

Feed more people in a changing environment

Climate Resilient Agriculture: key points from the learning journey

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A challenging changing environment

If by 2050 world food production is to meet the demand of the world population, it has to increase by 60%. However, climate related challenges are expected to exceed regular coping capacities of smallholder farmers – through their characteristics, their magnitude and their frequency. Climate change has become a reality and a +4°C scenario is realistic, showing dramatic consequences for many regions in the world. Reports from West African countries ([Jalloh](#)) highlight the decline of annual rainfall since the 1990s and the temperature rise, that lead – jointly with unsustainable use of resources - to the shrinking of the vegetation and desertification processes. Also, the situation in Zimbabwe ([Ndidzano](#)), Northern Uganda ([Apuoyo](#)) and in Pakistan ([Nizami](#)) highlight the uncomfortable situation of many countries facing water scarcity. Pakistan falls into the top 10 of countries that are most vulnerable to climate change, with 20% less rainfall by 2040 during winter, establishing critical conditions for the wheat that is sowed during this season. In Zimbabwe, 80% of all rural livelihoods depend on rain-fed agriculture, with yields that are directly correlated to the amount of rain.

How will we be able to produce sufficient and nutritious food for a growing population and with increasing environmental threats?

Climate Resilient Agriculture (CRA) has been identified as a path to follow. CRA is defined by the Food and Agriculture Organisation (FAO) as “*agriculture that sustainably increases productivity, enhances resilience (adaptation), reduces/removes Green House Gas (mitigation), where possible, and enhances achievement of national food security and development goals.*”

The aim of this article is to condense the lessons learned from the different summaries/webinars/online dialogue in order to allow us, as individuals and as a community, to make a step forward in our programmes and projects. The structure of this article follows the eight dimensions of CRA, defined by the CGIAR CCAFS. Even though described separately, it is important to remember that these 8 dimensions are mutually supportive and interdependent.

1. Capacity and enabling policy and institutions

It appears that alliances between different stakeholders (NGOs, donors and researchers from different countries, farmer organisations) could balance national legislations and ensure that all key elements of CRA - for an enabling framework - are strengthened and that more inclusive and more agro-ecological approaches are possible. The [WAPRO](#) - Water Productivity Project - implemented in 6 countries is a good example of a project working with a push, pull and policy approach on rice and cotton value chains. The push approach consists of promoting innovation and technology that are tested and introduced on field level. The pull approach requires financial incentives that will help the farmers to apply innovations on field and increase adoption rate of existent technologies. Here clearly, the private sector - as an adopter - plays a crucial role. The policy approach addresses water related policies to create an enabling environment for push and pull approaches to take place, and establish water stewardship. The

outcomes of the WAPRO are very convincing as not only water efficiency in production has improved, but also the livelihood of 60'000 farmers, who increased their income by 20-30%.

2. Strong farmer organizations and networking

Capacity building and the strengthening of farmer organizations are key constituencies to promote other elements of CRA among the farmer population. For example, 36 Climate Smart Villages ([CSV](#)) have been implemented in 21 countries around the world, using participatory methods for different projects all recovering the 3 pillars of CRA (mitigation, adaptation, productivity) ([Jalloh](#)). One of the great strengths of the CSV approach is its inclusiveness, allowing farmers, NGOs, researchers and other partners to meet. Together, they find solutions which allows smallholders - in all sorts of communities - to adapt their agricultural practices. An essential part of the CSV relies on the “*training-the-trainers*”, which enables a better knowledge transmission inside a community. For example, many women trainers adapted the messages into songs, to be more appropriate to their local culture. Indeed, that is how women convey, share and remember important information.

3. Climate informed advisories and early warning

Quality of weather/climate-informed services and early warning is essential for the implementation of good farming practices. Cooperation with key-stakeholders in charge of meteorological stations, offices, weather forecasting, media and mobile services is necessary. Digital agriculture offers a lot of new opportunities for the provision of weather and climate services to farmers and other agricultural stakeholders. Nevertheless, many smallholders are left behind, having no access neither to climate stations. And when there is access to climate data, the quality is not satisfying. Further financial support from public or private actors in order to improve the offer in quantity and quality is needed.

4. Digital agriculture

The sharing of information through mobile phones and radio have been game-changing in African countries for the past years, allowing farmers to connect to markets, to buy inputs, or to access climate data ([Jalloh](#)). Therefore, the improvement and development of digital tools with key stakeholders in a country shows great potential to strengthen virtually all key elements of CRA. For example, digitalization helps to improve insurance schemes for farmers, by using satellite images and remote sensing. Analysis of the data collected allows to react quickly after the occurrence of a hazard and to decide which farmer is going to receive a financial compensation. However, it is good to remain precautionous with data privacy. It is important that farmers in Low Income Countries (LIC) expect the same quality of data protection (same standards) as would farmers in High Income Countries (HIC). “*Privacy is not a first world problem*” ([Rural 21](#)).

5. Climate resilient and low emission practices and technologies

Today, there is sufficient data showing the high potential of CRA technologies. For example, the WAPRO project uses laser levelling tools to save water and this technology has allowed farmers to spare 30% of water ([Kägi](#)). Similarly, in India 43% of water could be saved through Sustainable Rice Intensification and 49% through alternate wetting and drying ([Kägi](#)). However, what prevents the further distribution of technologies such as laser leveling is their economic cost. Without a political incentive, it is not likely that farmers will implement such expensive technologies. The report from Switzerland shows how the modification of the Swiss Agricultural Policy, providing direct payments for ecological production ([Felder](#)), have supported the transition towards more sustainable production.

6. Prioritization and pathways of change (vulnerability integration)

Facing the fast increase of climate or weather related disasters, both NGOs and donors should become more responsible and invest time to apply and promote diagnostic tools, such as [CEDRIG](#). This tool allows to assess climate, environmental and disaster risks and mitigation options in order to adjust multi-year strategies, programmes, projects and activities. The first assessment of your project takes only one hour and you will know if your project is at risk of climatic changes/disasters.

7. Credit insurance

Financing issues remain one of the major challenges for a scaling-up of CRA technologies/mechanisms such as credit insurances. The SDC and NGOs need to work with like-minded development partners and private sector partners to develop innovative financial schemes to promote CRA. Indeed, the reports from the field highlight the monetary difficulties for smallholders to obtain such products. For example, in Zimbabwe, farmers are excluded from accessing insurance services, whereas they are one of the most vulnerable countries to climate change ([Ndidzano](#)). Similarly, crop insurance and early warning systems are still inexistent for farmers in Zimbabwe, leaving farmers with only livestock as an “insurance system” ([Nizami](#)). In Pakistan, it seems that digital climate services do not reach remote farmers and that resource efficient technologies (such as irrigation tools) are too expensive for them ([Nizami](#)).

8. Expanded private sector activity and public private partnerships

An efficient way to promote CRA is to integrate CRA technologies, practices and tools (e.g. financial and insurances products) in our agricultural value chain and market systems. Report from Northern Uganda ([Apuoyo](#)) show the beneficial collaboration with the private sector on the [NU-TEC](#) programme: *Transforming the Economy through Climate Smart Agribusiness*. NU-TEC invests in risk sharing and technical assistance with private actors. For example, private sector actors helped farmers to reach international standards (organic certification of gooseberry and chia), which enabled the farmers to access income generating markets. Convincing private actors seems to be the major challenge for developing further Public-Private-Development-Partnerships (PPDPs), as the business models for such programs are less lucrative and show their main benefits only on the longer term. However, with the growing concern for corporate social and environmental responsibility, there might be emerging possibilities of PPDPs.

How to go forward with CRA?

As has been shown in many field projects, the technologies from CRA show promising results in improving various issues (water management, decreasing post-harvest losses...). From a scientific point of view, there is no doubt that it makes sense to continue spreading these technologies. However, in the field, it takes time to implement CRA as political will is not always present. If there is a weak governance, you need to work bottom-up and try to identify the best alternatives to offer a service differently (for example if you want to spread a global weather service). In addition, digitalization shows an enormous potential to facilitate access to finances and information, even though it requires some improvements in quality/safety of data and quantity/access of data ([leave no one behind](#)).

Outlook

The A+FS network would like to organize a multi-network F2F global event on the **transformation of food systems** (or regional events on the same event next year). In order to prepare them we would like to ask you to give us some input to make our next steps more meaningful. It would therefore be greatly appreciated if you took 5 minutes of your precious time to vote on next steps and give us your comments. [Click here to take the survey!](#)