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3rd Stakeholder Consultation Report

The Economics of Ecosystem and Biodiversity (TEEB): Promoting a Sustainable Agriculture and Food Sector Implementation in China

【Deliverable 4.6】

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International Ecosystem Management Partnership
国际生态系统管理伙伴计划



Introduction

In the afternoon of October 20, 2020, the 3rd local stakeholder consultation meeting of TEEBAgriFood China was conducted at the Bureau of Ecology and Environment of Tengchong. The meeting aims to present the preliminary result of the TEEBAgriFood Tengchong study to the local stakeholders, covering a range of government presence from different backgrounds (environment, agriculture, development, water, forest and grassland, natural resources and tourism), and to collect feedback and facilitate exchange on policy implications.

Below are the key points arising from the discussion:

1. Local municipalities and relevant stakeholders recognize the merits of the report findings and acknowledge that the LULC predictions in the report are valid, including those on farmland and under-canopy.
2. Local stakeholders recognize that a balanced economic development and ecological conservation is crucial for local sustainability, especially given Tengchong's rich forest resources favorable for ecotourism. They appeal for national guidelines on development/ecological protection that consider regional characteristics and target potential synergies between the two.
3. Some existing gaps between the status-quo and the proposed scenarios are mentioned by stakeholders:
 - Local municipality acknowledges the value of intercropping and the cultivation of endemic rice varieties, but also recognizes the fact that currently relevant policies are lacking.
 - It is believed that a continuous reduction of fertilizer and chemical use in the plantation sector is not achievable in the current form.
 - It is estimated that the development of the agrifood sector will promote women employment and earning, but the current condition (i.e., more men employed compared to women) will likely maintain, so does the fact the women workers generally receive less skills training than men.
4. Of the four different types of cattle breeding models, large-scale standardized breeding and medium-scale breeding possess environmental impact that is mostly manageable. The biggest challenge is with the management of methane emissions, which requires major financial and technological investment.
5. Given national carbon peaking and carbon neutrality goals, local municipality are eager for advice on how to reduce carbon emissions in the agrifood system.
6. The management protocols for national "Green is Gold" practice innovation bases is mentioned, which can be a potential standpoint to facilitate change.



3rd local consultation meeting in Tengchong

Discussion brief

Before the discussion, Dr. Mingxing Sun, on behalf of the TEEBAgriFood China implementation team, gave a presentation on the preliminary results of the study. His presentation covers three major aspects: 1) introduction of the project and the objectives, 2) the rationale of TEEBAgriFood Tengchong study, the study design, and the data and methodology applied; 3) preliminary results including costs and benefits across natural, human, and social capitals under different scenarios.

Overall, the stakeholder consultation provided the context for some study results and entry points for policy recommendations. The major aspects of the discussion are listed below.

1. In terms of land cover and land use:
 - China has a very strict policy on the protection of arable land, especially the total area as well as qualitative maintenance (such as land leveling, fertility improvement and building ditches and roads). This is in line with the results from the simulation that the cropland area remains steady.
 - Tengchong has a large protected-forest area that is generally in a restricted state (not open for development). Based on the results of the 2015 survey, the estimated potential area for the development of the forest economy in Tengchong is 640,000 mu (without considering transportation conditions). In the present analysis, the forecasted area for under-canopy plantation in the optimistic scenario by 2050 is approximately 470,000 mu (transportation and slope conditions considered), which is reasonable given local estimations.

2. The development of tourism in forest areas is mainly promoted by the private sector. The challenge is that some plans are not well landed as they involve ecological red lines, or lack the appropriate permits for construction. Environmental protection is an important part of the development process, and the balance between protection and development should be handled.
3. Large-scale agricultural production models can help cope with the rising prices of agricultural materials, lack of labor, and increasing production costs that lead to decreasing benefits. However, Tengchong is located in a mountainous area with limited land resources that restrains agricultural mechanization and large-scale agriculture.
4. Inter-cropping can improve land productivity and has the potential to promote production and increase income. Endemic varieties should be well protected and developed. However, there is no policy support for inter-cropping or cultivation of endemic varieties.
5. Regarding the reduction of chemicals in plantations, Tengchong's chemical fertilizer and pesticide use has continuously decreased. In 2021, the amount of chemical fertilizer use was 22,937 tons, a 1.8% decrease from the previous year, while the amount of pesticide use in 2021 was 597 tons, a 10.6% decrease from 2020. The use of chemicals will stabilize after a certain degree of reduction. At present, except for special varieties, crop yield increase mainly relies on the use of chemical fertilizers, and pest and disease control still depends on chemicals.
6. Advantages and disadvantages of the four types of the beef cattle breeding model

	Advantage	Disadvantage
Eco-ranches	Low breeding and labor cost; better meat quality	Seasonal in nature, low forage availability during the dry season; longer feeding cycle, bad for capital flow
300-head standardized breeding	Mechanized, lower labor cost and high breeding efficiency; easier disease prevention and control; easier forage and feed procurement; unified purchase and sale promotes capital turnover	High financial capital and high feeding technology required; strict environmental requirements.
50-head family farm breeding	Low financial pressure, simple planning and construction; simpler environmental measures; less pressure on forage and feed reserves; better breeding efficiency.	Low awareness of disease prevention and environmental protection; less scientific breeding technology; high risk-prone
<10-head	Less infrastructure; easy to feed, no	Low awareness of breeding

household breeding	need to stockpile; little labor cost allows part-time work	techniques; longer breeding cycle; combined captive breeding-grazing with low efficiency
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7. Pollution from cattle breeding: the sewage produced by beef cattle breeding is not too much. The manure and urine have limited environmental implications once they are properly treated. Beef cattle farms generally clean manure without water flushing. Urine collected can be treated by a three-stage sedimentation tank. Manure can be made into organic fertilizer for sale and can be used as crop fertilizer.
8. The biggest challenge for methane emission control in beef cattle breeding is to equip with appropriate facilities which requires a lot of financial capital and technology. Methane emissions are mainly generated through manure, urine and enteric gas release, and can be controlled by separating the wet and dry and mixing them with additives to make organic fertilizer. Urine can be discharged into a digester and made into liquid manure for sale or biogas for domestic use. Gas release from beef cattle breeding can be reduced by adding probiotics into the feed.
9. The project is focused on agriculture. From the perspective of primary, secondary, and tertiary industries, the proportion of agriculture in Tengchong will not change significantly in the future. In the context of the national carbon peaking and carbon neutrality goals, Tengchong may have carbon emission restrictions in the next step. However, it is unclear how to implement them (there is no guidance for the time being). Local authorities are willing to hear professional advice in this regard.
10. Gender differences and skills training: there are more men than women in the plantation and livestock sector, and currently there is no job training specifically for women in the agricultural sector in Tengchong.
11. Agricultural cooperatives: it is encouraged to develop agricultural cooperatives among farmers themselves, and the target is to achieve one cooperative in each of the 206 administrative villages to grow the collective economy.
12. The national “Green is Gold” practice innovation base program has a set of management protocols, based on which national assessments are conducted. There is a strong opinion from the local authorities stating that there should be a reasonable degree of balance between protection and development, as they are not mutually exclusive. In fact, better results may be achieved if they are combined. It would be good if the criteria for conservation can be developed on a site-specific basis.
13. Another EU-funded project on Da-ying-jiang watershed protection and restoration in Tengchong is mentioned. It is a loan project implemented by AFD through the EU-China Biodiversity Fund. Major components of the project include river, wetland, forest restoration, biodiversity conservation, rural sewage control and waste

management, integrated management for agricultural non-point source pollution, as well as capacity building and technical support on water quality and biodiversity monitoring and establishment of eco-compensation mechanism. Local authorities are welcome to find a common ground and explore possible synergies between the two EU-funded projects.

List of participants

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