

Environmental and Social Data Sheet

Overview

Project Name:	CCCFL- Shandong Coastal Shelter Forests
Project Number:	2014-0644
Country:	China
Project Description:	The project is to afforest 31,125 ha of barren, alkaline and salty forest lands and abandoned agricultural lands, and to rehabilitate 245 ha of burned and degraded forest land. The total project area is 31,370 ha and the project areas are located in 15 counties of Shandong Province.
EIA required	Yes
Project included in Carbon Footprint Exercise ¹ :	Yes

Summary of Environmental and Social Assessment, including key issues and overall conclusion and recommendation

The main objective of the project is to increase forest cover on barren hills, abandoned farmland, and salty and alkaline soils formed at Yellow River delta region. The project will provide environmental benefits through carbon sequestration, soil protection and improvement, and biodiversity enhancement.

The project introduces improved management and monitoring systems by developing a detailed and sound database on project sites. The project implements the site preparation and forest management practices that comply with the China Forest Certification System (CFCS). Social benefits for local rural households include new employment opportunities and sales revenues from timber, seedling and fruits production. The project also improves the quality of overall living environment e.g. by improving soil water retention capacity and quality of ground water.

An Environmental Impact Assessment (EIA) and a Social Impact Assessment (SIA), as required by Chinese regulations, were prepared in 2014.

Over 30 different tree species will be planted. Plantations are either mixed stands, or stands that maintain landscape level diversity by having different species in adjacent blocks. The project related afforestation will increase the forest cover in the project counties. The planted trees will sequester annually carbon dioxide 224ktn (net of emissions from transport and fertilizers) on average over the 25 year project horizon.

Shandong province is prone to adverse weather events: storms, strong winds, heavy rains and periodic droughts. National policy (e.g. 12th Five Year Plan) advocates the strengthening of the protection functions of the coastal forests in order to protect ecosystems and infrastructure.

A specific geographical feature underlying the project is the gradual new land formation in the Yellow River Delta in the northern part of the Province. The newly formed soils are alkaline

¹ Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100,000 tons CO₂e/year absolute (gross) or 20,000 tons CO₂e/year relative (net) – both increases and *savings*.

(pH >7.5) and have high salt content (2-3‰). Without intensive soil remediation measures and appropriate cultivation regimes, the soils would turn waste lands and salty deserts. The project will contribute to their improvement into productive lands that support diverse ecosystems. The soil preparations required in the alkaline and salty soils are carried out with the government support before the sites are allocated for the project.

The major environmental risks in the project implementation are related to the right species-sites -matching, exposure of steep slopes to soil erosion risk, and water table variations and water evaporation on alkaline and salty areas. A flood with increasing water tables or an extreme drought with strong evaporation may damage the project plantations by drawing salt to the top soil. Extensive open ditch drainage is in place to mitigate the risks of increasing water tables, while the evaporation risk is mitigated by the possibility of watering the trees and via rapid development of canopy closure through high planting densities combined with selective thinnings. The local and provincial forestry sector has long term experience on cultivation and species selection in these challenging growing conditions.

Relevant conditions and undertakings are:

Disbursement Conditions

- The relevant authorities have issued the environmental permits for the project.

Particular Undertakings

- The Promoter undertakes to comply with the European Union and Chinese laws and regulations on the use of chemicals;
- The Promoter shall follow the Environmental Management Plan as included in the EIA procedure, as well as any other requirement specified in the approvals from the relevant Chinese authorities;
- The Promoter shall provide a forest certification roadmap, satisfactory to the Bank, in order to demonstrate measurable progress towards forest certification under an internationally accredited forest certification scheme, such as CFCS or FSC;
- Forest site preparation shall exclude soil terracing and must support sustainable forest management and protection of the environment so as to comply with certification standards under CFCS or FSC;

Environmental and Social Assessment

Environmental Impact and Mitigation

The project contributes to the PR China 12th Five Year Plan and China's National Climate Change Program (CNCCP) that target increasing the forest area to 21.7% of total land area by 2015. The CNCCP also confirmed the important role of China's forestry sector in reinforcing the capacity to absorb greenhouse gases, and to support ecological protection and development. Shandong Province has challenging annual afforestation targets and the project contributes to meeting these targets.

The project is expected to contribute a positive climate impact through establishing and improving forest stands in the region. The growing trees will sequester and store carbon, resulting in carbon foot print savings despite increased emissions from transport and fertilizing.

In addition to the carbon sequestration, the environmental benefits include soil remediation, water and soil conservation and positive impact on the biodiversity by creating permanent forest habitats on bare land. The forests established also mitigate negative impacts of strong coastal winds e.g. on agriculture.

The main concerns from an ecological point of view are related to soil disturbance during planting and to the potential leaching of nutrients or toxic chemicals after application of fertilizers or pesticides. Adopted mitigation measures include batch type soil scarification on hilly areas where manual scarification is often the only alternative, and hole/band application

of fertilizers. Pesticide use shall be controlled and coordinated with forestry authorities. Traditional terracing that increases soil erosion risk is not accepted in the project.

Rising salt-contaminated water tables and water evaporation are significant risks on alkaline and salty soils in Yellow River Delta. The flooding or high evaporation would kill planted trees if water level and the salt content in the top soil cannot be controlled by appropriate soil preparation or by fresh water irrigation in an emergency case. The forestry authorities and planting entities have the appropriate expertise to manage the difficult soil conditions and fresh water is mostly available to mitigate the impacts of severe droughts and flooding of salty ground water.

Social Assessment

There are more than 9.5 million people living in the project counties and the share of rural population from the total population is 44%. The number and share of ethnic minorities is low in the region and no minority groups are living in project areas or in their neighbourhood. Currently forestry provides significant share of incomes only in six out of the 15 project counties.

Based on a comprehensive social impact assessment, the key stakeholders were identified. They include collective forest farms, farmer cooperatives (special forestry cooperatives), state forest farms, private companies/entrepreneurs, individual farmers and villagers. Village committees play an important role in decision making on behalf of individual farmers, when they sign commitments to allocate land and resources for the project e.g. to the collective farms. The village committees also represent individual villagers in negotiations.

Due to the high investments in afforestation and current marginal status of most project areas, the planting entities are typically larger entities, e.g. farmer entrepreneurs, cooperatives, and state farms. Small households have limited resources to commit in the afforestation particularly when part of the family is working in urban areas.

The individual farmers benefit from the project by receiving land rents, having employment opportunities, or participating in the project through farmer cooperatives. The labour opportunities are important especially to women led households, while the elderly villagers benefit mainly from the land rents.

The project will have a positive social impact in general. However, the SIA defines some potential social risks. The main social risks are in potential conflicts related to long term land lease contracts and appropriate indexing of annual land rents. There is also a risk that the plantations targeting cash revenues, e.g. fruit tree plantations, do not fulfil initial expectations. A further but minor risk is possible marginalization of poor and small households, and especially women led households.

To mitigate the identified risks, participatory planning is applied in project design and site identification at village and township levels. To support the negotiation skills of the project beneficiaries, the project provides templates for land lease contracts that include periodic increases in the land rents and explicit exit clauses. Information on contractual terms and related rights and duties is available, although such guidance could be improved as part of the project activity. In case of conflicts related to land lease contracts, the households can appeal to Village Committees and township/county level arbitration bureaus.

Project funding is mainly given as a grant to individual farmers/ collectives to cover planting costs or it is used by forest bureau to contract enterprises to afforest and manage project sites. To mitigate financial risks, some insurance mechanisms are in place at county/township levels.

The project does not threaten the interests of particular minority groups and it does not include resettlement.

Public Consultation and Stakeholder Engagement

Social surveys and participatory consultations at village, township and county levels were carried out by provincial and county level people in August 2014. The surveys covered over 90% of the project sites and included interviews with project applicants, farmers and other stakeholders in the relevant communities.

Farmer and villager participation in the project is voluntary. During the mission in December 2014, the villagers, farmers and other stakeholders were well aware of the project, its benefits and risks. They had signed contracts on land lease and benefits sharing.

Carbon footprint

The project has a significant positive net carbon sequestration balance due to sequestration of carbon into growing trees, which more than offsets the carbon emissions from transport and fertilizers applied. Furthermore, the large share of protection forests, which are never going to be clear cut, assure steady increase in carbon stocks that will be stored beyond the 25 year project horizon. The short rotation timber production forests sequester and store carbon efficiently but they will be harvested one to two times during the project. The carbon calculations do not take into consideration carbon stored in soil or in wood products with long life.

The net annual carbon dioxide sequestration rate is 223 kt CO₂e, accumulating in total 5,575 kt CO₂e during the 25 year project cycle. The protection forests and some fruit tree forests are expected to store the total carbon sequestered also after the project cycle, which increases the climate mitigation impact of the project.

Net greenhouse gas emissions from decomposing of fertilizer over the 25 years are estimated to be 111 kt CO₂e, i.e. in average 4 kt CO₂e per year. The estimated net emissions from transportation are low, 0.003 kt CO₂e per year due to short transportation distances. Over the 25 year project, the carbon emissions from transport are 4 kt CO₂e.

The net rate of carbon dioxide sequestration is in average 224 kt CO₂e per year, implying total sequestration of 5,600 kt of CO₂e in 25 years.