

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: March 11, 2016
Screener: Thomas Hammond
Panel member validation by: Brian Child
Consultant(s):

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

FULL SIZE PROJECT	GEF TRUST FUND
GEF PROJECT ID:	9068
PROJECT DURATION:	4
COUNTRIES:	Chile
PROJECT TITLE:	Establish a Network of National Important Agricultural Heritage Sites (NIAHS)
GEF AGENCIES:	FAO
OTHER EXECUTING PARTNERS:	
GEF FOCAL AREA:	Biodiversity

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):
Minor issues to be considered during project design

III. Further guidance from STAP

STAP welcomes this project submitted by FAO. This is a well-designed project that aims to conserve agro-biodiversity by assisting and conserving local small scale livelihoods. The project builds on existing and past GEF funded activities in this area. It also represents strong integration of grassroots participation and scientific facilitators. The analyses of barriers to project success are well considered, although much of this analysis appears to be based on the useful but relatively dated work of Cubillos and Leon (1995). The project developers are encouraged to use additional and recent literature. The project focuses on three key pillars of intervention: in situ conservation primarily from a technical and agricultural extension perspective, marketing and valuation of traditional agricultural products, and improving the national policy framework supporting this effort. This approach has been successfully implemented in other countries. The project faces the challenge of competing with industrial agriculture although STAP is hopeful the project will have impact for small-scale agro-biodiversity, and generate lessons for future similar efforts. While STAP is supportive of this initiative, the Panel wishes to suggest a number of areas where the project could be further strengthened.

The project components represent a powerful strategy for approaching a challenging problem – the competitiveness of small, local farms and the agro-biodiversity species they use. STAP recommends for the outcomes to be documented even more thoroughly than proposed as it provides an important global example, relying on a bottom-up approach with committed individuals and organizations. Additionally, the feasibility of the approaches that tip the economics towards agro-biodiversity (e.g. special credits, technical assistance, labelling, etc. – para 52) may need to be researched more in the project design, but perhaps Chile is at the cutting edge of developing these approaches and should simply develop them adaptively. While the introduction outlines the numerous nutritional, medicinal, cultural, and social benefits which accrue from agro-biodiversity, the issue of managing and preserving the unique traditional knowledge associated with this does not appear to be addressed directly. The project description notes both the importance of traditional knowledge in successfully managing these resources and erosion of this knowledge base due to

the gradual shift away from traditional crops to more commercial varieties. In addition, it underscores the valuation, transfer, and sharing of traditional knowledge as important components of the project to ensure more effective use of traditional crop varieties and help preserve agro-biodiversity more broadly.

What appears to be missing in this discussion, however, is any association between traditional knowledge and the rights of the indigenous groups and local communities that typically are the custodians of this knowledge as well as ensuring the accrual of benefits over time from this knowledge. STAP urges the project proponents to explore how this initiative would support and strengthen the rights of these groups in this regard, and in particular how benefits accruing from the use of this knowledge within the project can both be preserved and support the development goals of local and indigenous communities. Additionally, STAP recommends explaining the importance of the wild varieties, traditional plants and animals in non-technical language. An important GEB may be the approach being used to promote small-scale farming and agro-biodiversity, which GEF might use as a global example.

The other major issue STAP wishes to highlight is that climate risk is only weakly factored into project design. This is unusual, given the agricultural focus of this initiative and the fact that the agricultural sector in Chile is highly vulnerable to the likely future effects of climate change. It is insufficient to suggest, without analysis, that improvements to the management of agro-biodiversity will inherently represent an effective adaptation strategy. Given that improving the resilience of local and indigenous communities and the agro-ecological systems they manage is also a core focus of this undertaking, and in light of the changes to temperature and hydrological regimes Chile will experience over the near to medium term, STAP urges the project proponents to consult the recent report "Designing projects in a rapidly changing world: Guidelines for embedding resilience, adaptation, and transformation into sustainable development initiatives" (STAP, 2016).

The project description underscores the lack of systematic data regarding agro biodiversity including levels of genetic erosion are limited, and notes this as barrier to successful project implementation. However, there is no evidence in the document of a specific strategy to address this issue. STAP recommends that a data management policy be included as part of the overall knowledge strategy of the project. Finally, a map of proposed project sites would be very useful.

Other references

PONCE, Roberto; BLANCO, Maria; GIUPPONI, Carlo. The economic impacts of climate change on the Chilean agricultural sector: A non-linear agricultural supply model. *Chilean J. Agric. Res.*, Chillín, v. 74, n. 4, p. 404-412, Dec. 2014 .

Anderson, R. *Governing Agrobiodiversity* – Plant Genetics and Developing Countries. Aldershot, UK. 2008.

Demaria, E.M.C. Maurer, E.P. Thrasher, B. Vicuña, S. Meza, F.J. Climate change impacts on an alpine watershed in Chile: Do new model projections change the story? *Journal of Hydrology* 502 (2013) 128–138. 2013.

Regarding the likely future impacts of climate change in Chile - Excerpts from IPCC AR5 Chile (by 2100):

"Likewise, glaciers and ice fields in the extratropical Andes located in central-south Chile and Argentina face significant reductions (see review in Masiokas et al. (2009) and details in Table 27-3b), with their effect being compounded by changes in snowpack extent, thus magnifying changes in hydrograph seasonality by reducing flows in dry seasons and increasing them in wet seasons (Pizarro et al., 2013; Vicuña et al., 2013). Central-south Chile and Argentina also face significant reductions in precipitation as shown in Section 27.2.1, contributing to runoff reductions in the last decades of the 20th century (Seoane and López, 2007; Rubio-Álvarez and McPhee, 2010; Urrutia et al., 2011; Vicuña et al., 2013), corroborated with long-term trends found through dendrochronology (Lara et al., 2007; Urrutia et al., 2011). Trends in precipitation and runoff are less evident in the central-north region in Chile (Fiebig-Wittmaack et al., 2012; Souvignet et al., 2012)."

"In central Chile, Vicuña et al. (2011) project changes in the seasonality of streamflows of the upper snowmelt-driven watersheds of the Limarí- River, associated with temperature increases and reductions in water availability owing to a reduction (increase) in precipitation (evapotranspiration)."

"Under these conditions, semiarid highly populated basins (e.g., Santiago, Chile) and with extensive agriculture irrigation and hydropower demands are expected to increase their current vulnerability (high confidence; ECLAC, 2009a; Souvignet et al., 2010; Fiebig-Wittmaack et al., 2012; Vicuña et al., 2012; see Table 27-4). Projected changes in the cryosphere conditions of the Andes could affect the occurrence of extreme events, such as extreme low and high flows (Demaria et al., 2013), Glacial Lake Outburst Floods (GLOF) occurring in the ice fields of Patagonia (Dussailant et al., 2010; Marín et al., 2013), volcanic collapse and debris flow associated with accelerated glacial melting in the tropical Andes (Carey, 2005; Carey et al., 2012b; Fraser, 2012), and with volcanoes in southern Chile and Argentina (Tormey, 2010), as well as scenarios of water quality pollution by exposure to contaminants as a result of glaciers' retreat (Fortner et al., 2011)."

"In Chile and western Argentina, yields could be reduced by water limitation. In central Chile (30°S to 42°S) temperature increases, reduction in chilling hours, and water shortages may reduce productivity of winter crops, fruits, vines, and radiata pine. Conversely, rising temperatures, more moderate frosts, and more abundant water will very likely benefit all species toward the south (ECLAC, 2010a; Meza and da Silva, 2009). In northern Patagonia (Argentina) fruit and vegetable growing could be negatively affected because of a reduction in rainfall and in average flows in the Neuquén River basin. In the north of the Mendoza basin (Argentina) increases in water demand, due to population growth, may compromise the availability of subterranean water for irrigation, pushing up irrigation costs and forcing many producers out of farming toward 2030. Also, water quality could be reduced by the worsening of existing salinization processes (ECLAC, 2010a)."

"Adjustments in sowing dates and fertilization rates could reduce negative impacts or increase yields in maize and wheat crops in Argentina and Chile (Magrin et al., 2009; Meza and da Silva, 2009; Travasso et al., 2009b). Furthermore, in central Chile and southern Pampas in Argentina warmer climates could allow performing two crops per season, increasing productivity per unit land (Monzon et al., 2007; Meza et al., 2008)."

"While warming occurred in most of CA and SA, cooling was detected off the coast of southern Peru and Chile. There is growing evidence that Andean glaciers (both tropical and extratropical) are retreating in response to warming trends."

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
1. Concur	In cases where STAP is satisfied with the scientific and technical quality of the proposal, a simple "Concur" response will be provided; the STAP may flag specific issues that should be pursued rigorously as the proposal is developed into a full project document. At any time during the development of the project, the proponent is invited to approach STAP to consult on the design prior to submission for CEO endorsement.
2. Minor issues to be considered during project design	STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to: <ul style="list-style-type: none"> (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised. (ii) Set a review point at an early stage during project development, and possibly agreeing to terms of reference for an independent expert to be appointed to conduct this review. <p>The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.</p>
3. Major issues to be considered during project design	STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical methodological issues, barriers, or omissions in the project concept. If STAP provides this advisory response, a full explanation would also be provided. The proponent is strongly encouraged to: <ul style="list-style-type: none"> (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development including an independent expert as required. <p>The GEF Secretariat may, based on this screening outcome, delay the proposal and refer the proposal</p>

back to the proponents with STAP's concerns.
The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.