



CONCEPT NOTE

Sustainable Native Orange Production



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1. Goal:

The **goal** of this concept is to: “**develop a high quality, profitable and ecologically sustainable native orange fruit sector**” that will contribute to poverty alleviation and improvement of livelihoods of upland communities.

This will be achieved by means of strengthened farmer capacity, improved and expanded markets and orange variety improvements.

2. Introduction:

Oranges contain an impressive diversity of essential nutrients including vitamins C, A and B-complex as well as minerals (Potassium and Calcium) essential for health and overall well-being. The fruit is low in calories, has no saturated fats or cholesterol and are rich in dietary fiber and antioxidants.

Oranges (*Citrus Sinensis*) are a tropical to semi-tropical tree that produce fruit on trees growing to approximately 5 to 8 meters tall if not pruned. Orange trees bear fruit one time per year that can measure from a few centimeters to up to 8 cm in diameter and weigh up to 150gms. Orange trees in Laos begin flowering in January and mature fruit will be available from August to January, depending on the location.



“Carry fresh oranges wherever you go without much trouble. They can be eaten at anytime, anywhere at your convenience. Just wash them, peel the skin, and enjoy!”

3. Background:

Villagers in Nambak District of Luang Prabang Province have been producing oranges for more than 300 years and are the main producers of oranges in Laos. Oranges are cultivated by about 1,300 households in 26 villages on more than 600 hectares along the Nambak and Nam Nga rivers.

Over the last decade, orange trees have been increasingly affected by significant disease problems that have reduced yield and quality. Farmers continue to use traditional management techniques learned from their parents, but are not suitable for today’s consumers who want higher quality oranges.

Orange cultivation suffers from:

- insufficient irrigation
- minimal fertilizer applications (especially during the critical growth stages during the dry season which coincides with critical stages of leaf expansion, flowering, fruit setting and fruit growth)
- lack of pruning, topping and hedging to avoid crowding for optimum flowering, increasing fruit size and reducing harvest labor
- lack of breeding stock management (including mother trees and nurseries)
- inadequate replacement of old and diseased trees (over 20-year-old) with new healthy trees

- lack of irrigation during critical periods
- Insufficient weed management
- Lack of management of adjacent landscapes to ensure a high population of beneficial insects (including bees) to help protect orange trees against insect pests and ensure pollination

As a result of all of these factors, orange trees have less tolerance to pests (mites, greasy spot, etc.), are more affected by environmental stresses, and maximum production and quality of fruit is not achieved.

Since 2014, TABI has provided support to 58 Nambak orange producer families in 8 villages in Luang Prabang for improvements in orange fruit productivity and quality. Focus has been on provision of better scion/rootstock combinations, good irrigation management, balanced nutrition and proper pruning that reduces the incidence of pests and diseases and increases overall production and quality.

In 2018, all 58 families with a total 31,600 trees on 60 ha of land yielded approximately 512,350kg of fruit (average 8.5 tons/ha). The average selling price at farm gate and along the road in front of their house was 2,000 Kip/kg. The total amount earned by these 58 families was approximately 1,062,740,000 Kip (\$122,154) or more than \$2000 per family, which was 14% higher than the previous year before TABI support began.



Similarly, TABI provided support to orange growers

in two districts in Houaphanh Province and two districts in Xiengkhouang province. Where TABI provided similar support in Xiengkhouang (Phoukoud and Phaxay districts), 21 families in 5 villages grew orange trees on 34 ha. In 2018 they harvested at 48,726kg (average 1.5 tons/ha). The wholesale price was 6,000 Kip/kg worth at total of 286,846,000 Kip (\$32,971) or more than \$1500 per family. In Houaphanh Province (Samneua and Kouane Districts) TABI supported 78 families in 10 villages growing orange on 37 ha who harvested at 49,669 kg (average 1.5 t/ha) in 2018. At an average selling price of 4,000 Kip/kg the total sales were 202,786,000 Kip (\$23,309) or about \$300 per family.

Regardless of the lack of grading and quality packaging, almost all produce was sold in all provinces due to a high demand for oranges at the local area, towns and other provinces. Opportunities to expand production and increase prices is constrained by: (i) limitation of knowledge of management improvements; (ii) lack of organized producer groups to more effectively market their produce and receive still training on production and marketing; (iii) lack of certification and branding for high quality orange produce produced to specific standards (organic, phytosanitary standards) and (vi) a lack of value added processing at post-harvest (grading, packaging, juice processing, storage and marketing).



4. Key Activities:

- Conduct survey and data collection on status of orange production include the issues and income earned of the producers in all orange growing areas of the provinces;
- Selection of model farmers to be trained as local farmer trainers;
- Establish the producer groups and develop management standards (might be possible to establish the local saving fund system, if required by farmers);
- Conduct training on improved management practices: irrigation, fertilization, weeding, pruning, topping, hedging, pest and disease control, mother trees (breeding stock) management, nurseries (seedling, grafting, cultivar/rootstock), and value added (grading, packaging and marketing);
- Expand the number of orange producers in the province, by creating strong networks and increase the number of youth and women involved. Include tree nurseries as a business for expanding access to high quality seedlings;
- Organize farmer field visits to model farms and marketing successes;
- Establish the orange production and marketing network, especially on value added business activities (grading, packaging and marketing) and discussion for potential to develop processing facilities in future (small business on local juice processing).

5. Expected Outputs:

- A better understanding on the real situation and status of local native orange production used for making action plans and advocating for local and central strategy development;
- Model farmers selected and upgraded as trainers, included tools and technical guide book development and dissemination;
- Producer groups established and local management standards developed, (local saving fund system established as required by farmers);
- Provide training on “modern citrus cultivation”: irrigation, nutrition, weeding, pruning, topping, hedging, pest and disease control, mother trees, nursery (seedling, grafting, cultivar/rootstock), and value added (grading, packaging and market linkages);
- Good practices in orange groves planned and implemented according to “new technique application” resulting in high yield of high-quality orange fruit and value-added activities; mother trees also maintained for long term breeding and expanding orange plantations;
- Number of orange producers in the province increased, including the number of youth and women involved in nurseries businesses;
- Farmer field visits and on the job learning processes organized;
- Orange production and marketing networks established, especially on value added activities (grading, packaging and marketing) and potential to develop processing facilities in future (juice processing) discussed and planned with investors.



Note: More detail can be provided if the organization/investor is interesting and Proposal Documentation can be developed for further consideration (if required).