Empowering farming communities in Northern Ghana with strategic innovations and productive resources in dryland farming (PN6)

Objectives

Improve household food security and sustainable income while conserving and regenerating the natural resource base by empowering rural farming communities to exploit the productive potential of rainfed drylands in Northern Ghana

***Where**:* Farmer communities in Northern and Upper East Regions of Ghana

Method / Activities

- Developing improved staple crop varieties for cassava, cowpea, maize and sorghum, and techniques to sustain soil water and improve fertility of degraded soils
- Introduce low-cost roof-top water harvesting for increasing domestic water availability and alleviate household water insecurity; rehabilitate and maintain community dugouts for increased water intake and fish production
- A dry spell distribution map was generated for Northern Ghana based on analyses of long-term rainfall data.

Key Achievements

- Four early maturing cowpea varieties suitable for pre-cereal (rice and maize) cultivation were released and immediately adopted by farmers who obtained up to 25% yield increments over earlier types; varieties of sorghum and cassava with proven high yields under conditions of drought have enjoyed patronage from farmers over a two-year period.
- Analysis of long-term rainfall data has a significant increase in drought frequencies over the past decade compared with frequencies in each of the past four decades. The map is now the basis for commendations on choice of crop for specific regions, and for advice on planting dates.
- Farmers adopted an appropriate soil moisture retention and organic matter build-up technique through approaches including field micro-catchment and external water harvesting techniques, and use of several legume species as cover crops.
- Adoption and impact studies have shown an 11% increase (over farmers in non-beneficiary communities) in the number of farmers that have access, knowledge and make use of strategic innovations to improve dryland farming.
- The acute household water insecurity situation and its associated negative effects on female income generation were demonstrated to policymakers; practical options for increasing domestic water availability have engendered female empowerment in income generation, by relieving women from the burden of water sourcing for domestic needs.
- At the community level, training on dugout maintenance and fish culture techniques have improved fish harvests by 40% in 22 target dugouts with associated increases in water retention.

Conclusions

- The major determinants of adaptive capacity of farmers to innovations include: knowledge or awareness on the available innovations, access to financial services, social network (institutions), household income, availability of innovation (technology) and household size.
- Evidence shows that farmers and farm households are gaining confidence in their own capacity to cope with low productivity or adapt innovations that mitigate the effects of climate variability on farm level productivity.

Value / relevance for the BDC

- Volta BDC project V1, *Targeting and scaling out*. The dry spell distribution map generated by PN6 can be used and further developed to contribute to site similarity analysis and to the development of extrapolation domains.
- Volta BDC project V2, *Integrated management of rainwater for crop-livestock agroecosystems*. Project V2, in a similar approach as PN6 aims to use integrated strategies to introduce productivity-enhancing, resource-conserving technologies. Strategies may combine elements of green and blue water management for multiple uses; improved strategies for managing crops, livestock, and crop residues and common property management. PN6 offers value lessons to this approach.
- Volta BDC project V3, *Integrated management of small reservoirs for multiple uses*, will develop integrated management options to support multiple uses of water by multiple users. It aims to enhance small reservoir productivity and ensure more equitable allocation of water among uses and between users, including marginalized women and landless poor. PN6 has demonstrated how multiple uses, for example increasing water retention in community dug-outs both for increased fish production and better access to domestic water, can reinforce each other and lead to better outcomes for marginalized water users.