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**AN ARCHITECTURE FOR
INDONESIAN FOOD POLICY**

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I. The Elements of Food Policy

Most countries survive without designing and implementing a formal food policy. Indonesia has been fortunate over the past 30 years to have had a group of technocrats who understood the importance of the rural economy to the country's overall development effort, and the importance of food security to the nation's consumers. Whatever the failures of the Suharto government with respect to crony capitalism and misplaced energies in protected industrial sectors, food policy received serious enough attention that the agricultural economy grew rapidly while poverty rates fell as fast as in any country at any time in history. It is important that the new political environment not discard this particular legacy of Indonesia's development experience. Instead, it can learn from and build on this experience in order to regain quickly the degree of poverty alleviation experienced before the financial crisis. The rural economy can also serve as the foundation for rapid growth in the rest of the economy with the right policies, incentives, and investments.

Why a Food Policy?--There are two basic reasons for thinking systematically about a country's food policy--that is, how the government structures its macroeconomic and trade regimes, its sectoral policies in agriculture, its pricing and distribution strategies for important foodstuffs, and their ultimate impact on producers and consumers. First, an effective food policy can stimulate more rapid economic growth in both the rural and overall economy. In a natural-resource rich economy such as Indonesia's, the direct contribution of agriculture to growth in GDP can be substantial. Because there are large public investments needed to stimulate rapid agricultural growth, and because macro and trade regimes often discriminate against the rural economy, an active food policy that helps reverse this

discrimination has the potential to raise this direct contribution by significant amounts. Countries with “good” food policies often have agricultural sectors growing by 4-5 percent per year for extended periods, whereas countries with “bad” food policies usually see stagnation or worse in their rural economies, with massive migration from rural to urban areas. There is a clear incentive to be in the “good” category, and to think systematically about the steps needed to get there.

There are also significant linkages between rural growth and growth in the rest of the economy that are not all well-mediated by markets and which take careful government attention to realize. The familiar Lewis and Johnston-Mellor linkages connect faster growth in agriculture to growth in the rest of the economy through labor and capital flows, and through the capacity of the rural economy to provide food for the cities, demand for industrial output, and foreign exchange for the industrialization effort. Even imperfect factor and product markets still foster these contributions to a significant extent.

Three other less familiar linkages are not so well mediated by markets. As argued by Michael Lipton, removal of urban bias in macro, trade, and sectoral regimes can stimulate growth for a decade or more. A nutritional linkage, often associated with the work of Robert Fogel, connects greater food production to direct increases in caloric intake and increased work effort by the poor, thus contributing to more rapid growth. And a stability linkage connects stable food prices and food security to a consequent increase in the quality and quantity of investment, and thus to faster economic growth. There is now ample evidence to convince policymakers that growth in the rural economy is good for, not detrimental to, growth in the rest of the economy.

The second main reason to design and implement a comprehensive food policy is its impact on poverty alleviation. Growth in the rural economy has more of an impact on poverty than growth in the industrial or service economies, at least in environments where a

substantial fraction of the population still lives in rural areas, and where the distribution of rural assets is not as skewed as in most Latin American countries. Indonesia still fits this description on both counts, and rural growth can be a powerful anti-poverty tool. The evidence for both the growth and poverty linkages is summarized in C. Peter Timmer, "Agriculture and Economic Development," in Gardner and Rausser, eds., *The Handbook of Agricultural Economics*, Elsevier/North-Holland Publishers, forthcoming. To avoid duplication, the *Handbook* chapter is available from the DAI team as an accompaniment to this paper.

Components.--A number of books and articles articulate the individual components of food policy and how to integrate them into a coherent macro food policy. Indeed, *Food Policy Analysis*, by Timmer, Falcon, and Pearson, remains a useful primer on the topic and there is no need to repeat the details here. Since it was published in 1983, however, most empirical analysis of food policy issues has focused on micro level concerns, such as targeting food and health services to poor consumers, or improving the rate of adoption of new technology by small farmers. Both topics are important, but are not the topic of this paper. Here the concern is more about the integration of the food economy into whatever macro and trade regime the new government pursues, and the sectoral priorities it sets for agriculture and the rural economy.

An inappropriate macro and trade regime will present insurmountable obstacles to an effective food policy. Large budget deficits, rapid inflation, an overvalued domestic currency, and a relatively closed border will be a recipe for Indonesia to follow the downward spiral of Nigeria after the OPEC boom in the mid-1970s. Again, fault can be found with the Suharto government's management of the economy, ending ultimately in the financial crisis and political collapse, but most observers still feel that the macro component of economic management was among the best in the developing world. The trade regime was

open to manufactured exports and a favorable exchange rate helped agriculture. These positive components of the development strategy should not be scrapped in favor of a more populist approach. The record is clear that effective macro management, an open economy, and a favorable policy environment for agriculture stimulate both growth and poverty alleviation. A populist agenda that is pro-growth and anti-poverty will need to build on this policy approach in order to be effective in reaching both goals.

The earlier record also includes quite favorable sectoral treatment for agriculture, at least the rice sub-sector, through large-scale investments in the rural economy and favorable price incentives that derived from the competitive exchange rate and substantial subsidies for credit, fertilizer, water, and rice marketing in the outer islands. Most of these subsidies will need to be eliminated in the face of tighter budgetary limits, but the current exchange rate more than compensates farmers for these losses. Continued investments in rural infrastructure and financial intermediaries will be needed, however, to regain the competitive marketing system that existed before the financial crisis and to ensure that outlying areas also have access to information, technology, and markets. Some of the financial resources needed for these investments can come from the savings realized as massive subsidies are eliminated.

An Overview of the Proposed Architecture.--As noted above, a new Indonesian government does not need to repudiate the historical record of achievements in the rural economy. There are many challenges simply to re-establishing these achievements after the financial crisis, but there are important opportunities as well. In particular, redressing the “rice bias” in previous policy is likely to pay widespread dividends. Historically, the rice bias had several components. Most important was a “rice mentality” in the government that focused policy attention, budget subsidies, and rural infrastructure differentially on the rice sector. Only rice prices were stabilized effectively (a serious impediment to diversification), only rice research was adequately supported (making new technology for non-rice crops quite

inadequate), only irrigation systems for rice were built, and so on.

As noted, rice is important in Indonesia, but it is no longer the engine of growth for the economy or the barometer of pressure in politics. Both farmers and consumers have weaned themselves gradually from their earlier dependence on rice, and future policy needs to be consistent with this new reality. One direct opportunity that comes from the reduced significance of rice in the economy and politics is that the government no longer needs to control tightly international trade in the commodity. Substantial gains have already come from opening the rice economy to more international competition.

Other opportunities include removing many of the trade barriers to agricultural exports, fixing the “high-cost economy” that faces agri-business investors, and deregulating the sugar and wheat subsectors. These initiatives will stimulate economic growth and substantially better distribution of income in the non-farm part of the food economy. All of these changes should be on the agenda.

The proposed architecture for food policy stresses three important principles. First, there should be a clear focus on value added in commodity production, with government resources being utilized only to enhance real opportunities for sustaining or achieving comparative advantage. Second, the basic approach to pricing agricultural products must be their value at the border. That is, free trade in agriculture should be taken as the starting point for any discussion of domestic prices. Third, rice policy remains important enough for economic and political reasons to deserve special attention. The degree of self-sufficiency in rice, the level of rice prices, and the degree of price instability are important policy issues that need critical analysis and discussion. No other commodity requires such special attention.

Finally, this document is intended to be consistent with the new political economy that is emerging in Indonesia. Such consistency is obviously crucial for the document to be relevant, but it is also extremely difficult to achieve in the current state of political flux.

Continuous discussions and restating of basic arguments will be necessary. That said, some key principles should hold. First, policy analysis should always be about what is feasible, not what some model indicates is optimal. Models are illuminating of course, and simple ones can be quite powerful. But reality is complex and policy design and implementation must always cope with that complexity.

Second, it is almost always more important to get policy changes pointed in the right direction than to jump all the way to the desired new outcome. Both societies and economies have considerable inertia. Change at the margin may seem hopelessly slow to a harassed politician with angry demonstrations in the street. But it is surprising how soon 10 or 20 years roll by. If the right changes were made at the beginning, most of the desired results would be in hand. Without the right changes, the problems simply fester and become progressively more difficult to solve.

Finally, no set of policies can survive if they do not serve the purposes of the government in power. Understanding who the players are, what their interests are, and how the food system can be used to serve both the people and the government are complicated tasks that are inappropriate for foreign analysts to become too deeply involved in. This is especially critical in the immediate future--until November or December, 1999--as the current government seeks to continue sound economic management, including food policy initiatives identified in this paper. The risk, of course, is that a new government formed from the political opposition could easily feel co-opted by such initiatives and refuse to continue them.

Without becoming embroiled in this debate, it is important to note that there is much comparative and historical experience around the world on what works and does not work in the food policy arena, and foreign analysts are often the best suppliers of such experience. If

there is effective domestic demand for such analysis and experience, much grief and many wrong turns can be avoided. It would be a tragedy for the poor if a nationalistic and populist government turned its back on such experience.

II. Rice Policy

Historically, rice has been a very special commodity in Indonesia for both economic and political reasons. Economically, the rice sector has been the single largest employer and generator of value added in the economy, as well as the largest item in the average consumer's budget. Politically, sudden changes in rice prices have caused rapid redistribution of income and all modern governments have accepted rice price stabilization as a political mandate. The economic and political dimensions are linked through a variety of macroeconomic mechanisms, especially the link between stable rice prices, political stability, and more rapid economic growth.

Only rice, in the agricultural sector, has the macroeconomic significance to warrant special attention in the country's overall food policy (and even this significance has lessened dramatically since the mid-1960s). Concerns for income generation in rural areas, employment in both production and marketing, and food security nationally and at the household level all argue for a careful analysis of the rice economy and how national policy should attempt to influence it. In most areas, the likely answers will be to let the market achieve the most efficient outcome. But not always. Price stabilization, income distribution, and infrastructure investments are frequently not well mediated by free markets, and government interventions then have the potential, if well designed and implemented, to improve social welfare and the efficiency of the economy.

The Issues.--Two basic issues have traditionally confronted rice policy in Indonesia; whether to strive for self-sufficiency in rice and how to stabilize rice prices. At an economic

level, the first issue is about how much to invest in public infrastructure, such as irrigation facilities, in subsidies on inputs, and on price protection to domestic farmers, to achieve self-sufficiency in rice and avoid regular imports from the world market. Whether Indonesia has a long-run comparative advantage in import substitution for rice will be addressed at length later in a separate report on production costs. For the next several years, however, it seems likely that the country may face a structural deficit of 3-5 million metric tons of rice at current domestic and world prices. In these circumstances, achieving self-sufficiency in rice in the short run would require wrenching price increases to cut back on consumption and stimulate production. Such an approach is not in the interests of either producers or consumers at the present time and would be highly destabilizing to the political economy.

The second issue is how much to stabilize domestic rice prices from seasonal fluctuations and movements in prices on the world rice market. The causes of price movements from these two sources are totally different, but the mechanisms designed to stabilize prices inevitably influence both aspects of price formation. Attempts to stabilize seasonal price movements, for example, will be highly problematical if all price movements in the world market are transmitted to domestic markets. It is essential that any stabilization plan recognize these two dimensions of price formation before any interventions are designed.

The self-sufficiency and stabilization issues are obviously linked, both because each depends on the world market to set some sort of policy standard as a free-trade alternative, and because interventions into price formation for rice almost always affect both levels and fluctuations, at least in the short run. Analytically the two topics can be treated separately, but any institutional design for actual interventions must confront the linkage. Again, the case is clear for integrating the various dimensions of rice policy into a comprehensive design that is consistent with the rest of food policy, the macroeconomic and trade regimes, and with

domestic political economy considerations.

A powerful development lesson of the last two decades is the critical role markets play in coordinating decisions about resource allocations through competition and local price discovery. Many conditions must be met for this process to lead to optimal outcomes for a society. When these conditions are not met, two approaches are possible and they have vastly different long-run implications. The first approach substitutes government decisions for imperfect market outcomes. Such government intervention is often appealing both intellectually and politically, especially when the outcomes are visibly the result of market power or political connections. The result can be a quick “fix” to an awkward problem, such as a rice shortage in urban areas or a glut during harvest. But the undermining of market processes means such problems arise more often in the future, not less often.

The alternative approach, to invest in more open and efficient markets, runs the risk of slow results, large market-directed rewards to those with capital and know-how, and a political backlash against doing “nothing.” Especially when rice prices are rising sharply and food security seems threatened, the call for government action is overwhelming. This tension between making markets work better and government interventions to get the desired results more quickly is ancient and inescapable. The only sensible approach is to determine what tasks are likely to end up in the government's hands one way or the other and to develop a strategy for reconciling this tension. Reconciliation requires building the market's capacity to handle most tasks in the long run while intervening directly to carry out these tasks as carefully and constructively as possible in the short run. That is a rough, but fair, characterization of Indonesia's rice policy from 1970 to about 1995, after which the goal of improving market efficiency and deregulating commodity trade fell victim to increasing rent-seeking.

There is presumably little quarrel over some basic responsibilities of the government

in the rice economy. Much of the agricultural research and development of new rice technology must continue to be government financed, and probably conducted, simply because of the overwhelmingly public-good-dimension of such research. There is, of course, no reason to ban or discriminate against private sector research in agriculture, and notable advances have come from private initiatives in maize breeding, for example. But the government must remain a key player in the development of new technology and the monitoring of its performance in the intensive ecological environments that characterize much of Indonesia's rice production. In these environments, pests and diseases can become established and spread much more quickly than market solutions can be brought forward. A government regulatory role, linked to the technology development program, thus seems essential.

Somewhat more controversial as a government role is the provision of basic rural infrastructure, which ranges from schools and health clinics to irrigation facilities, to roads and communication networks, to marketing infrastructure such as market centers, auction houses, even grades and standards. Obviously, there is a private sector role in all of this, maybe even a predominant role. But well functioning rural markets, and rural to urban connections, do not just happen, at least not very quickly. Historically, only governments have been able to overcome the scale and coordination problems inherent in so much rural infrastructure. The goal, of course, is to make both the provision and operation of this infrastructure as market-friendly as possible. But it is hard to see a small and under-capitalized private sector providing the “jump-start” to investments in rural infrastructure that are so badly needed to make agriculture the leading sector of the economic recovery over the next decade.

How large should these investments be? Competing demands for budget resources require careful justification of all government investments. A new irrigation facility, for

example, must cost less than the discounted value of the economic output, mostly crops, made possible by the facility. This is the economic approach to evaluating calls for rice self-sufficiency. Cost-benefit analysis of even such a straightforward investment is fraught with difficulties, however, as future costs, yields, and rice prices, for example, are uncertain. Evaluating investments in roads, schools, and market facilities is even more difficult, as the output is harder to quantify and value. But the effort must be made. A substantial literature already exists on valuing rural multiplier effects from such investments, or from increases in rural incomes, and the techniques available are directly applicable to the Indonesian context.

Finally, there are the questions of rice price stabilization: how much, and how to do it? The recent experience with BULOG is not at all promising. After a quarter of a century of progressively better performance in stabilizing rice prices while following the trend in world prices, BULOG stumbled badly in 1995 and sank increasingly quickly into a morass of rent-seeking that immobilized the agency as a price stabilizer. Indeed, BULOG was an active force destabilizing rice prices through much of 1998, as the financial crisis and changing political environment left the agency scrambling for resources and direction, and ultimately just for private gain. What should be done next?

Price Stabilization.--There are two opposite perspectives for evaluating efforts to stabilize rice prices. The first asks how to fix BULOG. In this approach, the basic mechanism of domestic procurement during the harvest to defend a floor price, and injections into wholesale markets to stabilize prices during the short season, is accepted as desirable and workable. The task is to formulate an institutional design for BULOG that provides it with adequate and flexible funding while still keeping the agency fully accountable for all funds used.

A fundamental question for this approach is how imports will be procured when needed. A reliance on the private sector to supply imported rice to domestic markets has

powerful implications for the relationship between rice prices in Indonesia and those in world markets. When world prices are low in relation to Indonesian prices, the issue is simple. Private imports will continue until domestic prices are brought down to world levels (with appropriate differences for transportation costs and the risks of trading). Such imports will also have a modest impact on world prices themselves.

However, it is not possible to ask the private sector to supply imported rice when the world price is higher than the desired domestic price. It is, of course, precisely such a circumstance when a capacity to stabilize prices is needed. For this approach to work, BULOG must be given authority to import rice directly and to sell it domestically at subsidized prices. Such subsidies must be paid by the Ministry of Finance, as an “accountable” BULOG will have no surplus profits from which to absorb such costs. (The possibility of subsidizing the private sector directly to import rice is at least as problematical as having BULOG do it directly, and is not pursued further here.) It is this reality, plus the radically changed political and financial environments, that has caused many analysts to consider alternatives to the historical model used by BULOG.

The obvious alternative to attempting to “fix” BULOG in order to continue the traditional logistical approach to price stabilization is to have no stabilization policy at all, to do nothing. The idea is not nearly as radical as it sounds, as most foreign analysts, including those supportive of BULOG's historical role, had concluded by the mid-1990s that the great majority of Indonesia's rice producers and consumers had become well-enough off to buffer far more price risk than was presented to them. President Suharto's personal opposition to changing BULOG's role in stabilizing rice prices prevented a more efficient approach at that time.

Independently, the structure of the world rice market itself has undergone significant

change since the mid-1990s, sharply reducing the need to protect against fluctuations in world prices. For example, when Indonesia needed more than 2 million metric tons of rice from the world market in 1973 to cope with a serious drought, the “world food crisis” erupted and Thailand banned the export of rice for six months. The “world rice market” actually disappeared!

By contrast, when Indonesia went to the world market for more than 6 million tons of rice in 1998 to cope with the serious drought, world prices moved up less than \$50 per ton, compared with the more than \$200 per ton increase in 1973, before Thailand closed off rice exports altogether. The amount of rice traded internationally increased from 19.7 million metric tons in 1996 and 18.8 million tons in 1997, to 27.4 million tons in 1998! This robust increase in supplies to meet the sudden jump in demand from Indonesia (and elsewhere) surprised nearly all observers of the Asian rice market, and was partially due to temporary factors that cannot be counted on in the future. Still, the key point is that this market is now a much more reliable source of supplies for Indonesia than even five years ago. A reliable and stable world market has obvious implications for the debates over both rice self-sufficiency and stabilization.

Indeed, the opportunity for the private sector to supply rice to Indonesia opened an entirely new form of rice trade in Asia, with many small traders contracting from small ports throughout the region, even using containers as a fast and cheap form of transportation. As a startling example, the private sector shipped more than 500,000 tons of rice from small ports in Vietnam to Indonesia in the month of July, 1999 alone! The Asian rice market is on the verge of being better integrated through private trade than at any time since before World War I. Nothing would make rice price stabilization easier than an open, integrated market for rice in Asia. It is very much in Indonesia's interest to nurture this evolution, both through its own policies of free trade and through diplomatic initiatives with its ASEAN partners and

with China and India. Liberalization of rice trade by the newer exporters, especially Vietnam and India, has been slow and tenuous to date. But Indonesia's market is a tantalizing opportunity and participation by private traders should be a key to accessing it.

A final reason for thinking about alternatives to BULOG is the new political environment. The basic concern is that a BULOG-type agency is inherently unmanageable in a nascent multi-party democracy where bargaining over the distribution of rewards from being inside the coalition that forms the government will force the rice logistics agency to reward friends and punish enemies, to the detriment of its stabilization role and financial situation. Without exceptionally clear-cut legal procedures and high professional standards among senior management, neither of which is likely in less than a decade, BULOG will continue to reward political friends and seek private gain for its management and staff. This prospect is very discouraging for the effective implementation of any price stabilization scheme that relies on BULOG's actions, and alternative stabilization mechanisms should be sought.

There are four components to a stabilization policy that avoids both a continuation of BULOG and "doing nothing." First is to recognize that poor consumers are the most affected by sharp price increases, so continuation of the targeted distribution of rice would be a high priority. Obviously, as the economy recovers, such targeting is likely to be more geographically based, especially in the Eastern Islands where poverty was still endemic even before the financial crisis. An offshoot of BULOG could well be the most appropriate logistical vehicle for this program, so long as NGOs and donors provide careful monitoring. Substantial rice supplies are needed for this program. Procurement and storage of these supplies could easily be incorporated into a broader food security agenda.

The second component recognizes that farmers are especially vulnerable to a collapse of rice prices at harvest time. With imperfect capital markets in rural areas, no risk markets,

and the possibility that local traders could exercise market power during the height of the harvest, the government's floor price policy was an effective “second best” approach to providing some price guarantee to farmers, and hence an incentive to invest in modern technology. The ideal approach to this problem is to ensure that rural financial markets are working well, with easy access by traders and farmers, thus guaranteeing effective competition in commodity markets. Before the financial crisis, this process was well underway, but has been badly undermined by the crisis itself and the flight of ethnic Chinese traders from rural areas. A key priority must be to re-establish an efficient and accessible rural financial system and this should be seen as an essential element of the price stabilization program itself.

Third, any agency that delivers rice to the poor through the targeted subsidy program must buy it somewhere. The quantities are significant--more than 2 million metric tons a year--which is as much as BULOG procured domestically in “good” years. At least for the next several years, it would be helpful to farmers if most of this rice were procured during the harvest season by open tender in rural locations. Some of the rice might originate from foreign sources, but so long as the domestic price is not artificially depressed, this would not be a problem. In the long run, the agency responsible for distributing subsidized rice to the poor could procure in the regions where the rice is needed, inducing the private sector to provide the storage and transportation services needed. Especially in the transition to an efficient and competitive rural rice marketing system, however, procurement during the harvest in surplus areas could significantly benefit farmers and provide incentives to invest in expanded rice production.

Finally, there remains the concern that the world market could experience a substantial shortage, with rice prices escalating more rapidly than Indonesia's consumers would be able to handle. Some sort of “stand-by” facility is needed to dampen domestic

price increases in such an extreme event, including the need to ban exports if world prices suddenly spiral above desired domestic prices. One possibility is to have a BULOG-type logistics agency hold an “iron stock” of perhaps 500,000 metric tons to be used in case of such an emergency. A better approach, however, and consistent with the rapid evolution of the Asian rice market into a much more mature and flexible institution, would be for Indonesia to buy “options” for the delivery of such a quantity of rice from a reliable supplier, probably Thailand. Such an option arrangement would require new legal structures in both countries, but such structures are being designed for other purposes anyway. The options could be specified for a certain period of time, perhaps a year, after which they would expire and the holder would be free to sell the rice on the open market. Rolling over such options is likely to be a much cheaper alternative to holding physical stocks in Indonesia, and Thai rice is only 2-4 weeks away from Indonesian ports.

Lurking in the background of the above discussion has been the question of exactly what relationship domestic prices should have with world prices. Implicit in the trade approach to both the self-sufficiency issue and the stabilization issue is the realization that the two prices are directly connected, different only by transportation costs and the risks of doing business. But nothing in either the logic or feasibility of implementation of the trade approach requires such direct equality. Indeed, a duty on rice imports has been actively discussed by leading political parties as a way to provide more income for Indonesian farmers than from prices dictated by the world market. Such a duty seems unnecessary at the present time. Rice prices are quite high by historical standards and in relation to the world price. The current exchange rate, between 7,000 and 8,000 Rp/\$, provides ample “real” protection against the low cost of rice in world markets.

Of course, if world prices fall further, or if the rupiah should appreciate significantly, the rural economy would suffer. Just as there is appropriate concern that poor rice consumers

will need to be protected against large price increases, rice farmers need some guarantee against a prolonged depression in rice prices. If world prices dropped below \$200 per metric ton for 25 percent broken, or the rupiah appreciated to 4,000 to 5,000 Rp/\$, consideration might then be given to a temporary duty on rice imports. Such a duty would defend Indonesia's long-run food security and maintain a dynamic rural economy when it would otherwise be under severe stress.

Transition Issues.--The rice price policy being proposed here is sufficiently different from the status quo that serious transition issues will arise once a decision has been made to go down this road. Most of the issues involve BULOG and how to disband it without losing the valuable assets under its control or the human capital the agency has created. These are not issues that can be fully addressed in the current state of uncertainty, but several are clear enough. First, how will rice provisions for the civil service and the military be handled? There has been no economic rationale for these provisions for at least a decade, and as soon as the domestic rice market is working smoothly in urban areas (now?), they could be eliminated, with some savings to the national budget.

Second, which agency will handle rice distributions to the poor, where will the rice come from, who will manage the logistics, and how will the rice be financed? BULOG has been playing this role reasonably effectively. Indeed, its strategic mission was already shifting in this direction well before the financial crisis and political reforms brought forward much more basic questions about the agency. Many of the warehouses and much of the operational personnel employed by BULOG might be used in this endeavor. Making this entire operation a clearer part of the country's strategy for food security has obvious appeal, including the potential to hold a modest reserve stock in case of local emergencies or civil unrest.

Finally, negotiating and managing the purchase and turnover of rice options in

Thailand will require a small, but highly skilled, team with access to financial resources to buy options and information about the world rice market. Some of these people are also available in BULOG and the Food Ministry, but the institutional arrangements now in place in these two agencies are not conducive to playing this role, which is primarily financial rather than logistical. In this case in particular, a new institutional structure probably needs to be created in the Ministry of Finance.