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Agribusiness Program in Thailand: Contract Farming at Lam Nam Oon
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Summary

USAID's efforts in the Lam Nam Oon region of Thailand typify the Agency's shift from production-oriented to agribusiness-oriented agricultural development. Lam Nam Oon, a poor, remote area in the northeast, participated in neither the national economic boom nor the growth of export-oriented agroprocessing. Rain-fed paddy left Lam Nam Oon villagers unemployed or underemployed in the dry season, until irrigation was introduced in the early 1980s. USAID, together with Thai authorities, encouraged high-value, labor-intensive, nontraditional exports, building on the steady supply of water and the efficiencies of smallholder contracting. USAID and Lam Nam Oon officials recruited potential growers and exporters, laying the groundwork for agribusiness-led regional development.

Only a handful of farmers participated at first, but contract farming became so successful that 4,000 households contracted production in 1993, 29 times the number in 1985. Eight agribusinesses (including one U.S. subsidiary) operated in Lam Nam Oon in 1993 five more than in 1985. Agricultural output in 1993 135.4 million baht ($5.4 million) was more than 24 times greater than output in 1985.

More important, people's lives improved. Contract farmers' net return (without imputing household labor) more than tripled between 1985 and 1993, when it reached 15,165 baht per rai ($1,515 per acre). The average acreage per contract increased only 60 percent over the same period. Indeed, agribusinesses tended to limit the acreage per contractor to 1 to 6 rai (0.4 to 2.4 acres). Farmers began to earn more by adopting new practices: first, the dry-season cultivation of fruits and vegetables, shifting later to higher priced, more labor-intensive seed cropping. Contract farming created unprecedented demand for dry-season labor: an estimated 600,000 person-days of farm work, equivalent to full-time employment of 2,800 people in 1991. Between 1986 and the 1993 dry season, daily wages doubled to 50 baht ($2). The landless capitalized on new opportunities by renting small plots from largeholders to contract their own production, or by hiring out their labor to other contractors.

Contract farming and the expansion of agribusiness created new opportunities for women, including seasonal wage labor in crop

pollination (which requires nimble hands) and full-time work in public and private extension and management. More than half of one firm's employees were women, and women ran on-site operations for two firms.

The increased use of chemical pesticides has caused justifiable concern about the health and safety of agricultural workers. Many noncontracting farmers avoided contract farming mainly for fear of exposure to toxic pesticides. Government, farmers, and agribusinesses anticipate environmental stumbling blocks to contract farming, and more training is being provided in safe spraying (including the use of protective gear) and integrated pest management.

The production of nontraditional agricultural exports catalyzed a regionwide economic boom. Regional household savings doubled in 8 years. Anecdotal evidence suggests considerable growth in both village and urban (commercial and household) investment in real estate, as well as more, and more diversified, trade in consumer goods and services.

## A Region the Thai Boom Bypassed

With annual growth in GNP running at 8 percent since 1980, Thailand is widely touted as the fifth Asian tiger (see table, below). Processed foods lead the export-driven boom: agriculture constitutes 12 percent of GDP but 21 percent of exports. In 1991 Thailand passed Brazil and took fifth place in the ranks of the world's top consumer-oriented, processed-food exporters. Fresh and processed vegetables and fruits, juices, fish, poultry, sugar, and tobacco lead Thai agricultural exports. Agroexports grew from $3.7 billion in 1980 to $12.7 billion in 1992. Thailand's strong infrastructure base, skilled labor force, and progrowth public policies strengthen agribusiness's prospects for rapid continued growth.

Before agribusiness interventions, Lam Nam Oon was untouched by the Thai boom in manufactures and agricultural processing. This assessment (completed in 1993-94) focuses on developments there immediately before and after the 1985 conclusion of the Lam Nam Oon irrigation project. The irrigation project in Sakon Nakhon Province overlaps three districts (Phang Kohn, Panna Nikom, and Sakon Nakhon). In the wet season, it can support 74,000 acres of paddy; in the dry season, either 25,200 acres of paddy or 48,000 acres of nonpaddy crops. Irrigation made dry-season cultivation possible, and after that high-value cash crops were introduced, primarily for export. Irrigated land now supports 14,500 families, 15 percent more than before USAID's efforts.

## The Agribusiness Program

Lam Nam Oon hosted three projects. The first, the Integrated Rural Development project (IRD, 1977-85) received $4.1 million in USAID assistance. It was designed to establish a reliable supply of water for irrigation and to develop and disseminate technologies to increase productivity and diversify production. After failed

attempts to promote traditional low-value crops, such as groundnuts, the project aggressively explored the possibilities for private sector investment and leadership in expanding Lam Nam Oon's agricultural base. It soon found an effective way to direct research and extension to the private sector and encourage innovation. In 1981 the project director recruited special assignment teams of recent agricultural college graduates to identify farmers willing to try new crops, identify suitable crops, teach farmers proper cultivation techniques, and facilitate the dialogue between farmers, officials, and agribusinesses. In 1982 83, private consultants identified 16 feasible high-value, export-oriented crops, and IRD promoted the trial cultivation of baby corn and tomatoes. By the end of 1985, three agribusinesses had established operations at Lam Nam Oon, and 171 farmers were participating in the trials.

The Lam Nam Oon portion of the second project, the nationwide Agricultural Technology Transfer (ATT) project, ran from 1986 through 1988 and cost $94,000 (for two salaries). It continued the IRD's high-value, labor-intensive, small-farmer demonstrations and outreach to agribusiness. ATT also promoted contract farming as the preferred production and marketing system. Under ATT, contract farming production reached $2 million by 1988/89, advancing to higher value, more labor-intensive vegetable crops.

Funded by the Thai Government, the third project, the Integrated Agro-Production and Marketing project (IAPM, 1987 91), continued the work begun under IRD and ATT, convincing farmers and agribusinesses of the gains from dry-season cultivation under contract production. Between 1987 and 1991, IAPM research identified seed crops, vegetables (such as tomatoes) for processing, and fresh fruits and vegetables as offering high returns and employment. (IAPM abandoned an effort to cultivate fruit trees.) Using the teams of college graduates, IAPM continued to recruit agribusinesses and to encourage agribusiness smallholder cooperation. Returns to contract farming were still growing at the time of CDIE's 1993 94 assessment.

## The Growth of Agriculture

As a result of the USAID and Thai program, contract farming and agribusiness firms flourished in Lam Nam Oon, and agricultural output expanded dramatically nearly 25-fold.

Contract farming. From a mere 171 households in 1985, participation in contract farming swelled to 4,000 households in 1993, spreading even to wet-season farming. The number of farming contracts and total area planted under contract grew rapidly in the late 1980s, peaked in 1990 91, then fell slightly before reaching a plateau (see figure 1). Presumably the leveling off was due to labor shortages and opportunities for more profitable employment in the service and manufacturing sectors.

Agribusiness firms. Only three agribusinesses were active in Lam Nam Oon in 1985; that number peaked at nine in 1991 and was down to eight in 1993. Most companies operating in Lam Nam Oon are niche

players, not big firms sometimes the product of direct foreign investment. In the seed business, only the U.S. based Upjohn subsidiary (Asgrow) has direct links to a retail seed purchaser abroad (see box 1). Other Lam Nam Oon agribusinesses subcontract to Asgrow and other intermediaries. Several firms are either subsidiaries of, or have ties to, Taiwanese firms. Two smaller firms (with a handful of workers) were formed by breakaway employees from established enterprises. Lam Nam Oon agribusinesses contract for production of vegetables and tomatoes for processing and flower seeds for export, as well as small quantities of other crops.

Prospects for the growth of agribusiness are favorable: the quality of Lam Nam Oon's water delivery is a magnet for agribusinesses, the farmers now have technological expertise, and the local environment is probusiness. Firms do not readily divulge numbers, but most seed companies' profit margins probably range from 19 to 41 percent. Several companies producing tomatoes for processing failed despite several years' effort, but other companies moved in to contract for the same product, so tomato crops seem to be viable. Pretax profit margins in the tomato-processing business are an estimated 10 to 30 percent.

Agricultural Output. Regional output increased in value from $220,000 in 1987 to $5.4 million in 1993. Output grew between 1991 and 1993 despite slightly fewer contracts and less acreage under contract, largely because the product mix changed. Farmers shifted to seed crops, which were more profitable than vegetables grown for processing.

The one shortcoming, however, was that the initial project period of 1977-85 was too short. Lam Nam Oon's performance was still unsatisfactory a full 4 years after water reached farmers' fields in the dry season. If agribusiness promotion had ceased in 1985, possibly there would be nothing to study at Lam Nam Oon today. The dedication of certain individuals and additional funding from the Thai Government allowed this project to percolate long enough for contract farming to take off.

## Project Benefits and Shortcomings

Did contract farming lead to growth and equity in agriculture? How did Lam Nam Oon agricultural developments influence women's opportunities, environmental conditions, and regional economic improvements outside of agriculture?

### Employment and Incomes

The expansion of more labor-intensive production generated an estimated 600,000 person-days of farm-wage work in 1991. The demand for labor absorbed much of the local labor supply, forcing contractors to recruit workers from ever more distant villages every year. In the past, Lam Nam Oon laborers sought work outside the area, harvesting rice during the dry season the very time when Lam Nam Oon contractors now pollinate their own off-season crops. Owing largely to rising demand and the pattern of seasonal

outmigration, local farm wages rose from about $1 a day plus extras during 1986 87 to $2 a day in the 1993 dry season.

Small-farmer incomes nearly quadrupled between 1986 and 1993 (see figure 2), although average holdings per contract increased only 60 percent. Most of the income gains for contract farmers stemmed from diversification, especially the shift from vegetable cropping to seed production, which increased the efficient use of land (see Figure 3). But farmers also became more sophisticated. They would "vote with their feet," moving from one company to another; having options gave them some leverage.

Small farmers fully participated in the benefits from growth in agribusiness. Despite the presence of largeholders in Lam Nam Oon, agribusinesses tended to contract no more than 2.4 acres, and no fewer than 0.4, per family. Nearly all households fell within this range. Farmers with little or no land often rented land so they could contract production. Even farmers on rain-fed farms outside of Lam Nam Oon rented land in the region to contract for production in the dry season.

Rising incomes changed local consumption patterns. Eighty-six farmers surveyed reported plans to purchase durables, such as televisions, sewing machines, motorcycles, refrigerators, gold jewelry, and hand-drawn tractors. Farm loans for hand-driven tractors grew at an especially fast pace. Farmers also invested more in their children's education: 1,460 students attended the Pang Khon middle school in 1993 94, up from 1,200 four years earlier.

Farmers also bought more nondurables. One farmer said that formerly he had to catch fish from the paddies but now he could purchase meat from the market. Now, if my neighbor has a chicken, he says, well, I can buy one too. Another farmer observed that alcoholic beverages served at weddings used to be home brewed, but now everybody expects "red whiskey" (store-bought spirits). The Phang Khon market began to stock not only locally grown foods but also many nonessentials, such as snacks, condiments, processed fruits and vegetables, instant coffee, soup mixes, chocolates and imported cookies, yogurt, and high-value dairy products. Box 2 recounts how one farmer's lifestyle changed with the advent of irrigation and agribusiness.

## Women

Contracting increased women's share in farm labor. Women were allotted responsibility for pollination and other labor-intensive procedures that take several weeks. Families worked together in planting, spraying, and other tasks. But women and teenagers are considered to have better eyes and more nimble hands for detail work of high-value crops.

The propensity to hire women for pollination increased opportunities for women not fully engaged on their family farms to get seasonal work from neighbors. Serving as a hired hand could yield several weeks' wages (a full month was common).

Contract farming also increased employment opportunities for female agriculture school graduates. Several special assignment team members including the team leader were women, and so were many extension agents. Two members of one firm's 12-person staff were women. At another firm the manager explained: Because most of the pollinators are women, more than 50 percent of our staff are women. Although hiring women is not a company policy, it just works out that way when we seek the most capable staff.

Many women served at the highest level in agribusiness management, at least two women ran on-site operations, and women took an active role in contract production. One of the largest firms reported that 30 percent of its contracts were with women. One company manager, a female Ph.D., argued, "We are concerned for families, not women, and families have no doubt benefited tremendously." Family incomes certainly gained from women's labor, paid for or not.

## Pesticides

The main reason growers refrained from contract farming was concern about the health risks of pesticide use. Most of the chemical sprays were new to Lam Nam Oon, and toxic. When companies first arrived, no one gave any thought to the possible adverse effects of pesticides on rural population's health. But in time, Lam Nam Oon and company field staff began providing protective gear, teaching farmers safe spraying practices, and educating them about the hazards of chemicals. At first, farmers resisted wearing safety suits, but as they became aware of the sprays' ill effects, they took more precautions. For example, they took one seed company's advice to switch from LD500 to the less toxic LD50. In one village, a farmer, for a fee and wearing protective boots, gloves, and mask, sprayed chemicals on his neighbors' plots.

Outspoken cultivators spurred agribusinesses to action, and companies finally became more active about safety. They began giving away protective gear instead of selling it to differentiate themselves from their competitors and to win or maintain recruits. One agribusiness manager reported that villagers knew the antidote for toxic poisoning caused by pesticide ingestion, citing this as evidence that farmers had indeed mastered detailed safety guidelines. One large seed firm one-upped its competition by engaging the services of a Bangkok-based nongovernmental organization to help Lam Nam Oon farmers reduce their risks from pesticides. (The organization charged no fee.) Still, many farmers fear chemicals and resist contract farming. They await a project that will devise a new crop, one that doesn't require spraying.

## Regional Economic Development

Agricultural growth contributed in no small measure to the local economic boom. District banks report that savings balances doubled over 8 years. The household loan portfolio of Bangkok Bank in Pang Khon grew 20 percent a year for 5 years, expanding from 600 to 2,000 borrowers. They owe a total of $8 million.

The local economy is thriving. Farmers and town residents are acquiring tile roofs, ceramic balustrades, wooden cabinets, and other improvements for their homes. Stores have opened to cater to the new demand for luxury items. Pang Khon has been transformed by new beauty parlors, motorcycle shops, nightclubs, and jewelry stores. Fabric stores that recently sold only local silk cloth, cotton, and synthetic blends, now sell factory-made silk textiles. In the summer of 1991 only one store sold film; there are now two film stores, one of which boasts on-site processing. Huge warehouses have been built on the main street and, for the first time, a four-story combined commercial and residential "shopping center" has opened perhaps the first local instance of urban "apartment" living.

## Lessons Learned

Contract production does not inherently favor any class or gender. In Lam Nam Oon, smallholders successfully fulfilled production contracts, and largeholders often let land lie fallow in the dry season, foregoing gains from managed production. Land was available for rent so smallholders and the landless could participate. Even farmers in rain-fed areas outside the region rented land in the irrigated area. Women earned more, and their employment opportunities as pollinators and as agribusiness workers improved. Public officials must be trained in market principles to foster agribusiness. The public sector, more often than not, has a limited understanding of private sector leadership in rural development, little experience in such efforts, and few skills in project identification and marketing support. Training is needed to move public sector thinking away from its social service orientation to a more business-oriented one. Inexperienced project personnel can benefit from working with private sector consultants and experts in private sector promotion. Government workers need to learn to promote agricultural development by nurturing private initiatives based on manageable risks and attractive returns for both cultivators and agribusinesses.

Monitoring units should be set up to flag the need for change. All the projections and alternative scenarios project designers could muster would have been pointless if thorough, strict monitoring had not revealed that production of low-value crops was not working. Project design should also consider the postproject needs of beneficiaries and incorporate a unit to monitor benefits after project's end. This unit should give warning when current crops are becoming less commercially viable and identify new crops to replace them. The seed business is unlikely to stay at Lam Nam Oon forever. As labor costs rise, companies will probably move to another region or country with a better mix of resources. The best way to prevent serious harm to agribusiness farms is to monitor trends and identify higher value crops to replace those that have become nonprofitable.

Safety measures should be incorporated into public policy to protect public health from the harmful effects of pesticide sprays. At the time of IAPM project planning, risks of blood poisoning and water contamination were not considered to be serious. It is now

recognized that farmers must be educated about safe handling of pesticides to protect public health. The government must set the example by providing safety equipment, teaching safe spraying methods in farm trials, and ensuring that agribusinesses heed safety issues. The government must also be prepared to use the stick approach with agribusinesses if the softer approaches moral suasion and other inducements do not keep the private sector focused on environmental problems. Environmental problems at Lam Nam Oon do not, for now, threaten to reduce contract farming significantly, but they can diminish managed production in the medium term.

This Evaluation Highlights summarizes the findings from CDIE working paper No. 193, "Assessment of Contract Farming at Lam Nam Oon, Thailand: A Combined Effort of USAID and the Royal Thai Government," by Diane J. Dolinsky. The country case study is part of a seven-country assessment, directed by Krishna Kumar of CDIE, of USAID's agribusiness program. CDIE reports can be ordered from the DISC, 1611 North Kent Street, Suite 200, Arlington, VA 22209-2111, telephone (703) 351-4006; fax (703) 351-4039.