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## **Government Policy in a Balancing Act of Food Security and Biofuel: Indonesian Potential**

As the world's largest archipelagic state, the Republic of Indonesia comprises 17,508 islands in the region of Southeast Asia. What most people might not realize, however, its population of roughly 235 million people ranks the country as the fourth most populous, just behind the United States. The difference in standard of living between these two heavily populated countries, however, is drastic. According to the United Nations Food and Agriculture Organization, over 50 percent of the Indonesia's population is poor. For what an American pays for two double cheeseburgers at McDonalds, a mere \$2 US, many Indonesians struggle to make it through the day with, and they might be the lucky ones; nearly 18 percent live off half of that. With nearly three fifths of the population living in rural areas, agriculture is the country's largest economic sector, and additionally, where much of the poverty is focused. Rural poverty is widespread, from Java and Bali, to the remote eastern islands, where up to 95 percent of rural families are considered poor. The Indonesian government defines poverty as less money than is needed to afford a diet, 2,100 calories a day. This equals an estimated 152,847 rupiah, or \$16.80 US, a month (The Economist). Many of these Indonesian farmers earn their living by harvesting a single crop on dry land and living a subsistence lifestyle. As a result of the farming conditions and the limited availability of other crops or food sources to rural poor, many households consume a much higher ration of starchy sources for food energy. The main staple of the Indonesian diet is rice, but rural poor lack a wide variety of nutrients obtained from foods other than grains, and in addition to malnutrition, suffer from under nutrition. Based on a weight-for-age ratio, rural children, many whom only complete less than an average of seven years of schooling, are the most likely to suffer from under nutrition (Anderson). For the future of the subsistence farming rural family, food security is a definite issue.

The severity of the situation has not always been the norm. In the mid 1990's, substantially fewer people lived in poverty, 16.8 percent. Economic crises in 1997 and 1998 left the country in shambles. Urban areas have been able to recover more rapidly than their rural counterparts where taking advantage of government relief efforts proved more difficult. The government's budget also took a toll. In order to provide more immediate relief and recovery, many health and education programs were scrapped. To this day, the substantial debt incurred serves as a barrier to reaching a level of food sustainability and alleviating poverty.

Efforts to ease the situation of poverty are being made, however. The Indonesian government's budget allocated to poverty alleviation for 2007 has been placed at 51 trillion rupiah (\$5.6 billion US), an increase from the 43 trillion rupiah (\$4.7 billion US) allocated in 2006. In an attempt to both reduce the poverty of its people and capitalize on the country's potential biofuel resources, twenty percent of this budget has been set aside for two major programs, one of 'people empowerment' and the other for 'biofuels'. By pumping money into these programs, the Indonesian government's goal is to create 15 million jobs by 2010.

Its 'people empowerment' program has a head start. Since 1998, it has reached across 34,200 villages. The Coordinating Minister for the People's Welfare claims that, "The types of projects are determined based on local conditions" and that "the program is expected to generate jobs for 12.5 million people, assuming each project will absorb 250 people in a specific area for three years." To reach the program's goal, however, the Minister says projects need to extend to 50,000 more villages by 2009, a number almost double the amount 'people empowerment' has been able to reach in roughly the past decade (Biopact Sept. 2006). The 'people empowerment' program's counterpart, the biofuels program,

has a goal of producing an additional 2.5 million jobs in three years via the government's support of plantation investment. Energy and Natural Resources Minister, Dr. Purnomo Yusgiantoro, said the country will offer 6 million hectares (approximately 14.8 million acres) to local and foreign investors to develop these plantations for biofuel. The total investment is estimated at \$20 billion US (Biopact Aug 2006).

In January of 2007, 67 agreements were signed in Jakarta at the Joint Initiative for Biofuel Development Conference, with an estimated investment value of \$12.4 billion. National banks, Bank Madijiri and BNI, will finance another \$2.8 billion, with the government's bank interest subsidy program supporting this financing. Of these:

- 52 were signed by foreign, local, and state-owned enterprises that are either planning to invest or have interest in investing in biofuel development in Indonesia.
- 12 financial institutions and 11 foreign-Indonesian joint ventures were present, with over a third expressing interest in investment.
- 3 ventures account for over half the value of the agreements.
  - A joint Indonesia-Malaysia venture, the Indomal Group, will invest \$1 billion.
  - Genting Bhd, Malaysia's leading multinational corporation active in plantation, power, oil, and gas sectors, will invest \$3 billion.
  - The China National Offshore Oil Corporation (CNOOC), in a demonstration of confidence, will invest \$5.5 billion.

These agreements symbolize a great deal of enthusiasm for Indonesia's prospects for biofuels, and with good reason. Production of crude palm oil (CPO), the largest player in current and future plans for biofuel in Indonesia, has been a great energy fallback for a country that has begun importing more oil and exporting substantially less, action that has caused Indonesia to lose its status as a net oil exporter of OPEC (Shameen). To many Southeast Asian markets, CPO seems to be the frontrunner. Just one hectare of palm oil could potentially yield 5,000 kilograms, nearly 6,000 liters, of CPO. In comparison, soybeans and corn, crops popularly recognized as major biofuel possibilities in the U.S., generate only 446 and 172 liters per hectare, respectively (Butler). As The U.S. Consulate in Medan states, palm oil "lubricates the economic engine" of Indonesia. The country is very quickly overtaking Malaysia as the world's largest producer of CPO.

What must be considered, however, is that with an increased interest and new direction for palm oil, Indonesian families may face a more direct jab at their food security. In 2005, before the boom of biofuel interest, the U.S. Consulate in Medan estimated that 80 percent of the palm oil produced was used for food consumption while only 20 percent went to industrial uses. The Asia Times recently reported that domestic cooking-oil prices in Indonesia have risen 30 percent after an 80 percent rise in CPO futures offshore. CPO producers, ones like CNOOC, are attempting to boost profits outside the country, despite a government bid to stabilize domestic cooking-oil prices through an export-tariff. Indonesians may be facing the price in the edible oils. Large increases in demand for CPO for a biofuel will compete with its use for edible oil over the next five years before new plantations can produce additional CPO (Bromokusumo).

Such a situation exemplifies the conflicting priorities between the government's attempts to reduce poverty and the goals of foreign investors in its biofuel program. The Asia Times recently reported that "nationalist sentiments are gaining ground that foreign companies are disproportionately profiting from Indonesia's natural resources." With a, largely foreign, total investment of \$20 billion in a biofuel program intended to help the country's economy, will benefits realistically be seen by the country's poor? Indonesia may, in a sense, not be bettering the condition of its people, but merely keeping the status quo of poverty its rural communities while the foreign investors make the profits. Critics call both the aforementioned people empowerment and biofuels programs ineffective, pointing to the steady rise in the

number of poor people over the past few years. Coordinating Minister for the People's Welfare says, however, that without the programs, poverty rates would have been even higher.

Nonetheless, one should ask if there is ultimately an improvement in poverty by looking to the conditions and situations in which the affected Indonesians go to work in these new plantations. Some Indonesians do, indeed, benefit from the switch from the family farm to the plantation system. Several smallholders have leased their land to the biofuel program, and one such farmer in Kalimantan has said "This used to be my land. But I rented it to a plantation company a little while ago. It was a good price—all the landowners round here did the same. Life before was difficult. [...] I couldn't even feed my family, not to mention send my kids to school. After the plantation took over, more people came and suddenly we had roads and schools. We've also opened a small shop, so it's improved our income significantly" (Biopact Feb. 2007). With a concentrated area of laborers, new infrastructure in transportation to and from the work site is being created. Some see the situation as a step in the right direction for their own well-being.

Not every farmer affected by the change, however, feels the same way. Darmawan Triwibowo from the Indonesian Biodiversity Foundation, Kehati, feels that government policy made in Jakarta dealing with the plantations does not quite mesh with what is happening rurally, miles and miles away, "The government assumes it's the perfect situation in every area. But in fact, it won't be that easy to employ workers, increase their welfare and solve their poverty problems. It really depends on the development scheme of the plantation industry." Abet Nego Tarigan of NGO Sawit Watch shares the same basic concern that, while through the program new jobs are created for villagers, the government is not paying attention to the actual condition of the workers. He elaborates, "Indeed, the sector has reduced unemployment, but in fact more than 50 percent of plantation laborers only get their daily wages without any insurance or social security scheme" (Biopact Aug. 2007).

Triwibowo expresses another concern of these new plantation workers—their land. "The situation will be worse if a land dispute occurs" and some evidence shows such is the case. The Federation of Indonesian Peasant Union sees this recent investment program as an infringement on the common farmer's rights, and even more so, against the basic principles they say that post-colonial Indonesia sought to improve. During the centuries of colonialism, many farmers lost their land to cash crop plantations. In 1960, thirty-five years after Indonesia gained its independence, "Agrarian law number 5" set forth a system of agrarian reform that many peasants thought gave them "promised land" and a chance to improve their own livelihoods. This peasant union fears that with a new program utilizing plantations, Indonesians will be under conditions similar to colonial Indonesia. That, despite having fertile lands, they will suffer from malnutrition and hunger because they cannot plant subsistence crops on their land. This, in combination with the fact that the new investment plan includes commercial land use rights for 95 years over the 1960 agrarian bills' 35 years, highlights levels of concern of the small farmer (Ya'kub).

From a governmental policy standpoint, therefore, is the single focus on the plantation the best vehicle to capitalize on the biofuel markets and alleviate poverty? For many, not only is small farming the practice they are raised in and accustomed to, the method could truly meet their needs. Family farms benefit labor by providing a role for women and children, as well as aged family members who would have little work opportunity elsewhere. Plantations are unlikely to hire some of these groups, and the family farm provides for a different pool of labor, while at the same time being more intimate. One key advantage of the Southeast Asian small farm lies in the family's true, personal effort to work and provide for their own well-being. A more direct relationship between how much work is done and the results is much more visible in a family farm setting than that of an Indonesian working a plantation for an established wage where he might be tempted to underachieve without a presence of supervision (Hayami).

Small farms may additionally fit the needs of biofuel investors. A 1999 study by the Institute for Food and Development Policy, based in California, and The Transnational Institute, of the Netherlands, shows that small farmers worldwide produce 2 to 10 times more per unit area than do larger, corporate farmers. More recently, findings by a Japanese Foundation for Advanced Studies in International Development determined that when dealing with areas in Southeast Asia where smallholders had already been established, family farms, in comparison to plantations based on hired labor, proved to be equally or more efficient producers of tropical export crops using the family labor of low supervision costs.

The plantation system, however, is necessary for the mass production of palm oil for export to function. For a yield to be successfully gathered up for distribution, the cultivated land cannot easily be split up across several small or isolated farms. Palm oil needs large portions of land like in a plantation. The infrastructure of a large-scale central processing system is necessary because of the palm oil's need to be processed in a timely manner, similarly to tea production. Though widely produced and acknowledged in Indonesia, it is important to note that the market of biofuels is not specifically limited to CPO. Several other possibilities do exist as alternatives, such as sugarcane, cassava, and most notably, jatropha. What, then, are the relative benefits of these alternatives? For one, the plantation system may not be crucial to mass production, and in turn, the rural family may benefit. For another, some can be intercropped on plantations producing labor opportunities while oil palm trees mature.

Jatropha, for instance, a small tropical tree with seeds that contain up to 40% oil, can be processed into a biofuel through esterification without being heavily refined, and that process may be even cheaper and less demanding than that of palm oil's. Unlike oil palms, these trees grow well in a number of conditions, even those areas considered "wastelands." Though more research is needed, jatropha's versatility could hold potential for rural families with marginal farmland, land that is not necessarily being sought after or ideal for plantation use. Some research shows that when intercropped, jatropha can benefit not only benefit a yield economically through a lack of dependence on one crop; it can also ecologically benefit the soil and condition of the land for future growing seasons (JatrophaWorld).

Such an ecologically friendly crop may be widely welcomed by biofuel critics, many of whom take the oil palm plantation's threat to the environment very seriously. Indonesia, with its abundance of tropical rainforest, has one of the world's highest levels of biodiversity, second only to Brazil. The large land size necessary for palm oil production is encroaching into these forests, the habitats of a long list of critically endangered, threatened, and undiscovered species that many feel may potentially provide for unforeseen advancements in the field of science and medicine. The proposed areas for palm oil plantations requires the deforestation of much of these areas in order to function, and that leaves many nongovernmental organizations wary of the idea and open to alternatives.

A crop such as jatropha opens doors for several parties, not just those wary of palm oil's environmental impacts. The crop's potential to be produced on degraded and marginal land and its ability to be intercropped, perhaps among a food supply such as rice, may speak to the needs of small farms while at the same time satisfying biofuel investors. To the small family farmer, intercropping jatropha intended for distribution as biofuel among their food supply could improve the land for future growth while at the same time providing another source of income beyond a single crop. One single family farm producing jatropha would not satisfy \$20 billion US worth of investments, however, family farms grouped together potentially could. Family farms can be productive, and this agricultural practice fits the needs and even some desires of rural Indonesia. If groups of nearby family farms were to come together under the blanket of a cooperative, a bulk-sale of biofuel could be distributed. If such a situation were produced, the plantation system could be less pervasive.

Individual farmers, however, cannot make a change that could potentially reduce poverty like this on their own—the Indonesia government must make the first steps. The investments established at The

Joint Initiative for Biofuel Development Conference can stay in place; the enthusiasm is beneficial, but specifications of these agreements would have to be rearranged to improve the program's success relative to improving the condition of the rural Indonesian. Incentives to back a cooperative-based family farm system should be established with some investors. At the same time, government policy should dictate that, as the biofuel program is intended to boost Indonesia's economy, a portion of investor's profits should be set aside to assist in reducing the poverty of the people that production affects. This money should go towards funding for the education that will have to be conducted to establish a knowledge base in rural areas for the planting of jatropha. In addition to this education, government subsidies should be established as incentives to consenting families. The government should look to supportive nongovernmental organizations to ease in such a transition, particularly the United Nations Food and Agriculture Organization which has recognized biofuel's potential to create a social economy in which food sustainability can be achieved. If the Indonesian government encourages the UN FAO to oversee the transition, an outside eye may further assure monetary aid and education reaches the people it is intended.

This system should not be seen as a replacement to the status quo, but a supplemental improvement. Cooperative-based jatropha production has the ability to coexist with palm oil plantations. Palm oil plantations indeed boost Indonesia's GDP, but the gap to be filled lies in the plantation's inability to be applied everywhere. Marginal land exists that palm oil plantations cannot put to use, but the rural poor still have farmland there. Planting jatropha on this marginal land gives the small rural family a chance to benefit from the biofuel market. By intercropping jatropha, this land's overall quality has the chance to improve and provide for a diversification of healthier crops for the family to consume or sell. With financial backing through biofuel sale and improvement in their own yield, the poor rural Indonesian family would greatly improve its opportunity for food sustainability. If the government takes the first few steps to establish such a system, in the future half its people may not need to go to sleep hungry. Indonesia has the potential.

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