

Adaptation to climate change – there is much more to it

Adaptation to climate change in agriculture is a hot topic, but what exactly does it mean? Our authors suggest to take a step back before embarking on adaptation work in rural development, and to carefully clarify the goals of adaptation and scrutinise the role of rural development organisations in adaptation processes.



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Adaptation to climate change is of paramount importance for agriculture and for rural communities. It is high on the agenda in rural development, both on a conceptual level and in daily project work. However, is it clear what adaptation to climate change in agriculture means? Is it clear how to measure the success of adaptation strategies? We argue that formulating the goals and designing measurements for adaptation success in agriculture is much more challenging than commonly thought. In fact, adaptation to climate change brings neglected dimensions of rural development work to the fore, calling for a thorough reassessment of how to best engage in this work.

■ The challenge

Predictions of climate change impacts on agriculture entail increases in weather extremes such as droughts and floods, shifts in cropping seasons and increased pest and disease pressure. Adaptation to climate change aims at decreasing the vulnerability of rural communities to these changes, thus seeking to maintain or improve their agricultural production capacities despite increasingly unfavourable conditions. Increased water and nutrient use efficiency of crops, drought resistance and improved pest and disease management are important building blocks of adaptation strategies, and there are many successful examples of projects that support improved agricultural practices for adaptation.

However, one key challenge of adaptation work is the time horizon of several decades rather than just a few years. Furthermore, adaptation has to deal not only with gradual changes, but with fundamental system transformations at certain threshold levels. For example, increased water use efficiency helps to deal with increasing water scarcity, but

beyond some level of scarcity, agriculture may have to be abandoned. The goal of adaptation is thus twofold, and very diverse. First, it aims at keeping the vulnerability of production systems to the impacts of climate change low, maintaining the production capacities. If this can no longer be achieved, its second aim is to provide communities with the means and capabilities to change their livelihood sources to less vulnerable ones. Adaptation strategies can then become very fundamental, such as switching from crop production to grassland-based animal husbandry or even abandoning agriculture altogether as a source of livelihoods, taking up other activities or migrating to other regions.

The conceptual literature is well aware of the need to address the time horizon of decades and the possibility of fundamental transformation in adaptation. But these topics hardly play a role in current adaptation projects, which focus on improving production practices, crop choice and varieties, access to inputs, output markets, credits, information and extension services for farms or farming communities, and they usually operate within time frames of just a few years. As important as this is, it falls short of the necessary far-reaching perspective on adaptation.

■ Adaptation from within

Unlike the neglected decade-long time horizon and transformation processes, participatory approaches are often supported in adaptation work. Stakeholders should “own” the process and its goals. Strategies, implementation, and monitoring should be developed from within the community in a participatory manner. This is even more important for time-frames of decades and fundamental changes in the livelihood basis of communities. Such changes concern aspects

of regional or national sovereignty and responsibility. For example, visions are required on the structure of the agricultural sector in 20 years, alternative income sources need to be identified, or even relocation might have to be considered. Not only are farmers' livelihoods at stake but a community's future as a whole. Moreover, communities' futures have to be assessed within the socio-economic context of the regional and national economy and potential governmental development strategies and institutions. Ultimately, this means that regions and nations need to "own" adaptation processes, besides the people and communities directly affected.

Adaptation thus involves governmental core responsibilities. While we criticise that current project-based rural development work often disregards the full extent of adaptation, accounting for it is not free of problems either. If non-governmental actors take over governmental tasks, the danger that this will happen in an uncoordinated and inefficient way is all too real. Disaster relief in Haiti after the 2010 earthquake may serve as an example. Hereby, we clearly do not assert that governmental action is always coordinated and efficient, alas! But we want to point out the challenges and responsibilities that arise when embarking on such tasks. The success of single improved adaptation practices, e.g. higher water use efficiency by organic soil amendments, can be measured within few years. Measuring long-term adaptation success of a community, however, is only possible after decades. In the timeframe of a few years, it could at best be identified whether a community has the capability to start towards a future adaptation goal, e.g. via an assessment of its current resilience capacity and its capacity for transformability in face of drastic changes in livelihood basis. Many suggestions for such assessments exist. Participatory approaches, institutions that allow for learning and innovation, diversity in activities, livelihood basis, input sources and output use are generally seen as prerequisites for successful adaptation. Furthermore, defining criteria for successful adaptation is difficult. Is adaptation success that in 20 years, stakeholders are still performing the same activities that they are now? Or is it rather that key indicators such as poverty levels and food security have not deteriorated? Or is it that all stakeholders are able to live a decent life, however defined, and wherever lived, thus also conceding that migration can be a successful adaptation strategy? Indicators for adaptation success need to relate to the developmental goals of a rural community, and defining or identifying them is a challenging task.

■ The role of rural development work

Adaptation projects thus operate in a context of high uncertainty, in particular on future developments and often also on future goals. It is important to support measures that are robust in the sense that they lead to beneficial outcomes in a broad range of situations and that they strengthen processes and institutions that increase the capability to successfully deal with unexpected thresholds. Much is known on broadly beneficial measures at the level of agricultural practices, such as soil protection, increased crop diversity and im-

proved water management. Many promising rural development projects on climate change adaptation in agriculture apply such measures. However, these activities need to be complemented with activities to address the challenges of a time horizon of several decades, the possibility to undergo fundamental changes, and the fact that related actions are core tasks of governments.

While daily business must continue and is demanding, we strongly suggest that rural development workers and organisations take some time to develop long-term visions on their approach regarding climate change adaptation in agriculture, in close exchange with the target communities and their institutional context. Such projects are not only about improving the agricultural livelihoods of people. There need to be visions on what the target communities and regions may look like in 20 or 50 years, given some assumptions on future climate change. Such visions may even foresee drastic reductions of farm household numbers and population shares depending on agriculture. Adaptation work aims at making people fit to live in an adverse environment or making such an environment less adverse, e.g. by improving irrigation infrastructure or by assuring minimum prices for certified products. However, it should also prepare people and communities to deal with future fundamental and maybe unexpected changes.

Ideally, people and communities start preparing for changes while there is not yet an urgent need for change. This is easier if actions taken are comprehensible now and not only in a distant and hypothetical future situation of change. Visionary first movers with a strong internal motivation to deal with these issues should be part of these current activities. On the other hand, the momentum that emerges when the need for change becomes imminent can then complement such preparatory efforts and can be used to foster fast change. Crisis can be a big driver for change. The key is that communities are well prepared for this and dispose of the means and capabilities to successfully deal with crisis.

Again, we emphasise that the aspect of fundamental system changes within adaptation work is particularly sensitive, as it touches on core responsibilities of governments. It becomes all the more important that paternalistic approaches in rural development work are avoided and that activities for adaptation work are well-coordinated and participatory. Governmental institutions may not take up all challenges related to adaptation, though. How to deal with this in adaptation projects has to be thought through cautiously and in detail. Current adaptation work in rural communities achieves much, but it lacks awareness for decade-long time horizons and fundamental changes. People working in adaptation projects need to take this seriously. Visions for the distant future accounting for the possibility of fundamental changes need to complement and guide current adaptation work.

For references and further reading, see ► www.rural21.com
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