Farmer Types and Measuring Capacity for Climate Adaptation

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Abstract

Farmers in rainfed regions are going to be the hardest hit from the climate change. They need to adjust their livelihoods to be able to sustain themselves. A number of farmers may simply be not able to sustain or change their livelihoods because of the multiple constraints they face. It is necessary from the policy point of view to know the best and least prepared among these farmers. We find that a large number of SC, BC and women farmers in these regions have a very poor resource base as they lack access to irrigation, have poorer soils, lack in physical resources like farm equipment and financial resources like access to loans etc. Besides lacking in formal education they also have very little information about the climate change, its impacts and the possible methods of adaptation. Apart from the conventional types the other category is , farmers with low endowments on all capitals. These farmers are the most vulnerable with very limited options for adaptation. These are the marginal and small farmers from socially disadvantaged sections. Farming for these farmers is a gamble with rains. They invest small sums (though to them it could be their entire savings) and generally go for crops which worked well for others. They cannot spend much time on their own plots because they have to earn additional income from other sources.

Keywords: Climate adaptation, marginal Farmers, measuring capacity

1. Context

Farmers in rainfed regions are going to be the hardest hit from the climate change. They need to adjust their livelihoods to be able to sustain themselves. A number of farmers may simply be not able to sustain or change their livelihoods because of the multiple constraints they face. It is necessary from the policy point of view to know the best and least prepared among these farmers.

This paper attempts to provide insights into the above aspect through an analysis of the farmers' adaptive capacity (or preparedness to cope with present and future climatic impacts) measured in terms of five capitals. The paper is based on a socio-economic study of the rainfed districts of Telangana region in Andhra Pradesh, India. The five capitals framework enables us to measure and compare the adaptive capacity of different types of farmers in terms of their capital endowments required to sustain or move to the next level of livelihood activity while helping them cope with the impacts of climate variability.

2. Broad Findings

We find that a large number of SC, BC and women farmers in these regions have a very poor resource base as they lack access to irrigation, have poorer soils, lack in physical resources like farm equipment and financial resources like access to loans etc. Besides lacking in formal education they also have very little information about the climate change, its impacts and the possible methods of adaptation. The better equipped ones enjoy resource advantage when compared to the other category but even though they may be more educated, they too suffer from the lack of necessary information and knowledge for adaptation. Both the categories of farmers suffer from lack of any skills outside of agriculture.

3. General Constraints to Adaptation

- Mounting debt burden, low levels of income and savings
- Declining health and general stamina:
- Declining demand for traditional skills and lack of awareness and opportunities to develop new skills:
- Poor soil quality coupled with lack of access to irrigation:
- Low levels of mechanization and spread of water saving technologies:
- Lack of social networks outside the village

4. Categories of Farmers with Severe Constraints

The resource poor farmers are further categorised into 3

groups based on the type of constraint they face.

4.1. Women and socially (as well as economically) backward farmers

The reason for putting the two types of farmers together is that they both face social barriers and biases against their participation in the mainstream adaptation activities. They do not automatically get included in the training and extension or any other information dissemination activities. They are easily ignored because they are used to it and hence don't question it. Thus it is a challenge to bring them into the main activity stream. But if we don't, then they lose the opportunity to network, interact and learn from other (may be more powerful) groups and also the opportunity to bring their concerns to the notice of the others who make decisions.

For instance, a male farmer is the one who usually goes to the training and extension activities but it is the woman who actually implements the technology. Her absence from the discussions about the technology fails to take many operational problems into consideration and sometimes leads to mal adaptation or incomplete adaptation of the technology.

Similarly most of the socially disadvantaged farmers also double up as agriculture labor. Hence their participation in the discussions around climate change impacts and adaptation options will not only benefit them as farmers but also prepare them for any livelihood changes that are likely to take place.

4.2. Old and uneducated farmers

These are the farmers whose children have not followed them into agriculture. Some of these farmers may be well endowed on capitals like the natural, social and financial but their main constraint is human capital. They lack the skills to adopt new technologies. They also suffer from lack of support from their grown up children to manage the agriculture operations. Declining stamina and health problems constrain their ability to experiment with new technologies which will require constant monitoring. Lack of human resources also comes in the way of operating large holdings thus forcing them to either leave the land fallow or to lease out.

These farmers may be more interested in crop options that would require less management and more of mechanized operations. Basically they will need good substitutes for human capital for farm management. Options could be leasing out land or partnering with younger farmers for farm management. In the long term, training and certifying young and educated people as farm managers who could be hired by these farmers could be a mutually beneficial option.

4.3. Marginal and small farmers

The other category is farmers with low endowments on all capitals. These farmers are the most vulnerable with very limited options for adaptation. These are the marginal and small farmers from socially disadvantaged sections. Farming for these farmers is more of a drain on their resources rather than a source of income. These farmers invest their savings from other sources of income like earnings from agriculture labor or other odd jobs in their small plots of land. The produce is mostly used for household consumption with very little surplus left for marketing.

Farming for these farmers is a gamble with rains. They invest small sums (though to them it could be their entire savings) and generally go for crops which worked well for others. They cannot spend much time on their own plots because they have to earn additional income from other sources. As they face the biggest source of risk i.e. the weather, their ability to take on additional risk from trying out new methods of cultivation or new seed varieties is very limited. Most of the mainstream sources of information also bypass them as they are not ready to experiment. These farmers are also the most resilient in the sense that they have very little to lose or gain from agriculture so they continue in a low equilibrium state forever. Health problems and dowry for daughters sort of expenditures generally throw them out of this equilibrium when they have to sell their land to meet the treatment costs.

It is a great challenge to make these farms commercially viable as they need support on multiple fronts. Any solution targeting this group needs to mainly deal with scale issues. Adaptation options for this group will lie mainly outside agriculture and mostly in the arena of non-farm employment. This group of farmers could also be good clients for the farm management training.

5. Farmers who are Better Equipped to Adapt

Some farmers are better equipped to adapt because of their

- Bigger farm size helping them diversify their crops and hence reduce the risk of crop failure
- Good soils and access to irrigation helping their crops cope with delayed rains, periods of drought and also giving better yields in high value crops like rice and cotton

These farmers could be broadly divided into two groups based on their communication needs.

5.1. Large and Medium Farmers

These are the farmers who have threshold level of endowments on almost all the capitals. It is the proper use of these capitals that may be the issue here. Some of these farmers are prone to high stakes, high risk investments in agriculture which throws them into a debt trap. In one sense these are also the most vulnerable group from where most of the suicides take place. These farmers could easily be the best bet from adaptation point of view because it is the lack of necessary information and training that constrains their ability to adapt. This is where the project is more likely to make an impact through its weather and farm advisories.

The adaptation options suggested for these farmers should basically be commercially viable with resource efficiency as a by-product. These are the farmers with appetite for profit centered agriculture. Mechanization, markets and timely

advice may be crucial for spreading right kind of adaptation options among these farmers.

5.2. Young and educated farmers

These are the farmers with best of all resources. Good soils with access to irrigation are the attraction for these farmers. These farmers could be risk averse or interested in stable and fixed income as they may need regular cash flow for their children's education and cash needs of their families.

These farmers could also be the toughest to convince from the adaptation point of view as they might want tested and tried out options. These farmers may need more of printed information and also other communication products like brochures, pamphlets, reports etc.

6. Recommendations

• Special focus on female farmers and socially backward farmers from the extension point of view

➢ Customize and develop a menu of adaptation options for different categories of farmers

➢ Develop a variety of communication products to meet the needs of different types of farmers

7. Conclusion

This paper attempts to provide insights into the difficult aspects through an analysis of the farmers' adaptive capacity measured in terms of five capitals. We find that a large number of SC, BC and women farmers in these regions have a very poor resource base as they lack access to irrigation, have poorer soils, lack in physical resources like farm equipment and financial resources like access to loans etc. Besides lacking in formal education they also have very little information about the climate change, its impacts and the possible methods of adaptation.

