ALE AS A RESPONSE TO CLIMATE CHANGE AND FOOD INSECURITY IN THE SAHEL

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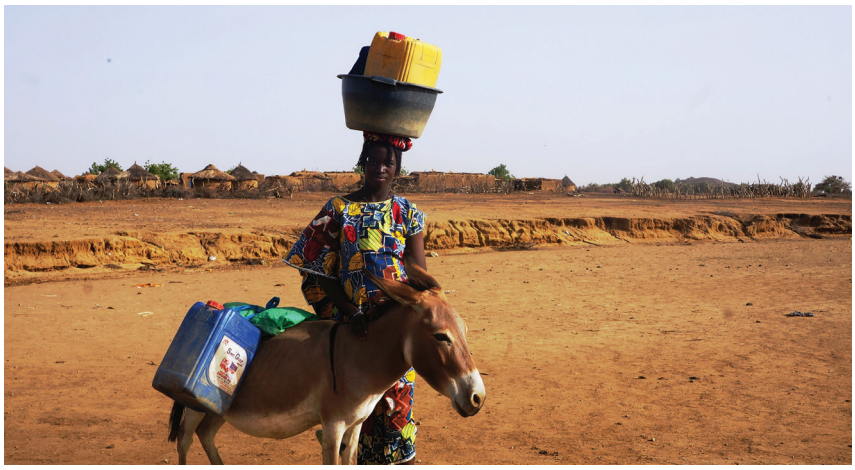

Local villager collecting water

Introduction

This article argues for the importance of adult learning and education (ALE) in the Sahel as a response to the impacts of climate change, including food insecurity. It explains the need for education and training, including important steps in the process prior to the training sessions, such as information-sharing, diagnosis of problems, among others. It also proposes what the sessions could incorporate.

Background

The Sahel countries – Burkina Faso, Mali, Mauritania, Senegal, Niger and Chad – have an economy primarily based on agriculture, livestock and fishing. These countries are among the poorest and least developed in the world, and many people in the region still depend on subsistence farming for their survival. In recent years, their lives and livelihoods are under threat from the worsening impacts of climate change. The degradation of soil and plant cover and the progressive drying up of rivers and lakes are just some of the most visible impacts of this. The region is also affected by a low level of basic infrastructure (e.g. roads, electricity, drinking water, sanitation and schools, etc.). Food security is an ongoing problem for much of the population.

This situation has been aggravated by a multidimensional crisis marked by attacks of armed groups in almost all countries in the region, a situation which arose following the destabilisation of Libya in 2011. The COVID-19 pandemic and endemic political instability in countries such as Mali, Burkina Faso and Chad have further exacerbated the situation.

The rationale for adult education on climate change in the Sahel

The Sahel region is divided into four principal agro-climatic zones:

i. The Saharan desert zone in the northernmost part, where nomadic livestock farming and agriculture are practised in areas with low pressure, wind, cloud and rain.

ii. The Sahel zone which is characterised by particular hydrological and ecological conditions (i.e. many flooded areas allow irrigated rainfed agriculture for part of the year).

iii. The Sudanese zone, characterised by dense and varied vegetation cover (Sudanese savannah). The climate is marked by very high temperatures (up to 45°C in the north) and alternates annually between a rainy season and a long dry season. Precipitation decreases from south to north following a general trend noted for the past five decades.

iv. The pre-Guinean zone which covers part of Southern Mali and Burkina Faso, and which has higher rainfall than the other climatic zones (1,000 to 1,100mm per year).

Climate change, which is becoming more severe year by year, is having a significant impact in all of these zones. Increasingly short and delayed rainy seasons, high winds, severe droughts and unexpected floods are becoming the norm. These trends are undermining the resilience of the local population. The traditional methods of securing livelihoods are no longer sufficient and living conditions across the region are deteriorating as a result. Ecologically fragile rural communities that are prone to drought are particularly affected, with communities of herders and farmers bearing the brunt of the effects. Every year, chronic food insecurity is affecting thousands of people. The benefits of community development investments are being largely wiped out by the increasingly frequent food crises caused by drought.

Aware of the magnitude of the problem, the government, development partners and civil society organisations have initiated numerous policies and projects to strengthen the resilience of the population against climate change. However, in the absence of effective coordination and cooperation between the various stakeholders on the ground, efforts are fragmentary, and the impacts of these well-intentioned initiatives are not visible in the lives of the local communities. This lack of coordination and communication is further exacerbated by a lack of *ownership* of

Half-moons for reclaiming degraded land

the projects by the local population, who are the intended beneficiaries of the initiatives. Furthermore, an analytical framework to help communities understand the root causes of the problem is lacking. As a result, they do not always make the connection between climate change, poverty and food insecurity.

Faced with these negative effects, the need to develop effective plans for adapting to climate change, that can secure the livelihoods of local communities and preserve the gains of community development initiatives, has become an urgent issue. Within this, a key priority is to build the capacity of the most vulnerable groups and communities. Community leaders and members must be trained to adapt their traditional means of livelihood to the new reality of a world with climate change. As rural communities can easily come together in groups of five to thirty villages, there is great potential to reach significant numbers of people with such training.

Education and training prerequisites

One of the fundamental principles of adult education (and indeed all education) is the motivation of the learner. They must understand and believe in the reason for learning something. This motivation is reinforced if the learning is oriented towards solving problems and addressing matters that concern them. Therefore, for the training to be successful, the first prerequisite is to raise the awareness of participants (e.g. local elected officials, producers, farmers' organisations, civil society organisations, etc.) on how climate change is a key factor affecting their lives. This will allow them to better understand the problem and the importance of the training and will ease the implementation of the subsequent phases of the training.

After provision of information and awareness-raising, a participatory diagnosis of the issue must be conducted to identify which sub-sectors (e.g. agriculture, animal husbandry, fishing, etc.) and local resources are most affected by climate change. Using various participatory tools, the environmental and socio-economic impacts can be identified, as well as the most vulnerable groups and the different risk levels. This process allows for the discussion of various practices and adaptations that can be implemented by the community to combat and mitigate the effects of climate change.

Since it is probably not practical to implement all of these measures at once, the next step is to prioritise them and decide which ones will be implemented first. Here again, there are numerous participatory tools available that can be used for analysis and ranking. There are various things to consider in this process, such as:

i. The potential of the measure to have a positive and significant impact on the problem.

ii. Cost (if this is too high, it may not be feasible).

iii. Impact on the environment (e.g. stockpiling of fodder for livestock to get through the Sahel's long dry

season is generally considered a positive practice, but if immature grasses are cut too often in the same area, it may result in desertification).

iv. Socio-cultural impact (i.e. even an effective measure may be rejected by a community if it clashes with local customs and traditions).

v. Availability of local resources (e.g. building of stone barriers may be effective against floods, but it is not practical in an area where stones are not readily available). The measures adopted should be feasible with the locally available resources – physical and human.

This analysis, when implemented effectively, will lead to the selection of suitable adaptation and mitigation measures that are relevant and feasible for a given area. The nature and number of these measures will guide the subsequent design of the training modules that the community needs.

The training

After the stages of information-sharing and awareness raising, diagnosis of problems, selection of adaptation and mitigation options and their prioritisation, comes the step of designing training sessions. Here we must consider three essential aspects:

i. **The availability of the participants**: Since the training of community leaders on good practices of adaptation to climate change is mainly intended for rural people, it is necessary to carry out the activity during the dry season so as not to disturb the farmers during the short rainy season in the Sahel when they are busy with work.

ii. **Criteria for selection of training participants**: Participants should be people who are trusted by the village community and can be depended on to replicate and cascade the training. They should also be community members who are not likely to leave the community any time soon. It is not an essential criterion, but it is recommended that they have at least basic reading and writing skills, whatever the language. Belonging to the family of the chief or the mayor should *not* be the criterion for choosing the participant.

iii. **Respect for gender**: The training should not be exclusively for men. As women are among the group most vulnerable to the impacts of climate change, they should be well-represented in the training.

Building rock formations to prevent rainwater runoff and trap fertile soil

Those organising the training can suggest the selection criteria, but must not interfere in the choice of participants, which is the exclusive responsibility of the community and the municipality. In addition to representatives from the communities, other potential participants include municipal councillors and representatives of the technical services of the government. In general, the sessions should take place at the local district capital or any other locality of the district that is easy to access and offers amenities for meetings of this kind.

A participatory approach

Effective adult education and training requires good interaction between the participants on the one hand and between the participants and the trainer on the other. Thus, the trainer abandons their position as a *teacher* to become a facilitator or a moderator. They *facilitate* relations in the group. Adults are active contributors to their own education and training. Therefore, the role of the facilitator is not to *transmit* knowledge, but rather to propose situations that will allow learning to take place. Participants in adult learning arrive with a wealth of prior knowledge and life experience, which must be valued and taken into account in the training. The trainer *facilitates* the link between the learner and the training content (knowledge, know-how, interpersonal skills). It is also essential to highlight the links between what is learned and the daily life of the learner.

Given the low adult literacy rate in the Sahel, discussions should be held in local languages during sessions held in rural areas. Also, for a better appropriation of the training content, emphasis should be placed on practical demonstrations – the programme should devote time to field trips where the theoretical content of the modules can be applied in real life situations.

Modules proposal

The facilitator should develop modules based on the problems and priorities identified during the diagnostic phase. In the context of the Sahel, these options relate to adaptation to or mitigation of the impacts of climate change in various areas related to agriculture, livestock, fisheries, drinking water supply, forest resources, etc. Before introducing the modules, it is important for the facilitator to discuss some of the principal concepts and terms related to climate change with the participants. Among others, these include *vulnerability*, *resilience*, *adaptation*, *mitigation*, *exposure*, *susceptibility*, *greenhouse gases* and *extreme weather events*. Discussions should also focus on the consequences of climate change, and strategies and measures that can be used to adapt to and mitigate these. Following this, the facilitator can present the various

training modules, adapted for the geographical area and the needs of the participants. These may include:

- **Sustainable land management:** Sustainable land management technologies include use of *half-moons*[1], *stone bunds*[2], *fascines*[3], *filtering dikes*[4], *zai*[5], etc. The implementation of these innovations makes it possible to fight against water and wind erosion, to rehabilitate marginal or degraded land and to increase soil fertility, among others. One good practice in the field of agriculture is the establishment of ***peasant field schools*** where farmers can be trained in the use of improved agricultural methods and new farming techniques adapted to the context of climate change. In addition to this innovation, the introduction of the use of improved seeds that are adapted to the shorter rainy season can also be beneficial. By using a combination of these measures, agricultural production can be increased and food insecurity reduced.

- **Improved livestock farming:** For livestock herders, some good practices to combat climate change include reducing the size of herds, better genetic selection of cattle, growing fodder crops and the development of grazing areas.

- **Strengthening income-generating activities for women:** Given that women are among the most vulnerable groups affected by climate change, income-generating activities for women should be prioritised. For example, the development of market gardening, sale of agricultural and sustainable non-timber forest products and the provision of microcredit should be promoted, among others.

- **Improvement of fishing:** With the decrease in available surface water, the promotion of fish farming using fishponds and pools and the deepening and stocking of fishponds are measures that can help.

Small pits called Zais are dug pre-season to capture scarce rainwater

Training in the processing of non-wood market garden and forest products

Market gardening is used to generate income and improve nutrition

- **Forestry management:** Conservation, reforestation, tree planting and the promotion of non-timber forest products (through the establishment and equipping of local manufacturing centres) are some of the possible mitigation measures. The processing of non-timber forest products helps to add value alongside other harvested products and increases women's incomes. The same centres can be used to process and preserve agricultural products for the lean season.

- **Sand dune stabilisation:** Climate change has accelerated the process of desertification leading to the advance of dunes on dwellings, rivers and fields. One of the most effective methods of combating this is the stabilisation of dunes by, among other things, planting plants such as ***Euphorbia balsamifera*** or ***Leptadenia pyrotechnica*** which can be grown easily from cuttings.

- **Combatting the water crisis in the Sahel:** As the water table is becoming increasingly depleted, it is necessary to drill boreholes to supply drinking water for people and livestock. The Sahel is one of the largest livestock grazing areas in Africa. The construction of micro dams is another measure that can be used to retain water during the long dry season.

There are many good practices for adapting to climate change. Which ones to use depend on the climatic zone, as well as the nature and degree of resource allocation by the development sector. Only a diagnosis can determine which practices are suitable for a particular area. A thorough grounding in the theoretical concepts of combating climate change should be followed by a practical phase. This can be done in two ways: (i) practical exercises can take place in the fields of the training participants, and/or (ii) study trips can be organised to visit other areas and conduct exchanges with people who are already implementing some of these measures.

Multi-year planning

As one of the objectives of adult education is to find sustainable solutions to concrete problems, any adult training session focusing on good practices for adapting to climate change must include multi-year planning. Measures to combat climate change often take more than a single year to have a sustainable impact. The plan should include objectives and expected results for each measure that is to be implemented, as well as an indicative timeframe and geographical location for the implementation. The plan must also be accompanied by a detailed budget showing annual costs and outlining the contribution of the various actors (e.g. family, village, municipality, government, other partners, etc.). Finally, a monitoring and evaluation plan which allows the actors themselves to periodically evaluate the progress of their measures is needed.

Conclusion

Training adults on good practices for adaptation to climate change in the Sahel is not an activity that should take place in isolation. As we have seen, it must be preceded by various other activities such as information-sharing, diagnosis of problems and selection of adaptation measures. It must also be followed by concrete actions based on action plans drawn up in a participatory manner. The ultimate goal of the training is to help reduce the vulnerability and strengthen the capacity and resilience of rural communities in the Sahel to combat the impacts of climate change, which has become an undeniable reality in today's world. Only by addressing the effects of climate change and adapting to their impacts can we mitigate the problem of food insecurity that is affecting more and more communities across the continent every year. Adult education is a key tool at our disposal in this battle.

Endnotes

1 Semi-circular structures made of compacted earth or stones with openings perpendicular to the direction of water flow used for rain-water retention for dry and degraded soils.
2 Linear stone constructions that are used to slow rainwater runoff and trap fertile soil.
3 Structures of interlaced branches used as dams and to slow down the impacts of soil erosion.
4 Stone dams used to regulate water flow and slow down soil erosion.
5 Small pits dug in the soil during the pre-season to capture scarce rainwater.

Training on Dune Fixation