

3. Enable farmers spread the risk widely by diversifying their enterprises while in the process making their farming systems more profitable
4. Promote farming as a business among the targeted farmers
5. Contribute to regulatory and institutional environment that supports adaptation to climate change

In order to evaluate the impact of the proposed project, a number of verifiable indicators have been proposed (see the rest in the Project Matrix in Annex IIb):

1. Percentage increase in average crop yield per targeted household as a result of using conservation farming;
2. Percentage increase in average income per targeted household as a result of using conservation farming;
3. Average yield per targeted household as a result of using improved and early maturing crop varieties
4. Percentage reduction in the frequency of diseases due to use of improved and early maturing varieties
5. Percentage reduction in pest infestation due to use of improved and early maturing varieties
6. Percentage increase in average household income for the targeted households involved in integrated production system
7. Percentage increase in yield of targeted commodities involved in integrated production system
8. Percentage increase in farm households adopting farming as a business
9. M&E systems of MAL in the project areas of Region I strengthened
10. Climate change resilience strategies arising from inter-ministry meetings implemented

2.2.4 Scope and Implementation

A number of interventions have been identified for the proposed Pilot Project and these include the following;

1. Conservation farming to increase resilience of farmers to drought weather conditions
2. Promotion of drought-tolerant and early maturing varieties
3. Promotion of integrated farming systems
4. Training of farmers in 'farming as a business'
5. Mainstreaming of environment and climate change adaptation in government departments and key partners located in Region I

2.2.4.1 Conservation farming

Outputs and Verifiable Indicators

The pilot project option will target 3,000 agricultural HHs in Region I who will each be assisted to acquire 100 agro-forestry seedlings to be planted on a 1 hectare plot of land over a five year period (2014-2018). They will also be trained in soil fertility improvement issues with the following expected outputs:

- Targeted farming HHs trained in appropriate soil fertility improvement practices (Lime, residual retention, crop rotation, no burning, improved furrow)
- Targeted farming HHs are planting green manure crops in their fields so as to increase soil fertility
- Targeted farming HHs are using compost manures in their fields, and

- Targeted farming HHs are producing compost manures in their fields

The Verifiable indicators for this output are as follows:

- Percentage of farming HHs using conservation farming with agro-forestry
- Percentage reduction in the application of chemical fertilizers per hectare
- Number of targeted farmers trained in appropriate soil fertility improvement practices ((Lime, residual retention, crop rotation, no burning, improved furrow)
- Percentage of targeted farming HHs planting green manure crops in their fields so as to increase soil fertility
- Percentage of targeted farming HHs using compost manures in their fields
- Percentage of targeted farming HHs producing compost manures in their field

Activities

In order to achieve the expected outputs, the option plans to undertake the following activities.

- Sensitize farmers on the benefits of using conservation farming with agro-forestry
- Facilitate farmers to access a total of 300,000 agro-forestry seedlings
- Train farming HHs on how to use organic fertilizers in their crop fields
- Undertake soil diagnostics to ascertain the soil types
- Train farmers in appropriate soil fertility improvement practices (Lime, residual retention, crop rotation, no burning, improved furrow)

Timelines and Budget Requirements

The pilot project is envisaged to take a period of five years from 2014 to 2018. The preliminary cost for this adaptation option over a five year period is estimated at US\$3.3 million. Conservation farming has been promoted for a number of years now with good results with funding from bilateral agencies (e.g. NORAD, Sida), multilateral agencies (World Bank, EU) and a number on non-state actors. Most of the projects have occurred in Agro-ecological Region II. The Ministry of Agriculture and Livestock Development has also integrated conservation farming in its messages. The Conservation Farming Unit (CFU) of the Zambian National Farmers Union (ZNFU) has been the central agency advocating for CF. Given all these projects, the suggestion is that climate change adaptation merits of CF be highlighted much more by promoting the practice in a region most vulnerable to the adverse effects of climate change. The CFU or another agency could thus be helped to source extra funds to expand their activities in Region I.

Risks and Challenges

The only identified challenge for this option was that the labour intensity of conservation farming would constrain the adoption of the practice given the labour shortages most households in rural communities face. The high cost of hired labour compounds the challenge.

The risks identified include:

- MAL does not allocate insufficient resources to agricultural research and especially to farming systems research. This should be taken up as part of the project budget.

- The inadequate number of extension workers available persists in the project area. The project to operate only in camps where there are extension workers.
- Prices of soil fertility improving ingredients such as lime are not affordable to small scale farmers. The project to facilitate the acquisition of these ingredients and work out a mechanism for farmer contribution.

2.2.4.2 Promotion of drought tolerant and early maturing crop varieties

Outputs and Verifiable Indicators

The project option will target 3,000 agricultural households who will each be helped to acquire drought and early maturing seed varieties of cassava and sorghum.

The Verifiable indicators for this output are as follows:

- The number of demonstrations for drought tolerant crops established
- The number of targeted farming HHs sensitized on the benefits of drought-tolerant crop varieties

Activities

In order to achieve the expected outputs, the option plans to undertake the following activities.

- Farming HHs helped to procure/source drought-tolerant crop varieties.
- Farming HHs trained in crop diversification using drought-tolerant crop varieties

Timelines and Budget Requirements

The PSCCR project is envisaged to take a period of five years from 2014 to 2018. The estimated cost is US\$1,035 to cover purchase of new seed varieties, labour time, training costs, on-farm equipment and field trips. The usual sources of agricultural projects in Zambia including the GRZ and bilateral and multilateral agencies could be approached for funding. Given the focus on climate change resilience strengthening for farmers in Zone I, Climate Funds Initiatives could be tapped as well.

Challenges

The risks and their mitigation measures were similar to those in Section 2.2.4.1

2.2.4.3 Promotion of integrated farming systems

Outputs and Verifiable Indicators

This will target 500 agricultural households who will each be assisted to acquire fingerlings, livestock (5 goats & 10 ducks), sorghum and sugar beans and vegetable seeds sufficient for a 1.25 Ha plot of land in Region I.

The Verifiable indicators for this output are as follows:

- Number of farming HHs using integrated farming.
- Percentage increase in income of farming HHs involved in integrated farming