

Report on the Trip to Chiang Mai
Visiting the Royal Project Foundation

May 3 – 6, 2009



This trip was taken for the purpose of meeting with the Chairman of the Royal Project Foundation, HSH Prince Bhisatej Ragani, and touring the facilities of the Royal Project and its program activities. The trip was initially scheduled on May 1 – 6, 2009, but was rescheduled on May 3 –6 due to the conflict with the out-of-country travel of Prince Bhisatej. However, the meeting with Prince Bhisatej was unfortunately cancelled due to the postponement of his trip to Chiang Mai. This meeting will be rescheduled in a later date when Prince Bhisatej is available.

While touring the facilities of the Royal Project, three key issues were of particular interest and thus became the focus of this trip; 1) from the humanity standpoint, how the Royal Project was organized to persuade highland hill-tribes to abandon opium poppy growing and convert to high valued horticultural crops; 2) from the health and economic standpoint, how well the hill tribe farmers were doing under the assistance of the Royal Project in improving their incomes through production and sales of horticultural

crops; and 3) from the environment standpoint, how the Royal Project mobilized the hill tribe people in reversing their over-developed land to a environmentally healthier land.

1. Arrival at Chiang Mai -- Upon my arrival at the Chiang Mai airport at 11:40 a.m. on May 3, Mr. Chien Chi-Yeh, Advisor, Agricultural Service Center, National Chung Hsing University to the Royal Project Foundation, Thailand (chienchiyeh@hotmail.com), kindly came to the airport to pick me up and took me to the Chiang Mai Orchid Hotel for a quick check-in. Since it was on Sunday, Mr. Chien gave me a brief city tour of Chiang Mai, including a visit to the paper umbrella manufactory and the shop selling fruits grown by the Known-You Seed Company using seeds bred and produced by the company itself. The quality of the fruits displayed appeared to be excellent and the fruit drink made of musk melon was also excellent. Based on the shop keeper, fruits sold in the shop were very popular, mostly through words and mouths, among tourists and local residents. After a brief stop at the fruit stand, Mr. Chien took me to the site where the Royal Flora 2006, an international exhibition of ornamentals and flowers, was held with the participation of numerous countries in the world.

2. Insect pests of vegetables -- On the next day, Monday, May 4, Mr. Chien picked me up at the hotel at 8:20 a.m. and took me to the headquarters of the Royal Project Foundation located on the Chiang Mai University campus. The first meeting with some of the staff of the Royal Project was held at the Plant Protection Center, which was chaired by Dr. Nuchnart Jonglackha, Director, Plant Protection Center, (Cell No. 081-681-5893), and attended by Ms. Ungkann, Mr. Katanyu Boonralesra (ppc_rpf@yahoo.com), Ms. Sutasinee Nontajak (Ann) (snontajak@yahoo.com), and Ms. Duanjai Bootsumran (Kitchalarat) (jeanshua@hotmail.com). I first explained the mission and core activities of GlobalHort and the purpose of my visit to the Royal Project. Dr. Nuchnart summarized the program activities of the Plant Protection Center relating to its functions in 1) sampling vegetables produced by the project before and after packing to monitor insect pests or disease infestations to ensure that the export vegetable products destined to the international markets including that of Taiwan were relatively free of pests; 2) providing technical assistance to contract hill-tribe farmers on monitoring pest populations and advising on IPM practices including pesticide applications; and 3) monitoring pesticide residues, including sampling of vegetables ready to be harvest to determine whether or not there is pesticide residue present and, if yes, at what level. The pesticide residue monitoring program employed the use of test kits for acetyl cholinesterase including organophosphates and carbamates. When it is deemed necessary, wet chemical analysis, using GC, GC-MS, and HPLC, will be performed in the toxicology laboratory to ascertain the pesticide residues, if detected, and the levels of detection. If unacceptable residues found on crops that are still field, the crops would not be harvested and the contract farmers would not receive payments for their crops. Those produce deemed to be safe for harvest, additional pesticide residue monitoring would be done before it is packed and shipped to local markets or export markets. While those vegetable produce destined for export is processed through the packing line, produce will be subject to cold water dipping to remove insect pests that may be present on the produce. Despite this cold water dipping or bathing, some small insects, such as thrips and aphids, were still detected on the vegetables at the destination ports even though they were randomly sampled and inspected before shipping. Dr. Nuchnart mentioned that during the hot summer months, populations of such sucking insects as thrips and aphids were very high, rendering in-field control of these insect pests difficult. As a result, vegetables exported to Taiwan were often rejected by Taiwan's plant quarantine authority. To make this matter more difficult was that no

specific identifications of the pests detected were mentioned in the quarantine rejection notices issued by Taiwan.

In-depth discussions were further made on the assistance provided by the Royal Project to hill tribe farmers on fertilizer and pesticide applications. This issue was critical as it would directly influence the use of fertilizers or pesticides by the hill tribe farmers to whom the humanity assistance programs established by the Royal Project are targeting. Dr. Nuchnart mentioned that the Royal Project controlled the kind and the amount of pesticides used on vegetable crops. There are plant doctors stationed at each branch station to provide the advice to farmers as to when to use what pesticides at what amounts and how to apply. The assistance of plant doctors was to reduce pesticide residues present on crops, minimize farmers' exposure to pesticides and prevent environmental pollutions resulting from improper use of pesticides. Whenever improper use of pesticides or fertilizers are detected, proper consultations were provided to the farmers; however, if the problem continues, the contract with the farmer in question will be terminated. This policy has been strictly enforced by the Royal Project and compliance of this policy from the hill tribe farmers is excellent due to the incentives provided by the Royal Project in guaranteeing excellent prices at the time contracts are signed.

Since concerns were raised about the relatively strict quarantine inspections in Taiwan, I offered explanations on Taiwan's quarantine laws and regulations and the systems of quarantine inspections at the ports of entry in Taiwan. I encouraged those present to go through proper official channels in Thailand to negotiate with the competent authority in Taiwan; in this case, the Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ), Council of Agriculture, to amicably seek solutions to this problem of concern. Meanwhile, a research program was recommended to be initiated in Thailand, after a proper discussion with BAPHIQ, to develop post harvest treatments to rid pests of quarantine significance.

3. Issues of concern on fruit fly, post harvest treatments and plant quarantine – In the afternoon of May 4, Mr. Chien took me and Ms. Ungkana to the Nong Hoi Royal Project Development Center, which is about 75 km away from Chiang Mai at an elevation of 1,400 m. Inhabitants of the Nong Hoi village were primarily Hmong ethnic group, which established the village in 1942 and grew opium poppy using slash-and-burn methods cutting down forest trees for opium cultivation. The resultant of this slash-and-burn was the seemingly over-developed terrace fields that are still common in the village. In 1972, His Majesty the King visited the village and recommended that alternative agricultural crops be grown in place of opium poppy. Since then, this development center has become one of the largest producers of vegetables for and marketed by the Royal Project. Besides vegetable production, the Nong Hoi center has also become an important research station for herbal crops, including chives, thyme, and parsley.

While at the Nong Hoi village, Ms. Anchan Chompupoung, Vegetable Development and Extension Coordinator, Royal Project Foundation, came to join in the discussion. The discussion was focused first on the 8 project proposals, which the Royal Project put together for proposing to TaiwanICDF for funding consideration. The 8 proposals, in order of priority, were vegetable research and development for Taiwan market (THB6,300,000), study on propagation and growth of purple passion fruit (THB1,416,500), technological improvement of strawberry production (THB1,506,500), sweet persimmon production using Taiwan system (THB2,720,000), research and development of citrus production (THB1,507,000), research and development on mushroom cultivation under the controlled

environment (THB850,000), research and development of tea processing project (THB3,310,000), and human resource development project (THB3,000,000). Since Ms. Anchan is currently in charge of the vegetable development and extension program, much of the discussion was focused on vegetables. Ms. Anchan mentioned that Prince Bhisatej was very much interested in addressing the fruit fly management to enable marketing of sweet pepper, cucumber and tomato in Taiwan, especially during the window periods of July - September when typhoons were at their peaks. The importance of fruit fly management will directly benefit the easing of quarantine restrictions imposed on these crops. I suggested that two approaches be taken to address the quarantine restrictions; one is through a bilateral negotiation with the competent authority in Taiwan, Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ), Council of Agriculture, and the other is to propose a joint research project on post harvest treatments. With proper prior communication with BAPHIQ, results of the study on post harvest treatments can be applied to actual treatments of commodities for export to Taiwan. These two-prong approaches, if all worked out smoothly, should help remove the restrictions currently imposed by Taiwan in prohibiting the shipments of the three subject vegetables to Taiwan.

Also suggested was that the proposal on vegetable production should properly reflect the key issues on fruit fly management, post harvest treatments and quarantine restrictions by including them in the text. Relative to the fruit production proposals, I suggested that four of the proposal directly related to fruit production be integrated by consolidating them into one large proposal instead of six smaller, fragmented proposals. Ms. Anchan took my suggestions and said that she will communicate with her supervisor, Mr. Suthat Pleumpanya, Director, Royal Project Foundation Secretariat (second in command after Prince Bhisatej). Ms. Anchan did discuss my suggestions with Mr. Suthat. In my subsequent meeting with Mr. Suthat at the headquarters of the Royal Project Foundation on May 6, I realized that some improvements to the vegetable project proposal had been made and the four project proposals on fruit production had indeed been consolidated. In addition, one cover letter was prepared for transmitting the proposals by Prince Bhisatej to TaiwanICDF for funding considerations.

4. Training of hill-tribesmen and transfer of technology – While at the Nong Hoi Royal Project Development Center, the manager of the center, through the interpretation of Ms. Anchan, stated that Hmong ethnic farmers were selected to receive training at the center, which provided three plastic greenhouses, each with a capacity of 500 pan with a total of $500 \times 3 = 1500$ pan, to each trainee. During the training period, the trainees received technical assistance, all the agricultural materials (seeds, fertilizers and pesticides), and the use of necessary equipment. The products, after harvested, were coarsely cleaned by trainees and sold to the Royal Project for further processing and marketing. Trainees were guaranteed profits from their efforts in growing the crops. After the completion of the training, trainees received all the start-off materials and then began to farm independently. Recently there were 6 trainees successfully gone through the training and have become independent farmers.

Among the crops that were grown at the Nong Hoi village, sweet pepper and tomato offered the best profit returns. Sweet pepper, for example, enabled a farmer to earn a gross of THB350, 000 a year. The calculation was based on the following conditions:

1) A farmer was provided 3 greenhouses, each with the capacity of 500 pans, meaning a total capacity of 1500 pan;

2) Each pan produced 5 kg of sweet pepper per pan, meaning a total production of $1500 \times 5 = 7,500$ kg for the three greenhouses and each kg sold for THB50;

3) Thus, a farmer earned $7,500 \times 50 = 375,000$ THB/crop.

If this calculation is correct, farmers would have all the incentives to grow high valued crops, such as sweet pepper and tomato, instead of growing opium poppy. The following is an excerpt from the statements made by His Majesty the King “I asked the Hmong how much a family earned in average from the selling of opium. The answer was 3,000 to 5,000 baht. When asked how much the annual selling of fruits would bring, the reply was that the local variety of peaches would bring 4,000 to 12,000 baht! It was then that we thought we had the answer...” (Thailand’s Royal Project, Royal Project Foundation, undated).

5. Food processing and marketing -- Vegetables harvested by contracted farmers were delivered two packing houses; one in Chiang Mai and the other in the Inthanon Royal Project Research Center. Sorting, grading and packing were done in the well equipped packing houses, particularly the one in Chiang Mai, which uses conveyer belt to move produce being sorted, cleaned and packed. Produce was also cleaned in a cold water bath, which also helps minimize insect pests harboured in the produce. Cold storage facilities were available at both Chiang Mai and Inthanon packing houses to enhance produce’s shelf life. In fact, the Chiang Mai packing house was so well equipped that it can easily be converted to a certified packing house to meet the quarantine requirements for preventing fruit fly infestation before the produce being exported to foreign markets.

The Royal Project helps farmers become certified under the Good Agricultural Practices (GAP) to ensure consumers that the agricultural commodities produced by certified farmers are free of unsafe pesticide residues; thus, safe for consumption. In addition, the packing houses are also certified under the Good Manufacturing Practices (GMP) as well as the Hazard Analysis and Critical Control Points (HACCP), to further ensure consumers the safety of the commodities produced under the Royal Project. With these certifications, the Royal Project products were able to compete with foreign imports. Also, having the products being certified under the international certification program, the Royal Project further ensures consumers the safety of its products. This was the reason why the brand name, Doi Kham, becomes very popular among consumers. Currently, there are ten outlets selling Doi Kham products throughout Thailand. Through these outlets, the Royal Project was able to generate significant revenues to sustain the activities undertaken by the Royal Project and to support those employees or farmers, directly or indirectly, involving in the Royal Project activities.

6. Program to restore healthy environments in the northern highlands – In visiting Nong Hoi village and other areas where the Royal Project has instituted programs to assist villagers to switch planting of opium to high valued horticultural crops, a striking scene was immediately noticed that the entire hills where crops are grown were apparently sustained years of over development. Without making effort to further investigate the cause of this seemingly over-development, one can easily misconstrue that it was the consequence of the negligence of the Royal Project. Upon looking into the cause of this unpleasant scene, it became apparent that this was not a result of the Royal Project’s negligence, but rather a result of the opium cultivation practice used by villages prior to 1960, when the King first initiated the project to assist villagers to abandon opium growing and switch to other high value crops. The following is a

quotation from the brochure entitled “Thailand’s Royal Project” published by the Royal Project Foundation (undated): “In the late 1960s, the highland region of the north of Thailand was close to disaster. Farmers living in the upper reaches of the highlands were growing the opium poppy in large amounts. The opium poppy..... and the highland farmers had made Thailand the third largest producer of opium in the world. The forests of the northern highlands were rapidly disappearing. Both opium and upland rice were being cultivated by the method known as ‘slash and burn’ cultivation. This method involves burning down forest on the hillsides and using the resulting ash and fertilizer. It was causing the hills to become arid and could have caused Thailand’s great rivers to dry up.”

In recognizing the consequence of the poor past cultivation practices undertaken by villagers in growing opium, the Royal Project required that farmers to play a role in management of soil, water and forest in the areas where they live. Community groups were set up for information sharing or education on the management of environmental resources and the importance of forestry in soil and water conservations. Farmers were also taught to use farming practices that are compatible to the environmental resource conservation. Meanwhile, the Royal Project initiated a program entitled “Village Forest,” in which, farmers are encouraged to plant trees outside of the watershed areas using seedlings provided by the Royal Project. Trees were being harvested for firewood or used as construction materials for home building and then replenished with the amount of trees that were harvested. This program enables the increase of the forest trees grown and ensures that no trees were cut from the watershed areas.

7. Conclusions – The Royal Project Foundation has established a system that enables itself to become a successful enterprise. This system started with a humanity vision to guide Thailand’s hill tribesmen in the north to cease planting opium poppy and replacing it with high value horticultural crops. This success has enabled the hill tribesmen not only to increase their family income but to improve their health as well. The Foundation has over the years built an impressive technical and laborious workforce and functional infrastructures to fulfil its missions since early 1960s. Because of the King’s unique, highly respected social status, international communities and Thai people, including government officials, researchers, and even other private enterprises have provided the necessary supports to the Foundation. Therefore, GlobalHort will have little role to play to assist the Foundation in training hill tribe farmers or enhancing its capacity building. However, GlobalHort certainly has a role to play in providing advice to the Foundation’s technical personnel on solving immediate problems, including quarantine compliance, fruit fly management, and post harvest treatments. The same may not be true to other fruit and vegetable growing areas where the Foundation does not establish substations to assist farmers. In those areas, GlobalHort may have a role to play to help extension personnel and farmers solve pesticide and fertilizer residue problems, transfer technical know-how and provide pertinent information on agricultural practices to local farmers.

