to higher crop production. The season-wise per acre yield and income comparison amongst GMI beneficiaries and non-beneficiaries are given below to further elucidate on this point.

Figure 9: Comparison of Production per acre between GMI and Control Groups (Kharif)

Source: Field work conducted in November 2018.

Figure 10: Comparison of Income per acre between GMI and Control Groups (Kharif)

Source: Field work conducted in November 2018.

Figure 11: Comparison of Production per acre between GMI and Control Groups (Rabi)

Source: Field work conducted in November 2018.
The figures above show the comparison of income and production details between the GMI and non-GMI farmers. Due to greater cropping intensity and crop diversity, the GMI farmers benefit from higher yields and income. (Department of Agriculture, 2017) However, if we focus on Kharif and Rabi seasons, we see that the GMI farmers have benefited from the use of organic inputs and drip systems as well except in the case of Beans. In Kharif 2018, with drought-like conditions across Telangana, the yield of non-GMI farmers were impacted more adversely compared to that of GMI farmers. The low rainfall affected the water availability for the Rabi crops as well. With improved water-use efficiency and coordinated water-use for greater water saving, we find better yields amongst the intervention farmers as compared to the non-intervention farmers. The main reason for the GMI farmers to be able to take up the summer crop as well would be greater water-saving and water-use efficiency during Kharif and Rabi seasons. (Bouma & Scott, 2006)
Qualitative Observations: Drivers for the Model

Although, the data emphasise the financial benefits resulting from the GMI model, what is also central to the model is the concept of water sharing and its sustainability. Therefore, it becomes imperative to examine how farmers in these villages view water and how a sustainable model for its regulated and cooperative use can be established. The idea central to the GMI model is that water should be treated as a common pool resource rather than a private one (Upadhyay, 2011).

The barrier to sharing water is that farmers have always tied the ownership of water to the ownership of land. The intervention faced similar obstacles in Telangana, where farmers were reluctant to share water. Most of the households struggle with debt and the challenging graphite geology forces their hand to dig and re-dig borewells incurring substantial expenditure to secure water for agriculture. The incentive that the GMI model brought in was the cooperative use of water rather than a competitive one. This ensured lower individual investment and equal access to water, regulated use and greater water availability throughout the year.

Furthermore, this was also a chance for farmers to be able to access subsidies for Micro-irrigation and water-efficient technologies like drip systems. Several households, however, preferred to avail these subsidies individually and did not agree to pool in their water resources. The households who came together were more cooperative due to their position in society, shared ancestry or have known each other well.

The model enforced specific rules about crop planning and water-use that was followed by members of the group. These rules were put forth after discussions with the implementing NGO (WOTR) and the members of the respective groups of beneficiary and non-beneficiary farmers. Farmers were also receptive to the agricultural practices of Systematic Crop Intensification, organic inputs and water productivity, which increased the cropping intensity and brought about higher yields. The FGDs elicited that the farmers in Telangana who were a part of the intervention believed that the practices as mentioned above, as well as the water-saving, helped in reducing agricultural risks.

Although the results included crop diversification, better yields and incomes, water-saving and lower crop loss, it is crucial to understand the underlying conditions for the same. Each of the villages under the model had a different situation afoot. Local leadership played an important role in Suryanayakthanda, where farmers lacked the motivation to adopt Systematic Crop Intensification methods. Farmers in the villages of Badunapur and Rampur came together due to the prospect of receiving the subsidy for drip systems. The barriers to the implementation of the GMI model; however, came from the low rate of groundwater recharge and droughts which caused an increase in the number of defunct bore-wells, delaying their crop planning as well.

The drivers for the successful implementation and scaling up of such models is to recognise that each community, hamlet and village has a unique set of characteristics which determine their responses to sharing their resources. Interestingly but not surprisingly, farmers who had previously not enjoyed a perennial source of water were ready to participate more readily than those who already owned a water source. The conditions for the sustainability of such a model, however, are established by a peer-regulation system which helps farmers adhere to rules for sharing water effectively and using it efficiently for agriculture.

The rules include crop planning, amount of irrigation for each farmer according to the crops that they have taken as well as the usage of pumps, their maintenance, drip and sprinkler usage and organic inputs as made under System of Crop Intensification1. Due to these rules, we see that the

1Systematic Crop Intensification, derived from Systematic Rice Intensification incorporates a set of agricultural practices that increase yield, rely on organic inputs, crop spacing, Integrated Nutrient and Pest Management in agriculture. The SCI system does not use any chemicals in growing crops.
cropping intensity, as well as crop diversity, is higher amongst the GMI farmers. The reason for the same is the water-use efficiency of the drip systems and the additional water-saving (thereby, availability) due to better crop planning and coordinated use of available water. The transformation in thought of viewing water as a common pool resource can only be impressed upon farmers or water users in a practical manner where they can see the impacts created by the intervention. The GMI Model impresses upon the farmers in Telangana how beneficial the coordinated use of water can be, thereby, motivating them to come together and view water as a common pool resource.

Conclusions and Recommendations

The concept at the core of the Group Micro Irrigation Model is to impress upon water users that water is a common pool resource and not a private one. This change in perspective is a long drawn process which requires that the proposed modifications are empirically proven to be significantly beneficial to farmers and can help save water for their times of need. However, to change the age-old perception of private ownership of water and water sources is a challenging task and require incentives. In this case, subsidies and the low capital cost was an incentive for water users to come together, sharing water for agriculture. However, neither the incentives nor the model can be a one-size-fits-all solution to the water problem in semi-arid areas. These are context-dependent parameters and that is the caution that we should exercise before scaling up the model.

Maladaptation?

In the study villages in Telangana, GMI appears to have had a positive effect on crop yields, income as well as cropping patterns and diversification. These impacts have taken place due to various drivers such as leadership, lack of individual capital, access to subsidies and capacity building by the implementers. The landscape and geology of Telangana, however, presents a risky challenge- the digging of bore-wells. Although capital intensive, bore-wells have become the primary source of irrigation for the farmers in these villages. Bore-wells deeper than 250 ft. (60.96 m) have been dug and there are no current limitations on the same. There is immense pressure on the water resources in the area with unchecked extraction and depletion of shallow aquifers, and this may lead to the same for deep aquifers as well. With agriculture being the mainstay for a majority of households, the over extraction of water will have adverse consequences in the long run, challenging the sustainability of farm based livelihoods in these areas. Such a case in the GMI model is maladaptive if left unchecked and we have to be wary of groundwater regulations and their implementation and adherence.

Trickle Down to the Last Rungs

The investment in building a water source is substantial and it is usually the big farmers who are going to invest in the same. The issues that comes up is that of equity amongst the farming community. The question of whether the benefit of subsidies, investments, interventions and capacity building reach the small and marginal farmers. In Telangana, 18% of the GMI beneficiaries were small farmers, whereas the rest were large or medium farmers. Although the model does seem to reach the smaller farmers, the coverage of more small and marginal farmers is necessary to be able to help build resilience amongst them. Extreme climatic events have a more significant impact on smaller landholders and models such as GMI could go a long way in improving their adaptive capacity.

The GMI model has also helped farmers in accessing subsidies and pool in their financial and physical resources, thereby saving on capital expenditure. This access, too, needs to trickle down to small and marginal farmers. The collectivisation of farmers could increase their bargaining power, save
further costs in labour, transportation, inputs and provide them with higher profits. The argument of collectivisation is strengthened in the context of Farmer Producer Organisations (FPOs) which buy produce directly from the farmers, where farmers are shareholders as well as consumers. These FPOs offer better prices for the produce and also offer cheaper agricultural inputs, by virtue of them being a farmer-led organisation specifically focused on making markets more accessible and providing services to local agriculturists. The GMI model could be one of the steps towards such a mechanism where collective farmers possess greater control and do not end up as helpless price takers.

The GMI model can help build resilience amongst farmer in water-scarce, semi-arid areas, as can be seen from the Telangana models. The scaling up of such models, however, requires careful study of both biophysical and socio-economic contexts of the village and a change in the perception of water users towards cooperating for resource use rather than competing for the same. The caution remains that the context for the implementation of such models needs to be carefully studied.

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