Recommended Guidelines and Strategy for 2020-2021 SAFE Ecosystems Project
Water Security, Home Garden Extension and Marketing Activities

1. Brief Background and Introduction:

Home garden activities completed in 2018 and 2019:

- To date, SAFE Ecosystem Project home garden activities have been generally limited to activities at the Ong Mang Center Reservoir (located approximately 3-400 meters from the center itself).
- In 2018, PAFO and DAFO staff established a Project Tree Nursery at the site; trees produced at the nursery were intended for Project tree planting activities.
    - Local village members and agriculture students were recruited to the site to prepare seedlings.
    - Nursery operations were overseen by a PAFO technical extension officer.
- As part nursery operations, additional home garden activities were implemented around the nursery to supplement food supplies and for sale (although there are not any markets nearby).
- However, despite the seemingly successful home garden development, the activity seemed to be dependent upon nursery seedling production and financial support from the Project (i.e. purchase of seed, etc.).

- In 2019, when nursery seedling production activities resumed, more villagers recruited to work at the nursery could be seen at the site establishing new home garden plots.
- It is clear that with adequate extension activities, local villagers were able to develop home gardens successfully.
- Such extension should be implemented within Project villages as a livelihood option if issues related to sustainability can be addressed.

Satellite Image (Google Earth): Ong Mang Center tree nursery (black rectangle); home garden plots (located around the nursery); reservoir; dam (upper right-hand corner).

Issues that need to be addressed:

Water Security

- Firstly, the main reason why home gardens were able to be established at the Ong Mang Center was because a water reservoir had been established. The reservoir itself is large enough to provide water for both the nurseries and home gardens year-round.
- In order to bring this extension activity to Project villages, water security issues will need to be assessed and addressed according each individual village situation.
- It is recommended that a "multiple-pronged" approach to water security is utilized due to the dry environment and that a single-source strategy is avoided.
    - Support for rainwater collecting, community ponds and canals, as bore wells could be considered in a single village.

Extension Training Activities

- The extension activities at the Ong Mang Center were able to be established as a PAFO officer had been assigned full-time to work at the Tree Nursery. As such, he had been able to spend an extended amount of time at the site preparing the home garden plots with villagers and student volunteers.
- Extension activities included: site preparation, seed / crop selection, soil management, water management, organic fertilizer, plant management, pest control, and harvesting (among other activities).
- It is possible to utilize the Ong Mang Nursery / Reservoir site as a training center. Potentially, villagers could be brought to the site for training, as well as the opportunity to see what kinds of home garden development activities could be possible within their own villages.
- Beyond training at the Ong Mang Center, it will still be necessary to have extension training activities implemented at project villages.
    - It is not likely the current PAFO officer would be able to do this alone. Likely an additional Specialist would be required to assist with village extension activities, as well as the possibility of recruiting additional university students as volunteers or even interns.

Sustainability

- As noted above, it had been noted that in 2019, once nursery seedling production had ended, it seemed that the home garden production also sharply declined.
- The immediate indication is that this activity was dependent upon financial support from the Project to continue, however there may be other issues related to sustainability of the activity that need to be considered:
    - Seasonal activity – Most villagers within the Project area are dependent upon rice harvesting for their livelihoods. This being the case, villagers are engaged with this activity for the majority of the raining season (May/June – September/October) every year, particularly during start when paddies and rice seedlings are prepared at the beginning of the season and when harvesting takes place towards the end.
    - Distance from village – although the activity may have been successful when being implemented at the Ong Mang Center reservoir, the actual site is several kilometers away from most villager's home; therefore, they may have seen the activity as only temporary due to the distance from their homes.

- Access to markets – although no data was collected by the PAFO officer, when considering what the villagers did with the vegetables grown, the majority was consumed at the household level and very little (if any) was sold at markets. The nearest market is 30+ km away (over 2 hours to drive using local cow tractors). Closer markets may encourage local commerce.
- Supply and Demand Marketing – during a field visit to the Ong Mang Center nursery, it was noted that significant number of chili plants were being grown. When inquiring why the large numbers of plants were being grown, there was no explanation other than the plants had been grown. It would be of benefit to the villagers if they had a better understanding of growing plants and vegetables that had a market value and demand so that they could strategically plant and harvest plants that could offer a good return.

COVID 19

- While not directly related to natural resource management or conservation, the recent global pandemic, **COVID 19**, will undoubtedly influence the success and outcome of the SAFE Ecosystems Project.
    - As of writing, only 19 individuals in Lao have been officially diagnosed with this virus, however, with the National lockdown and closure of International borders, thousands of Lao workers returned to Lao PDR and are currently without employment or incomes.
    - While the current medical emergency is not as dire as in other countries, there is a real risk of economic depression which could exacerbate illegal logging and other forest crimes within the project area. Gains that have been since Project inception in 2016 could be lost as a result
    - Therefore, all livelihoods activities, including home garden development, should only be implemented if they provide clear economic benefits and income generation.

Moving forward in 2020-21:

- In general, all livelihoods activities supported for the remainder of the Project will need to address the overall SAFE Ecosystems Project Objective: "*to facilitate a transformative shift towards sustainable land and forest management in the forested landscape of Savannakhet Province in order to secure the critical wildlife habitats, conserve biodiversity and maintain a continuous flow of multiple services including quality water provision and flood prevention.*"
- Therefore, livelihood activities need to be an adequate alternative to illegal logging and other forest crimes which many villagers engage with.
    - All livelihood activities must provide an economic benefit and improve income generation for participating villagers.

- Focusing upon the key aspects above, livelihoods and home garden efforts will need to be revised for the remainder of the SAFE Ecosystems Project to address the above issues through the following:
    - A hydrological engineering assessment of water resources will need to be implemented for a minimum of 20 villages within the Project Area.
        - Currently, only 16 villages receive livelihoods support from the SAFE Ecosystems Project. There are at least 45 villages that are within or adjacent to the newly created Ong Mang National Sanctuary.
        - In order to improve the sustainability of this new protected area, the number of villages engaged with livelihoods activities will need to be increased.

- Construction, renovation or installation of water security systems for either agriculture or human consumption as required by villages.
- Recruitment of Agriculture Specialist directly by the Project. This position would be assigned to work with PAFO/DAFO extension officers to train, develop and maintain home garden demonstration sites at Project villages.
- Development and phased implementation of home garden extension training activities which corresponds with markets and seasonal activities (i.e. rice growing).
    - Note: related to seasonal activities, a separate strategy will need to be developed for rice crops, soil improvement/management and agroforestry.
- Design and construction of up to 5 village markets strategically located in Xonnabouly and Thappanthong Districts.
    - Such village markets will enable villagers to have a marketplace to sell agriculture and other products at nearby locations.

2. 2020-2021 Guidelines and Strategy:

Hydrological Engineering Assessment and Water Infrastructure Development	
Step	**Description**
1	• Hydrological engineer recruited to conduct field surveys and prepare designs for the rural agricultural/consumption water supply of 20 villages: (i) Review the current design/service parameters, suggest any changes considered to be appropriate and conduct hydraulic analyses of proposed system designs to determine their compliance with the agreed parameters; (ii) Undertake the assessment of water needs, available resources and the capacity of existing systems and advise on any improvements necessary to achieve and sustain the agreed design and service standards. This may include system augmentation, extension, etc.; (iii) Identify suitable water sources (surface water and groundwater), confirm quality and quantity of water available; (iv) Design of intakes and/or infiltration galleries to maximize their efficiency, and minimize the effects of siltation, climate change impacts and their maintenance requirements; (v) If necessary, design the water treatment systems for the 16 villages and advise on the technologies most appropriate for the local needs, institutional capacity, environment, sustainability, and operation and maintenance capacities, etc.; (vi) If necessary, design water transmission main including pipe trenching, laying, thrust blocks, pressure testing, access for cleaning/repair (incl. air/scour valves), pumping, power supply, water quality monitoring; and Design the water distribution systems including pipe trenching, laying, pressure testing, access for cleaning/repair (incl. air/scour valves), pumping, power supply, water quality monitoring, fire-fighting capacity, household/communal water points, household collection and storage capacity.
2	• While designing and adopting particular technology, consideration should be given for the life-cycle costs of the proposed systems, the financial and technical capacities of the respective local bodies to operate and maintain proposed system.

	• Prepare the detailed designs and construction drawings for the proposed works. • Incorporate successful Provincial and National experiences in water supply systems and strategies in comparable situations, especially in the field of water demand management to optimize the system, water resource(s) and equitable water use. • Assist the Project to prepare the required technical specifications, bills of quantities, cost estimates and tender documents.

3	• Construction phase
	• Based on assessment and BOQ's prepared by the hydrological engineer, develop RFS for construction company.
	• Possible village water systems to be considered:
	  ○ Village pond
	  ○ Household rainwater harvesting
	  ○ Agricultural canals
	  ○ Bore wells
	• As indicated in Step 1, there will also likely be village water systems that are pre-existing within villages but require renovations in order to make them functional or improve efficiency.

Home Garden Extension and Training Activities	
Step	**Description**
1	• Recruitment of Agricultural Specialist to provide comprehensive support to ensure sustainable livelihoods opportunities links and benefit from forest and wildlife conservation inclusively. (i) Lead coordination and selection viable villages agricultural related activities and provide advice to the project team and government counterparts as well as communities. (ii) Facilitate adoption and provision of best technologies supporting better agriculture production and sustainable soil management. (iii) Assess the capacity of farmers in target areas and support in capacity building measures in areas such as sustainable land management, soil conservation, fertility management, pest management, production and marketing in collaboration with 5 DAFOs. (iv) Provide support to the participating households to generate appropriate sustainable livelihoods opportunities and ensure vulnerable groups such as youth, women and ethnic minority groups are engaged within the project target area. (v) Facilitate community consultations and training sessions, as well as follow-up with relevant stakeholders to support alternative livelihoods within the communities.
2	• Planning and implementation of home garden activities for villages supported by Project to generate stable household income. • This will include preparation and maintenance of village demonstration home gardens.

	○ Note: while project will initially focus upon the demonstration gardens, a phased plan will be to encourage individual villagers are preparing home gardens at their individual homesteads. • Villages to be considered in addition to the current 16.
	• Training to be scheduled monthly and quarterly at the Ong Mang Center and within villages. ○ Phased implementation of home garden extension training activities which corresponds with markets and seasonal activities. • Extension training activities to include: ○ site preparation, ○ seed / crop selection, ○ soil management, ○ water management, ○ organic fertilizer, ○ plant management, ○ pest control, ○ harvesting (among other activities).
3	• As part of training (beyond technical agricultural skills), it will be important to work with communities to enhance agriculture marketing knowledge such as: ○ Components of agricultural marketing within a rural setting ○ Marketing strategies for subsistence farm commodities ○ Value addition in subsistence agriculture ○ Identifying buyers and customers for subsistence crops ○ Understanding the demand and supply of agriculture produce. • This may require the recruitment of an IC in addition to the Agricultural Specialist (TBD)

Agricultural Marketing and Construction of Village Markets	
Step	**Description**
1	• Participatory Site selection of Village Markets. ○ 3-4 sites to be selected for the construction of Village Markets ○ It is not required that there be 1 Village Market per District; instead, the sites must be strategic where there is a real need that will be able to provide positive economic activities for villages within or adjacent to the Ong Mang NPA. ○ One site at Kheokamdi Village, Xonnabouly District has already been selected due to its proximity to the Ong Mang Center, as well as multiple villages that are within or adjacent to the NPA. ○ Village Markets should be: ▪ open air designs; ▪ concrete flooring (i.e. 30m x 10m) ▪ large enough for 20-25 stalls; ▪ able to have electricity installed; ▪ able to have water connected (Note: may be necessary to make a bore well and water tower adjacent to market).

2	• Civil engineer recruited to conduct field surveys and prepare designs for Village Markets based on the site selection in Step 2: (i) Travel to selected sites to meet with District and Village Authorities to view and determine engineering requirements. (ii) Based upon field visit to the project sites, prepare full sets of designs and BOQs. (iii) Consult with the SAFE Ecosystems Project Team during the design process regarding all technical issues related to the Village Market designs. (iv) Upon completing the Village Market Designs, give a presentation to the SAFE Ecosystems Project Team, DOF and UNDP.  Sample Village Market Design
3	• Procurement of construction company and construction of Village Markets ○ Coordinate with UNDP Procurement Unit to select company. ○ Once selected, construction will likely take 4-6 months to complete.
4	• Upon completion of construction, preparation of rules and regulations for the management, maintenance and user rights of the Village Markets. • Rules and regulations must be straight forward and easy to understand by both village authorities and potential users i. Costs and user fees established to ensure sustainability of the market. • After Village Market rules and regulations are completed, they must be signed-off by highest authority possible (Savannakhet Governor or District Governor).