

# Scientific and Technical Advisory Panel

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environment Facility  
(Version 5)

## STAP Scientific and Technical screening of the Project Identification Form (PIF)

Date of screening: October 02, 2013

Screeener: Guadalupe Duron

Panel member validation by: Anand Patwardhan

Consultant(s):

### I. PIF Information *(Copied from the PIF)*

**FULL SIZE PROJECT LEAST DEVELOPED COUNTRIES FUND**

**GEF PROJECT ID:** 5394

**PROJECT DURATION :** 5

**COUNTRIES :** Zambia

**PROJECT TITLE:** Climate Resilient Livestock Management Project

**GEF AGENCIES:** AfDB

**OTHER EXECUTING PARTNERS:** Ministry of Agriculture and Livestock (MAL)

**GEF FOCAL AREA:** Climate Change

### II. STAP Advisory Response *(see table below for explanation)*

Based on this PIF screening, STAP's advisory response to the GEF Secretariat and GEF Agency(ies):

**Major revision required**

### III. Further guidance from STAP

STAP acknowledges the African Development Bank's proposal on "Climate resilient livestock management project" in Zambia. The proposal is based on priorities reflected in the country's NAPA. It also describes the climate variability conditions for Zambia, and provides some socioeconomic information useful in understanding the role of agriculture in the country. However, STAP believes the proposal could have been further developed by describing more explicitly the risks posed by climate change to the livestock sector, the barriers hampering adaptation responses, and how the proposed components intend to address these barriers. Currently, the information included in the proposal is minimal and it is difficult for STAP to assess the scientific validity of the project design. For this reason, STAP has rated the proposal major revision, and recommends strengthening the proposal based on the recommendations below.

1. STAP recommends defining the threats farmers face with regards to climate variability and its impact on the livestock sector. Page 4 of the PIF describes the effect of temperature on livestock; however there is little substantiation or elaboration of the causal mechanisms. Further, there is little documentation of the link between effects on livestock and household / community livelihoods. This would include describing further the impact of climate vulnerability on fodder, water, and the livelihoods of the pastoralist communities. Some references in this regard include: (1) Tembo, Gelson, et al. "Livestock Trends and Farmers' Perceptions about their Impacts in Southern Zambia." *Journal of Agricultural Studies* 2.2 (2014): 11-20, and (2) Tembo, Gelson, et al. "Livelihood Activities and the Role of Livestock in Smallholder Farming Communities of Southern Zambia." *Open Journal of Social Sciences* 2.04 (2014): 299.

2. Additionally, it is not clear from the proposal whether farmers manage mixed crop-livestock systems and if so to what extent conservation agriculture is applied given its potential to improve soil health and long-term crop productivity while serving the demands for livestock feed. STAP believes conservation agriculture can serve these joint purposes if the conditions are appropriate – that is, are the biophysical and socio-economic conditions suitable for biomass production to meet the demands of agricultural productivity (food security) and livestock feed. If conservation agriculture is applied in crop-livestock systems in Zambia, STAP suggests taking into account the potential trade-offs associated with small-holder farmers' use of crop residue (animal feed versus mulch that could benefit soil fertility, enhance agricultural production [food security] and sequester soil carbon). Accounting for the trade-offs will provide further insights into the challenges and opportunities facing farmers' decision making on applying conservation agriculture in crop-livestock systems. The African Development Bank could rely on the following paper (and its reference list) to develop further component 1 in relation to farmers' trade-offs for the use of crop-residue – D.Valbuena, et

al "Conservation Agriculture in mixed crop-livestock systems: Scoping crop residue trade-offs in Sub-Saharan Africa and South Asia". *Field Crops Research* 132, pages 175-184. 2012

3. The precise beneficiaries of the LDCF intervention are not clear – the PIF (page 6) refers to targeting livestock breeders. However, the baseline project is presumably working with the actual small-holders and pastoralists. Are these the same beneficiaries? Are the climate-resilient breeds native breeds? Given that climate change will unfold over a period of time, it would be helpful for the project to examine the issue of genetic diversity in native breeds, and integrate attempts to preserve this diversity.

4. It would be valuable to describe the livestock systems based on agro-climatic conditions and socioeconomic factors (example – access to labor [on and off the farm], pricing policies) that may influence farmers' decisions to adopt coping strategies on climate risks. The literature reveals that farmers' coping strategies are based on a series of factors influencing their perceptions, including socioeconomic aspects, about how climate vulnerability affects their livelihoods. The project developers may wish to draw from the following literature describing these issues further: Mubaya, C. P. et al "Climate variability and change or multiple stressors? Farmers' perceptions regarding threats to livelihoods in Zimbabwe and Zambia". *Journal of Environmental Management* 102, pages 9 – 17. 2012.

5. Component 2 states that stockbreeders' and the government's capacity will be strengthened on adaptation strategies. It would be useful to detail in what ways farmers' knowledge about climate vulnerability and coping mechanisms will be imbedded in this component. Currently, farmers' local knowledge, or perceptions, about climate vulnerability and its impact on livestock management and livelihoods appears absent in the proposal. Small-holder participation in livestock markets has been examined by Lubungu et al (see: Lubungu, Mary, Antony Chapoto, and Gelson Tembo. *Smallholder Farmers Participation in Livestock Market in Zambia*. No. 157783. Michigan State University, Department of Agricultural, Food, and Resource Economics, 2013.)

6. Additionally, STAP encourages the African Development Bank to conduct a market analysis to inform better the intended outcome of component 2 on income diversification.

7. Furthermore, the literature suggests that more could be learned about the nature, and extent of, the impact of on and off-farm income sources on livestock keepers facing climate risks. Perhaps the project could contribute to this knowledge gap. The project developers could draw from the following paper to learn more about the impacts of climate change on livestock systems and livelihoods – including knowledge gaps: Thornton, P.K. et al "The impacts of climate change on livestock and livestock systems in developing countries: A review of what we know and what we need to know". *Agricultural Systems* 101, page 113 – 127. 2009.

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
<b>1. Consent</b>	<p>STAP acknowledges that on scientific or technical grounds the concept has merit. However, STAP may state its views on the concept emphasizing any issues where the project could be improved.</p> <p>Follow up: The GEF Agency is invited to approach STAP for advice during the development of the project prior to submission of the final document for CEO endorsement.</p>
<b>2. Minor revision required.</b>	<p>STAP has identified specific scientific or technical challenges, omissions or opportunities that should be addressed by the project proponents during project development.</p> <p>Follow up: One or more options are open to STAP and the GEF Agency:            (i) GEF Agency should discuss the issues with STAP to clarify them and possible solutions.            (ii) In its request for CEO endorsement, the GEF Agency will report on actions taken in response to STAP's recommended actions.</p>
<b>3. Major revision required</b>	<p>STAP has identified significant scientific or technical challenges or omissions in the PIF and recommends significant improvements to project design.</p> <p>Follow-up:            (i) The Agency should request that the project undergo a STAP review prior to CEO endorsement, at a point in time when the particular scientific or technical issue is sufficiently developed to be reviewed, or as agreed between the Agency and STAP.            (ii) In its request for CEO endorsement, the Agency will report on actions taken in response to STAP concerns.</p>

