INDONESIA
RURAL DEVELOPMENT AND RECOVERY

July 5, 1999

Rural Development and Natural Resources Sector Unit
East Asia and Pacific Region
Abbreviations

AARD - Agency for Agricultural Research and Development
APKINDO - Indonesian Plywood Producers Association
ADB - Asian Development Bank
ASEAN - Association of Southeast Asian Nations
BAKORNASPB - National Coordinating Body for Disaster Management
BAPPENAS - National Planning and Development Body
BIP - Agricultural Intensification Center
BKKBN - National Family Planning Body
BULOG - Food Logistics Authority
BPN - National Registration Board
BRI - People's Bank of Indonesia
COREMAP - Coral Reef Rehabilitation and Management Program
EEZ - Exclusive Economic Zone
EOM - Efficient Operations and Maintenance Program for Irrigation Schemes
FAO - Food and Agricultural Agency of the United Nations
HTI - Land-use Permit
HYV’s - High-Yielding Varieties
ICRAF - International Center for Forestry Research
IFAD - International Fund for Agricultural Development
INPRES - Presidential Instruction Transfer Programs
INPRES IDT - Presidential Instruction to Assist Disadvantaged Villages
IPM - Integrated Pest Management
JMO - Joint Marketing Office
KCK - Small-Scale Enterprise Credit Scheme
KUPEDES - Village Enterprise Credit Program
KUD - Village unit cooperative
KUT - Farmer's Production Credit
LIPI - National Science Institute
NGO - Non-Governmental Organization
NES - Nucleus Estate Tree Crops Scheme
O&M - Operations and Maintenance
P4K - Agricultural Enterprise Grants
PDI - Village Irrigation Improvement Program
PKT - Department for Reforestation
PIK - Irrigation Turnover Program
PIR-TRANS - Private Transmigration Scheme
PIPI - First Twenty-Five Year Development Plan Period
PIPII - Second Long-term National Development Plan
PIJT - Brantas Rivershed Management Authority
PMU - Project Management Unit
PTP - Public Estate Crops Enterprise
R&D - research and development
Repelita - National Development Plan
SOE - State-owned enterprise
SUP - Special Agricultural Intensification Program
SUTPA - Special Agriculture and Natural Resources Management Program
SUSENAS - National Survey of Socio-Economic Conditions
TAC - total allowable catch
TRI - Sugar Intensification Program
WUA - Water User's Associations
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I. REVITALIZING RURAL DEVELOPMENT

1. The crisis of 1997-98 impelled Indonesia’s leaders to look for ways to combat widespread food shortages and to search for new sources of economic growth. For much of the 1990s it had been industry and urban development that had captured the attention of the country’s policymakers, planners, and investors. That rural development is now being pursued after years of relative neglect is unfortunate in that the government is saddled with policies that were designed mainly to achieve rice self-sufficiency—the agenda of the 1960s and 1970s—rather than broad-based rural development.

2. But three decades of development progress do provide a strong starting point for future rural initiatives. Rural incomes have quadrupled over the last 30 years, more than 10 years have been added to the average rural life span, child mortality rates have fallen by two-thirds, basic literacy has become widespread, and the rural population growth rate has been cut by half. Rural education and health care services have been vastly improved, while heavy investments in transportation and telecommunications have helped bring isolated rural communities into the mainstream of national life.

3. The crisis, however, threatens to reverse rural progress. Two years of drought and forest fires have produced a sharp fall in food and cash crop production. Falling rural wages and sagging urban incomes have caused a deep decline in demand for agricultural products, food riots have disrupted agricultural markets, and off-farm job opportunities for rural residents have been greatly reduced. For the vast majority of Indonesia’s rural population, the immediate imperative is simply survival.

4. There are strong reasons to focus renewed attention on agriculture and rural development. A resource-based recovery may offer the best chance to stimulate economic growth while addressing concerns about food security, poverty, and income distribution. During the crisis, the rural sector has provided a badly-needed safety valve for urban unemployed, many of whom have returned to their families in the countryside. Commodity prices have been enhanced by devaluation and policy change. While the prices of purchased inputs, such as fertilizer and agro-chemicals, have gone up, the rural sector was not a large debtor to the formal banking sector and therefore has not suffered large-scale bankruptcy. With the return of more normal climatic conditions, agricultural output should bounce back after Indonesia’s worst drought in nearly a century.

5. Long-standing structural impediments to rural development must now be addressed in order to sustain rural economic recovery. More than two-thirds of Indonesia’s population reside in rural areas, many of whom have low levels of formal education, limited access to modern infrastructure, and small landholdings. Rural property rights in many regions are unsettled, rural financial markets are shallow, access to modern technology and agricultural knowledge
is limited, the public sector still monopolizes markets serving farm households, and institutional weaknesses inhibit adoption of modern commercial practices.

6. Indonesia’s recent pattern of urbanization and industrialization weakened the linkages between rural and urban development. The rapid growth of Java’s mega-cities reduced interest in rural development while sharpening competition between domestic producers of staples and foreign suppliers. Industrialization has increasingly relied on imported raw materials, thus capitalizing on Indonesia’s abundant labor supply but underutilizing domestic raw materials. Although the crisis has triggered a modest reversal in rural/urban population flows, there is a wide gap between urban and rural incomes.

7. The 1960s BIMAS program to increase rice production was immensely successful, both in fostering the technological transformation of the rice sector and reducing rural poverty. But the Green Revolution was a rural development strategy that was designed and implemented from Jakarta. This centralized “command and control” model of rural development, so successful in the 1970s and 1980s, is less appropriate for the 1990’s and beyond.

8. The recent crises creates new opportunities to revitalize rural development. Democratization is increasing. Many new political parties have been established and national elections have been held. Demands for greater transparency and accountability among public agencies have increased, and a broad array of civic associations have become involved in providing services and monitoring public sector activity. Thanks to these changes, Indonesia’s rural population will have more opportunity to influence domestic political developments.

9. The crisis has also strengthened regional autonomy, which should help to correct the urban bias in policymaking that arose from the concentration of authority in Jakarta. Decentralization will bolster rural development efforts tailored to Indonesia’s great diversity of rural endowments.

10. Indonesia’s financial decline has dramatically changed the profitability of investments in different sectors. Adjustment will be needed to encourage a shift of resources from the production of nontradables to the production of tradables, or more generally from the distressed to the more competitive sectors. Since activity in rural areas is dominated by the production of tradable goods and services, resources should increasingly flow into those rural activities, which have become more profitable as a result of the crisis.

11. In agriculture, and in rural areas as a whole, a large number of policy and institutional measures have impeded efficient resource use. At one time, these measures were only a minor drag on rural economic performance, but they have now become impediments to rural economic growth and barriers to recovery. This paper therefore advocates a number of basic policy changes:

- the central government should abandon efforts to control the pace and pattern of rural development. If decentralization is combined with measures that strengthen rural institutions, Indonesia can turn its tremendous diversity into its most valuable economic asset;
the government should ease regulatory and bureaucratic impediments to the creation of a more profit-oriented agricultural sector. Agriculture is the main engine of rural economic development, and agricultural enterprises must be allowed and encouraged to operate in a business-like manner;

the government should continue to invest in the physical and social infrastructure of agriculture. Completing and then capitalizing on past investments in rural infrastructure and services is the immediate challenge;

institutional reforms should be carried out to enhance the operations of rural input and product markets. Special attention should be given to improving agricultural technology; and

Fifth, the degradation of rural resources should be reversed by adopting policies and enforcement mechanisms to give greater protection to the natural environment.

12. This paper is intended to stimulate dialogue by identifying several possible paths of reform. After a brief discussion of the current status of rural development, the paper examines possibilities for decentralizing the rural development effort, improving food security, reviving agricultural growth, improving rural factor markets, reducing rural poverty in eastern Indonesia, and reversing environmental degradation.
II. RURAL DEVELOPMENT STARTING POINTS

13. Agricultural growth in Indonesia averaged about 3.8 percent annually in the 1980s, which was approximately 2 percent higher than the rate of rural population growth. Between 1990 and 1995, however, the rate of agricultural growth slowed to 2.9 percent, and was negative from 1996 to 1998 (see Table 1).

14. In 1960 the agricultural sector accounted for 52 percent of Indonesia's GDP and 80 percent of the total labor force. By 1997 agriculture contributed about 16 percent of gross domestic product (GDP), employed about 44 percent of the labor force, and generated approximately one-quarter of non-oil exports. The labor productivity (and income) gap between the agricultural and nonagricultural sectors widened over that period. Per capita GDP in the nonagricultural sector in 1995 was almost five times higher than it was in agriculture.

**TABLE 1 : AGRICULTURAL GDP BY SUBSECTOR**

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</thead>
<tbody>
<tr>
<td>Agriculture, Livestock,</td>
<td>59291.2</td>
<td>61776.8</td>
<td>67937.2</td>
<td>64289</td>
<td>64434</td>
</tr>
<tr>
<td>Forestry &amp; Fisheries</td>
<td>(16.7%)</td>
<td>(16.1%)</td>
<td>(16.4%)</td>
<td>(16.1%)</td>
<td>(18.9%)</td>
</tr>
<tr>
<td>Farm Food Crops</td>
<td>31407.8</td>
<td>32851.5</td>
<td>32959.3</td>
<td>32753</td>
<td>32410</td>
</tr>
<tr>
<td>Non-food crops</td>
<td>9471.6</td>
<td>9918.3</td>
<td>10287.9</td>
<td>10483</td>
<td>11107</td>
</tr>
<tr>
<td>Livestock products</td>
<td>6451.4</td>
<td>6719.8</td>
<td>7013.8</td>
<td>7483</td>
<td>7003</td>
</tr>
<tr>
<td>Forestry</td>
<td>6300.9</td>
<td>6303.6</td>
<td>6412.3</td>
<td>6960</td>
<td>7033</td>
</tr>
<tr>
<td>Fishery</td>
<td>5659.5</td>
<td>5973.6</td>
<td>6263.9</td>
<td>6610</td>
<td>6880</td>
</tr>
<tr>
<td>Gross Domestic Product</td>
<td>354640.7</td>
<td>383767.8</td>
<td>413769.0</td>
<td>399525.4</td>
<td>340459.4</td>
</tr>
</tbody>
</table>

Note: values in parenthesis refer to share of agricultural GDP in total GDP. Source: Central Department of Statistics. *Statistik Indonesia*, 1999.

15. Farm size is also declining. From 1983 to 1993 the average agricultural landholding declined from 0.93 ha per farm family to 0.83 ha. Outside of Java, the average size of a landholding declined from 1.38 ha to 1.19 ha, while in Java, the average size of a landholding declined from 0.58 ha to 0.47 ha. The low levels of rural capital applied to such small farms is a major reason for the productivity gap between agriculture and non agriculture.

16. As the structure of the economy changed, both labor and land in agriculture declined. The Ministry of Agriculture estimates that 42,500 hectares of wetlands and 51,000 hectares of uplands were lost from agriculture each year between 1975 and 1995 (Table 2). This implies
a loss of about 400,000 tons of milled rice each year, or just over 1 percent of domestic supply (ADB, 1998b).

17. The main sources of agricultural growth have changed over time. From the mid-1970s to the mid-1980s, rice production was the primary engine of rural growth. Expansion and rehabilitation of irrigation facilities, the adoption of improved varieties of rice, and rapid growth in fertilizer use led to a near-tripling of rice yields. With rice dominating the sector and food consumption rising rapidly, agriculture grew by more than 4 percent a year from 1975 to 1985.

**Table 2: Rural Resource Use, 1975-1995**

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<tbody>
<tr>
<td>Total Land Area (million ha)</td>
<td>181</td>
<td>181</td>
<td>181</td>
<td>181</td>
<td>181</td>
</tr>
<tr>
<td>Agricultural Area (million ha)</td>
<td>38</td>
<td>38</td>
<td>39</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Forest &amp; Wood Area (million ha)</td>
<td>122</td>
<td>117</td>
<td>112</td>
<td>112</td>
<td>107</td>
</tr>
<tr>
<td>Area Under Cereal Production (million ha)</td>
<td>10.9</td>
<td>11.7</td>
<td>19.7</td>
<td>13.7</td>
<td>15.1</td>
</tr>
<tr>
<td>Agriculture Households (millions)</td>
<td>14.4</td>
<td>Na</td>
<td>19.5</td>
<td>Na</td>
<td>21.5</td>
</tr>
<tr>
<td>Total Population (millions)</td>
<td>136</td>
<td>151</td>
<td>167</td>
<td>183</td>
<td>197</td>
</tr>
<tr>
<td>Rural Population (millions)</td>
<td>109</td>
<td>117</td>
<td>124</td>
<td>127</td>
<td>128</td>
</tr>
<tr>
<td>Agriculture Labor Force (millions)</td>
<td>76</td>
<td>81</td>
<td>88</td>
<td>97</td>
<td>98</td>
</tr>
<tr>
<td>Nitrogenous Fertilizer Use (000 mt)</td>
<td>341</td>
<td>850</td>
<td>1,299</td>
<td>1,496</td>
<td>1,844</td>
</tr>
<tr>
<td>Total Fertilizer Use (000 mt)</td>
<td>489</td>
<td>1,173</td>
<td>1,972</td>
<td>2,387</td>
<td>2,972</td>
</tr>
<tr>
<td>Tractors in Use (000 units)</td>
<td>9</td>
<td>9</td>
<td>12</td>
<td>28</td>
<td>56</td>
</tr>
</tbody>
</table>

Note: Number of households is based on the Agricultural Census and is for the years 1973, 1983, and 1993.

TABLE 3: AGRICULTURE'S CHANGING ECONOMIC ROLE

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<tr>
<td><strong>Structure of the Economy (% GDP)</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Agriculture</td>
<td>30.2</td>
<td>23.2</td>
<td>16.2</td>
<td>15.4</td>
</tr>
<tr>
<td>Industry</td>
<td>33.5</td>
<td>35.9</td>
<td>39.1</td>
<td>40.0</td>
</tr>
<tr>
<td>Services</td>
<td>36.3</td>
<td>40.9</td>
<td>44.7</td>
<td>44.6</td>
</tr>
<tr>
<td><strong>Agriculture Production Index (1989-1991 = 100)</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Agriculture</td>
<td>53</td>
<td>83</td>
<td>112</td>
<td>114</td>
</tr>
<tr>
<td><strong>Share of Total Employment (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Agriculture</td>
<td>62</td>
<td>56</td>
<td>48</td>
<td>46</td>
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<tr>
<td>Other Sectors</td>
<td>38</td>
<td>44</td>
<td>52</td>
<td>54</td>
</tr>
<tr>
<td><strong>Share of External Trade (% Total)</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Imports (food)</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Exports (primary products)</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Consumption (% of GDP)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Consumption</td>
<td>74</td>
<td>72</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>Food Share</td>
<td>38</td>
<td>30</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td><strong>Public Investment in Agriculture (as % of Total Public Investment)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer Subsidies</td>
<td>1.5</td>
<td>4.4</td>
<td>1.6</td>
<td>.7</td>
</tr>
<tr>
<td>Agriculture+Irrigation</td>
<td>10.9</td>
<td>18.1*</td>
<td>10.2</td>
<td>10.4</td>
</tr>
</tbody>
</table>

* Four-year average for 1984-87. Public investment for agriculture and irrigation is a budget estimate.


18. After the mid-1980s, higher-value products were the main source of growth, as the livestock, horticultural, forestry, fisheries, and tree-crop subsectors grew by more than 5 percent a year. Despite this impressive figure, the overall effect on agricultural output was small because of the very large share of slow-growing food crops in total agricultural GDP, and agriculture’s overall rate of growth slowed significantly. Meanwhile, rapid growth in services and labor-intensive industrialization bolstered the growth of rural income. In Java in particular, double-digit growth in labor-intensive manufacturing and construction created new employment opportunities for underemployed rural workers. According to the 1990 census, 40 percent of rural household income in Java was obtained from nonagricultural work (Central Bureau of Statistics, 1997).
Poverty and Food Insecurity

19. Until the current crisis, Indonesia had made tremendous progress in reducing poverty and malnutrition. In 1970, 59 percent of the rural population were classified as poor, as were 51 percent of urban residents (Table 4). By 1996 the figures had fallen to 6.5 percent in the cities and 19.0 percent in the rural areas, or 13.6 percent overall.

TABLE 4: INDONESIA: POVERTY INCIDENCE, 1970 TO 1996 (PERCENT)

<table>
<thead>
<tr>
<th></th>
<th>Aggregate poverty</th>
<th>Rural poverty</th>
<th>Urban poverty</th>
</tr>
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<tbody>
<tr>
<td>1970</td>
<td>57.2</td>
<td>58.5</td>
<td>50.7</td>
</tr>
<tr>
<td>1980</td>
<td>39.2</td>
<td>44.6</td>
<td>19.7</td>
</tr>
<tr>
<td>1990</td>
<td>19.3</td>
<td>23.3</td>
<td>10.6</td>
</tr>
<tr>
<td>1996</td>
<td>13.6</td>
<td>19.0</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Source: Based on SUSENAS data, various years, Central Bureau of Statistics (BPS), Jakarta.

20. Even though rural poverty was reduced, many of Indonesia’s rural inhabitants remained very poor. In 1995, 35 percent of all rural villages were classified as “backward”—30 percent of the villages in western Indonesia and 56 percent in eastern Indonesia. For the country as a whole, 42 percent of all villages were receiving INPRES IDT support in 1995, including 70 percent of the villages in eastern Indonesia.

21. Many more people have fallen into poverty as a result of the crisis. In 1996, 23 million Indonesians were classified as “absolutely poor,” while another 37 million reported monthly expenditures that were within Rp 10,000 of the absolute poverty line. Many of these “nearly poor” households may now have fallen below the poverty line (Irwanto, 1998). Warr (1999) estimates that the absolute number of poor households increased to 19 percent of all households in 1999, and that the poverty prevalence in rural areas had increased to 24 percent.

22. The crisis has changed the structure of poverty in Indonesia, but the poorest segments of the population are still the ones that were poorest before the crisis. Eastern Indonesia is still the poorest region, and poverty is overwhelmingly a rural phenomenon. The main change is that the numbers of poor in the main island of Java have increased substantially.

23. Absolute poverty is associated with food insecurity and malnutrition. Surveys show that among those earning less than Rp 40,000 a month in 1996, average energy consumption levels were already below the norm for Indonesia (Jalal and Atmojo 1997). Of special concern is the plight of the most vulnerable. UNICEF reported that 36 percent of children under five were suffering from energy/protein deficiency, 35 percent from anemia, and 30 percent from iodine deficiency. Among pregnant women, 41 percent were suffering from energy deficiency. Malnutrition is now thought to be the main cause of almost half of all child deaths in Indonesia.
The 1997-1998 Shocks

24. In mid-1997, the fires commonly used to clear land in Kalimantan, Sumatra, and Irian Jaya blazed out of control because of the dry conditions caused by the El Nino drought. Smoke from the fires blanketed the greater part of Kalimantan and Sumatra, as well as Singapore and Malaysia. It is estimated that the 1997 fires destroyed 5 million hectares of forest and scrub and caused 4.4 billion Rp of damage. The fires flared up again in early 1998 in East Kalimantan.

25. In rural areas, the main effect was to reduce rice production. Rice output fell from 51.1 mmt in 1996 to 49.4 mmt in 1997 and 48.5 mmt in 1998, putting rice production approximately 10 percent below the self-sufficiency trend of the early 1990s. Rice output in 1999 is projected to be about the same as in 1998 (Table 5).

26. Secondary food crop production also fell in 1997, but began to recover in 1998. Cassava and sugarcane production fell sharply, but corn output was little affected (Table 6). Thanks to a sharp increase in government food imports, total domestic staple food availability was little affected by the fall in the domestic food grain supply.

27. The adverse effects of climatic shocks were mainly recorded in the food crop sector. In contrast, the non-food crops sectors (estate crops, livestock, fisheries, and forestry) grew by 7 percent in constant terms between 1997 and 1998. Palm oil exports doubled from 1.9 mmt in 1996 to 3.2 mmt in 1997, while rubber, coffee, tea, copra, and tobacco exports were largely unchanged (BPS 1999). Estate crop exports grew sharply in 1998, in response to the higher rupiah returns after devaluation. Fisheries exports also witnessed strong growth in both 1997 and 1998 as higher prices boosted shrimp and deep sea production.

28. Between 1996 and 1997, Indonesia’s growth rate fell from 8 percent to 4.6 percent, then declined in 1998, when GDP fell by 16 percent. Agriculture was the only sector to report positive growth in 1998, but with a large increase in the agricultural labor force, per capita GDP in agriculture declined as well.

29. For 1999, growth is forecast to be between zero and minus 4 percent. Inflation has been running at an annualized rate of 70 percent, but more recently (January 1999) was just under 50 percent. An inflation rate of 20 percent is forecast for 1999. In 1998 and early 1999, food prices were rising more rapidly than non-food prices, and nominal wages were not rising at nearly the same rate as food prices. The exchange rate declined from Rp 2,500 per US$ prior to a low of Rp 17,000 in August 1998 before strengthening to Rp 8,500 per US$ in January 1999 (Warr). During the 1996 to 1998 period, real non-oil GNP declined by 13.7 percent and real per capita GNP in 1998 in urban areas was estimated to be more than three times that of real per capita GNP in rural areas.
Table 5: Rice Production, 1974-98

<table>
<thead>
<tr>
<th>Year</th>
<th>Area Harvested (000)</th>
<th>Average Yield (tons/ha)</th>
<th>Paddy Output (000 tons)</th>
<th>Rice Output /a (000 tons)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>8509</td>
<td>2.64</td>
<td>22464</td>
<td>15276</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>8495</td>
<td>2.63</td>
<td>22361</td>
<td>15185</td>
<td>-0.6</td>
</tr>
<tr>
<td>1976</td>
<td>8368</td>
<td>2.78</td>
<td>23301</td>
<td>15845</td>
<td>4.3</td>
</tr>
<tr>
<td>1977</td>
<td>8360</td>
<td>2.79</td>
<td>23547</td>
<td>15876</td>
<td>0.2</td>
</tr>
<tr>
<td>1978</td>
<td>8929</td>
<td>2.89</td>
<td>25772</td>
<td>17525</td>
<td>10.4</td>
</tr>
<tr>
<td>1979</td>
<td>8850</td>
<td>2.97</td>
<td>26283</td>
<td>17872</td>
<td>2.0</td>
</tr>
<tr>
<td>1980</td>
<td>9005</td>
<td>3.29</td>
<td>29652</td>
<td>20163</td>
<td>12.8</td>
</tr>
<tr>
<td>1981</td>
<td>9382</td>
<td>3.49</td>
<td>32774</td>
<td>22286</td>
<td>10.5</td>
</tr>
<tr>
<td>1982</td>
<td>9888</td>
<td>3.74</td>
<td>33584</td>
<td>22837</td>
<td>2.5</td>
</tr>
<tr>
<td>1983</td>
<td>9162</td>
<td>3.85</td>
<td>35302</td>
<td>24006</td>
<td>5.1</td>
</tr>
<tr>
<td>1984</td>
<td>9764</td>
<td>3.91</td>
<td>38134</td>
<td>25933</td>
<td>8.0</td>
</tr>
<tr>
<td>1985</td>
<td>9902</td>
<td>3.97</td>
<td>39033</td>
<td>26542</td>
<td>2.3</td>
</tr>
<tr>
<td>1986</td>
<td>9988</td>
<td>4.00</td>
<td>39726</td>
<td>27014</td>
<td>1.8</td>
</tr>
<tr>
<td>1987</td>
<td>9923</td>
<td>4.04</td>
<td>40078</td>
<td>27253</td>
<td>0.9</td>
</tr>
<tr>
<td>1988</td>
<td>10138</td>
<td>4.11</td>
<td>41676</td>
<td>29340</td>
<td>4.0</td>
</tr>
<tr>
<td>1989</td>
<td>10531</td>
<td>4.25</td>
<td>44726</td>
<td>29072</td>
<td>2.6</td>
</tr>
<tr>
<td>1990</td>
<td>10502</td>
<td>4.30</td>
<td>45179</td>
<td>29366</td>
<td>1.0</td>
</tr>
<tr>
<td>1991</td>
<td>10282</td>
<td>4.35</td>
<td>44689</td>
<td>29048</td>
<td>-1.1</td>
</tr>
<tr>
<td>1992</td>
<td>11103</td>
<td>4.34</td>
<td>48240</td>
<td>31356</td>
<td>7.9</td>
</tr>
<tr>
<td>1993</td>
<td>11013</td>
<td>4.38</td>
<td>48181</td>
<td>31318</td>
<td>-0.1</td>
</tr>
<tr>
<td>1994</td>
<td>10734</td>
<td>4.35</td>
<td>46641</td>
<td>30317</td>
<td>-3.2</td>
</tr>
<tr>
<td>1995</td>
<td>11439</td>
<td>4.35</td>
<td>49744</td>
<td>32334</td>
<td>6.7</td>
</tr>
<tr>
<td>1996</td>
<td>11569</td>
<td>4.41</td>
<td>51101</td>
<td>33215</td>
<td>2.7</td>
</tr>
<tr>
<td>1997</td>
<td>11141</td>
<td>4.43</td>
<td>49377</td>
<td>32095</td>
<td>-3.7</td>
</tr>
<tr>
<td>1998</td>
<td>11613</td>
<td>4.17</td>
<td>48472</td>
<td>30537</td>
<td>-4.9</td>
</tr>
<tr>
<td>1999 RI</td>
<td>11494</td>
<td>4.23</td>
<td>48663</td>
<td>30657</td>
<td>0.4</td>
</tr>
</tbody>
</table>

/a Estimated on the basis of a conversion factor of 0.68 from paddy into rice for the years prior to 1989, and a factor of 0.65 for the years 1989 and following. 1998 refers to the third forecast. For 1998, the milling yield was reduced to 0.63.

### TABLE 6: PRODUCTION OF OTHER STAPLE FOOD CROPS


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area (mill ha)</td>
<td>2.94</td>
<td>3.11</td>
<td>3.65</td>
<td>3.74</td>
<td>3.35</td>
<td>3.75</td>
</tr>
<tr>
<td>Yield (kw/ha)</td>
<td>21.9</td>
<td>22.1</td>
<td>22.6</td>
<td>24.9</td>
<td>26.2</td>
<td>26.1</td>
</tr>
<tr>
<td>Output (mmt)</td>
<td>6.5</td>
<td>6.9</td>
<td>8.2</td>
<td>9.3</td>
<td>8.76</td>
<td>9.79</td>
</tr>
<tr>
<td>Cassava</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area (mill ha)</td>
<td>1.40</td>
<td>1.36</td>
<td>1.32</td>
<td>1.42</td>
<td>1.24</td>
<td>1.21</td>
</tr>
<tr>
<td>Yield (kw/ha)</td>
<td>123</td>
<td>116</td>
<td>117</td>
<td>120</td>
<td>122</td>
<td>123</td>
</tr>
<tr>
<td>Output (mmt)</td>
<td>17.3</td>
<td>15.7</td>
<td>15.4</td>
<td>17.0</td>
<td>15.07</td>
<td>14.9</td>
</tr>
<tr>
<td>Soybeans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area (mill ha)</td>
<td>1.47</td>
<td>1.41</td>
<td>1.48</td>
<td>1.28</td>
<td>1.12</td>
<td>1.10</td>
</tr>
<tr>
<td>Yield (kw/ha)</td>
<td>11.6</td>
<td>11.1</td>
<td>11.4</td>
<td>11.9</td>
<td>12.1</td>
<td>11.9</td>
</tr>
<tr>
<td>Output (mmt)</td>
<td>1.71</td>
<td>1.56</td>
<td>1.68</td>
<td>1.52</td>
<td>1.36</td>
<td>1.31</td>
</tr>
<tr>
<td>Sugar (mmt)</td>
<td>2.46</td>
<td>2.44</td>
<td>2.08</td>
<td>2.09</td>
<td>2.19</td>
<td>1.85</td>
</tr>
</tbody>
</table>


30. The crisis has resulted in a substantial fall in real wages. Although agricultural wages increased between 20 and 40 percent between December 1997 and August 1998, consumer prices rose by 81 percent. Since food prices were rising more rapidly than the overall CPI, the decline in real wages in rural areas was greater still.

31. Rural families have been coping with the crisis in a variety of ways. Falling real wages have led to an increase in workforce participation, especially by the young, and by an increase in hours worked for those already working. Families have maintained expenditures by dis-saving and by selling assets (Warr, 1999). Such coping mechanisms have proven fairly effective but will result in considerable hardship if continued.

**Rejuvenating Rural Development**

32. The crisis exposed structural flaws in the economy that will take time to correct. Manufacturing, finance, tourism, and urban construction have been severely weakened. Agriculture and resource-based manufacturing offer the prospect of capitalizing on
Indonesia’s “nondistressed” resources, but major changes in the institutional environment will be needed to induce additional resources to flow into agriculture and rural industry.

33. To achieve its goals of stability, equity, and prosperity, Indonesia’s long-term strategy (outlined in the Long Term Development Plan, PJPPII) presents a vision of agriculture based on a combination of demand-pull and supply-push factors, an agrarian structure that is strong and efficient, the promotion of value-added activities in rural areas, and the creation of new rural employment opportunities. The plan envisions this being achieved through an agribusiness-based approach to rural development, and the creation of an enabling environment for agricultural development (Rasahan, 1997).

34. If this vision to be achieved, a large number of policy and institutional impediments to efficient resource use must be overcome. Sustained agricultural and rural development will not take place unless the Government makes certain policy, financial, and institutional changes. In many instances, these changes involve a “catching-up” to policy and institutional practice that have become common-place in other parts of the world.
III. REVIVING DEVELOPMENT THROUGH DECENTRALIZATION

35. Indonesia has been one of the most centralized countries in the world. Policymakers in Jakarta have controlled development initiatives throughout the country. This has discouraged local initiative. With a high degree of centralization, resources are bound to be used inefficiently and ineffectively. This is especially true in a country as large and diverse as Indonesia, where local conditions, constraints, and opportunities vary considerably. A greater degree of local decision making will facilitate more efficient and appropriate application of available resources.

36. In the past, various decentralization initiatives have been launched in Indonesia. These included experiments in which almost all governmental responsibilities were devolved to selected Kabupatens. Increasing use has been made of INPRES grants and budget transfers to fund local governments. IDT funds have been provided to 28,000 poor villages to support local economic initiatives. In 1992 the provinces were given the responsibility for supervising agricultural extension, and in 1995 a network of provincial technology assessment centers was founded. A number of projects were mounted to develop rural infrastructure and to spur agricultural production on a provincial basis. But the transition from a centralized to a decentralized mode of operation is difficult, and what has most often been decentralized has been the responsibility for managing centrally conceived initiatives (Devas). Responsibilities for planning and project design have typically been retained by line ministries or the central government. Shortages of trained personnel, weak local tax bases, and the strong dependence of local governments on central government funding have weakened local initiative.

37. Decrees of the People’s Consultative Assembly on Development Reform Policy, Political Economy, and Organization of Regional Autonomy, in October 1998 set the stage for accelerating the decentralization effort, and legislation passed in 1999 empowers local governments to undertake regional development in a transparent, democratic, and equitable fashion. In accordance with the new legislation, the central government will shift to an enabling role and share about 50 percent of its revenue with regional and local government, using block grants based on criteria such as population and regional contribution to GDP. This will limit the central government’s role to national matters of defense, monetary policy, foreign and internal affairs. The provinces will have authority over matters which transcend district boundaries (e.g., public works, communications, transport, mining, forestry, estates, and strategic regional policy). Local governments will be able to access funds from the national budget, donors, and from the local revenue base, and allocate them in accordance with local public preferences. Both provincial and district governments will be free to restructure their departments and to transfer responsibilities to provincial or local government enterprises, private enterprises, or public private partnerships.
38. Efforts have already been made to incorporate these, decentralized approaches in the employment creation programs financed as part of the government’s social safety net (Sumodiningrat). Greater local accountability will need to be fostered by improving the transparency of local government expenditures, rebalancing the ranks of appointed vis-a-vis elected officials, and giving citizen organizations the authority to monitor public undertakings. It is likely to be several years before local governments take on these reforms and central government agencies are likely to oppose them as it implies withdrawing power from them.

Facilitating Local Institutional Development: The Cooperatives

39. Effective, user-governed rural institutions are needed to foster collective self-interest, both in commercial undertakings and in guiding public sector initiatives. Strong rural development will require the services of local NGOs that can clearly represent and reconcile diverse private interests. Indonesia’s Constitution accords a special role to cooperatives in all matters of mutual self-interest. Since Indonesia’s rural economy is dominated by millions of small farm enterprises, cooperatives and other farmer associations can potentially play an important role in fostering collective self-interest.

40. In theory, rural cooperatives (KUD) were intended to help small agricultural producers achieve economies of scale and upgrade product quality while also providing alternative sources of credit. In practice, however, the cooperatives function more as rent-seekers and as agencies which implement government procurement and distribution programs. The system of village-level cooperatives (KUDs) is not performing even its few monopolistic roles well (mainly rice procurement and fertilizer distribution), and the limited membership, coverage, and governance severely confine the scope of activities of a broad development nature at the local level.

41. Changes made in the law in 1992 and 1998 enhanced the autonomy of the existing cooperatives, eliminated the KUD monopoly, and allowed for collaboration between cooperatives and private companies. Many new consumer cooperatives have emerged, particularly in urban areas.

42. To promote more effective cooperatives, the government should continue to deregulate the KUDs. It is important to ensure removal of the KUDs’ monopoly privileges. There may be pressures to intervene when it is perceived that the private sector is not yet able to provide a genuine alternative, but these must be resisted. Some, if not many, KUDs and other cooperatives are likely to fail, for they are simply not viable business organizations. In these instances, the disposition of the residual assets should be left to the members and the local community. Once the crisis subsides, the need for preferential access to subsidized credit by the cooperative sector (and others) must be carefully re-assessed (Anderson provides more details on cooperatives in Indonesia).
IV. REBUILDING FOOD SECURITY

43. Indonesia's food security system has been based primarily on a policy of rice self-sufficiency. Government stockpiling, price supports for producers, and subsidized sales of rice to low-income households have been used to assure adequate supplies of rice and other essential foodstuffs while keeping consumer prices affordable. Over the past 20 years, the government has generally managed to keep the domestic rice price far more stable than world rice prices (Darmawan, Dawes). But in recent years food imports have soared, prices have fluctuated, and the costs of interventions aimed at stabilizing prices have been rising (Wiebe). The recent urban food riots, historically high levels of food imports, and nationwide food relief efforts show that the food security system has been badly compromised (Table 7).

44. The government's initial reaction to the food security problem was to impose sweeping controls on food prices and trade. From mid-1997 to mid-1998, trade and price controls were used to maintain domestic food prices at 50 to 60 percent of prevailing import parity prices.\(^1\) Food price subsidies for fiscal 1998 were initially budgeted at 4 trillion Rupiah but eventually reached 12 trillion Rupiah, the equivalent of 12.4 percent of government development outlays and just under 2 percent of GDP. Middle and upper-income groups benefited most from the general food subsidies, since these groups consume more than three-quarters of all food staples but do not derive their income from food production.

45. The 1998 demonstrations disrupted private food markets and weakened the government's ability to intervene to hold down domestic food prices. Rice and other basic foodstuffs were smuggled out of Indonesia in growing quantities, and traders were reluctant to hold sizable urban food stocks. Domestic rice prices rose by nearly 50 percent from May to August of 1998, prompting hoarding and near-panic in urban markets.

46. By August 1998 the government had abandoned its general food price subsidy policy. A targeted rice subsidy program (the OPK program) was introduced to protect the rice consumption of low-income households. In September the government announced that BULOG would confine its agricultural market activities to rice and would dispose of its non-rice food stocks. To increase staple food availability in domestic markets, the government

\(^1\) In December 1997, the average Jakarta rice price (IRII) was 1200 Rupiah per kilogram and the equivalent import parity price was Rp 1275 per kilogram (for Thai 25\% brokens). In January of 1998, the Jakarta rice price was Rp 1350 per kilogram, and the equivalent import parity price was Rp 2927 per kg. Between May and June, the import parity price surged from Rp 3148 per kg to Rp 4500 per kg. while the domestic price rose from Rp 1350 to Rp 1850 per kg. In August, the Jakarta rice price reached Rp 3200 per kg, compared to a border price of Rp 3790 per kg. From August to December, import parity prices declined, as did domestic prices. From November 1998 to December 1998, the import parity price declined from Rp 2383 to Rp 2181 per kg while domestic Jakarta prices rose from Rp 2527 to Rp 2775 per kg. (Surono 1999).
TABLE 7: CONSUMER PRICE, FOOD PRICE, EXCHANGE RATE, AND RICE PRICE INSTABILITY IN 1997-98

<table>
<thead>
<tr>
<th>Month</th>
<th>Food Price Index 1996=100</th>
<th>Consumer Price Index 1996=100</th>
<th>US$ exchange rate</th>
<th>to % change in Average Rp/US$ exchange rate</th>
<th>Rice Price in Cities (Rp/kg)</th>
<th>Major medium rice prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>June-97</td>
<td>104</td>
<td>105</td>
<td>2450</td>
<td>0.4%</td>
<td>1033</td>
<td>1.2%</td>
</tr>
<tr>
<td>Nov-97</td>
<td>117</td>
<td>110</td>
<td>3648</td>
<td>-0.1%</td>
<td>1207</td>
<td>7.48%</td>
</tr>
<tr>
<td>Dec-97</td>
<td>121</td>
<td>112</td>
<td>4650</td>
<td>27.47%</td>
<td>1215</td>
<td>0.66%</td>
</tr>
<tr>
<td>Jan-98</td>
<td>133</td>
<td>120</td>
<td>10375</td>
<td>123.12%</td>
<td>1290</td>
<td>6.17%</td>
</tr>
<tr>
<td>Feb-98</td>
<td>158</td>
<td>135</td>
<td>8750</td>
<td>-15.66%</td>
<td>1439</td>
<td>11.55%</td>
</tr>
<tr>
<td>Mar-98</td>
<td>167</td>
<td>142</td>
<td>8325</td>
<td>-4.86%</td>
<td>1475</td>
<td>2.50%</td>
</tr>
<tr>
<td>Apr-98</td>
<td>177</td>
<td>149</td>
<td>7970</td>
<td>-4.26%</td>
<td>1532</td>
<td>3.86%</td>
</tr>
<tr>
<td>May-98</td>
<td>183</td>
<td>157</td>
<td>10525</td>
<td>32.06%</td>
<td>1623</td>
<td>5.94%</td>
</tr>
<tr>
<td>Jun-98</td>
<td>196</td>
<td>164</td>
<td>14,900</td>
<td>41.6%</td>
<td>1988</td>
<td>22.5%</td>
</tr>
<tr>
<td>Jul-98</td>
<td>220</td>
<td>178</td>
<td>13,000</td>
<td>-12.75%</td>
<td>2202</td>
<td>10.8%</td>
</tr>
<tr>
<td>Aug-98</td>
<td>240</td>
<td>189</td>
<td>11,075</td>
<td>-14.8%</td>
<td>2529</td>
<td>14.8%</td>
</tr>
<tr>
<td>Sept-98</td>
<td>261</td>
<td>196</td>
<td>10,700</td>
<td>-12.42%</td>
<td>3009</td>
<td>18.9%</td>
</tr>
<tr>
<td>Oct-98</td>
<td>256</td>
<td>196</td>
<td>7,550</td>
<td>-29.4%</td>
<td>2828</td>
<td>-6.0%</td>
</tr>
<tr>
<td>Nov-98</td>
<td>256</td>
<td>196</td>
<td>7,300</td>
<td>-3.3%</td>
<td>2830</td>
<td>0.0%</td>
</tr>
<tr>
<td>Dec-98</td>
<td>263</td>
<td>198</td>
<td>8,025</td>
<td>9.93%</td>
<td>2758</td>
<td>-2.5%</td>
</tr>
</tbody>
</table>

Note: Rice prices refer to medium-quality rice in major urban areas (Bulog).
Source: Bank Indonesia and Bulog.

Liberalized trade in sugarcane, wheat, soybeans, and rice in November. That same month, fertilizer subsidies were abolished, fertilizer imports were liberalized, and restrictions on domestic fertilizer marketing were eased. Domestic fertilizer prices promptly adjusted upwards to world market prices. To offset higher fertilizer prices, the government announced a 12-fold increase in subsidized crop production credit, lowered agricultural lending rates from 12 to 10.5 percent, and forgave repayment on pre-1996 agricultural loans. To further boost rice production, the government raised the paddy floor price by 50 percent to 1500 rupiah per kilogram in January 1999 and introduced regional floor prices for paddy. In April of 1999, restrictions on private exports of rice, wheat flour, and milled sugar were abolished.

47. In the OPK program, a list of program beneficiaries is drawn up, based on the monthly results of the family planning agency (BKKBN) welfare survey. Eligible beneficiaries are provided a ration card with which to purchase 10 kilograms of rice at a price of Rp 1,000 per kilogram—effectively, a quarter of the price prevailing in urban markets when the program was launched. In December 1998 the monthly ration was doubled to 20 kilograms. In February of
1999, beneficiary selection criteria were tightened to include only families classified as poor and food-insecure by BKKBN. An OPK effort implemented by NGOs and aimed at unregistered urban slum dwellers was launched in Jakarta in February, 1999.

48. OPK coverage increased rapidly in the first eight months of operation to reach some 13 million families through a network of 35,000 distribution points. The income transfer (measured as the difference between the subsidized and prevailing retail rice price times the monthly ration amount) ranged from Rp 20,000 to Rp 30,000 per month per eligible beneficiary family (or Rp 4,000 to Rp 6,000 per household member) in 1998 and the first quarter of 1999, an amount equivalent to a third of food expenditures per beneficiary. Although the OPK program lacks sufficient coverage in urban areas, its low administrative costs (6 percent of total outlays), broad reach, and area-specific distribution arrangements make it one of the most cost-effective elements of the safety net (SMERU, Tabor). It has contributed significantly to protecting the food staple consumption of low-income groups.

49. At the national level, the main challenge was ensuring adequate food availability. In 1997 and 1998 the government sharply increased official food imports to ensure that the fall in domestic food supply would not significantly reduce food availability. BULOG’s rice imports were increased from 1.1 mmt in 1996 to 3.7 mmt in 1997. Sugar imports were increased from 1.0 to 1.3 mmt and wheat imports from 4.0 to 4.3 mmt. In 1998, official imports were increased to 5.7 mmt for rice and to 1.7 mmt for sugar, with nearly one-third of the rice imports provided by foreign aid donors. To ensure that BULOG was able to import, the government provided the agency with foreign exchange at a preferential rate and subsidized liquidity credit. Ample food imports ensured that staple food availability, on a per capita basis, was about the same in 1998 as in the early 1990s (Table 8).

<table>
<thead>
<tr>
<th>Year/Indicator</th>
<th>Cereals Produced (000 mt)</th>
<th>Cereals Imported (000 mt)</th>
<th>Per Capita Kilograms of Cereals (per annum)</th>
<th>Total Staple Calories Per Capita (per day)</th>
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<tr>
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<td>1998</td>
<td>39,770</td>
<td>9,350</td>
<td>175</td>
<td>2540</td>
</tr>
</tbody>
</table>


A Market-Friendly Food Sector Strategy

50. “Rice self-sufficiency” alone makes very little contribution to food security in Indonesia today. Such a policy is unlikely to drive rural economic growth. When normal weather conditions resume, domestic rice production will rebound and rice import requirements will
fall. Long-term growth in domestic rice demand will be small because per capita rice availability is near satiation. There is little reason to incur high private, social, fiscal, or environmental costs to satisfy what promises to be relatively modest growth in rice demand. Rice self-sufficiency is not in harmony with growing demands for a diversified diet, will not encourage smallholders to diversify into higher value crops, and will not reduce the nation’s vulnerability to shocks that affect the supply and demand for rice.

51. The crisis has demonstrated that rice self-sufficiency is largely irrelevant to Indonesia’s food security. During periods of hardship, the two key elements of domestic food security are adequate availability of rice supplies and the provision of rice and other foodstuffs, at affordable prices to low-income households.

52. The government should therefore abandon its traditional quest for rice self-sufficiency, and rely on global markets to determine both domestic food prices and the most efficient uses of Indonesia’s agricultural resources (Darmawan). Those who oppose greater reliance on the global market argue that Indonesia’s farm sector cannot compete with global agribusinesses, and that significant dislocation of small farmers would occur if free trade were allowed (Joyo). On the other hand, there is ample evidence that government intervention in the food market has contributed to high costs while limiting the scope for private sector investment (Ruky). Inevitably, Indonesia’s commitments under WTO and the ASEAN free trade accord will imply greater integration of the domestic market into the world market. The abolition of import and export restrictions on food staples, in November 1998 and April 1999 signaled the shift towards a food security policy that relies more heavily on private commercial trade.

53. On a caloric basis, it costs about half as much to feed urban consumers with wheat-based staples as with rice. If urban food consumers come to rely more heavily on wheat-based staples, the risks associated with relying on the international rice market would be reduced. If a larger share of urban food needs were met with wheat imports, Indonesia’s farmers would be encouraged to diversify from production of low-value food staples to higher-value products.

54. Although rice self-sufficiency should no longer guide policy, continued efforts should be made to raise productivity in the domestic rice industry. Rice production, at global prices, remains profitable in many parts of the country, but there remains considerable scope for increasing cropping intensities, reducing disease and pest infestation, lowering postharvest losses, and adopting new and technologies. Producing rice competitively, rather than producing rice to meet national goals, should be the guiding principle (Simatupang 1999b).

55. The government must understand that it is not possible to have both free trade in food staples and stable domestic food prices. If domestic rice prices become excessively volatile, the government could stabilize prices through variable levies, or other finance-based approaches (Pranolo). Experience will tell whether this is necessary and administratively feasible. The government can continue to provide rice rations to the food insecure, but it would be relieved of the need to maintain large domestic stockpiles to stabilize domestic rice prices.
A Food Security Safety Net for Low-Income Consumers

56. Although food relief and public works programs have been mounted, the success of the programs has been hampered by a lack of information about the locations and severity of the problem. This suggests that better early warning mechanisms, food security monitoring systems, and food relief distribution arrangements are needed.

57. Several measures could be taken to improve the early warning system. One approach would be to revive the inter-Ministerial food and nutrition surveillance system that operated reasonably effectively in the 1980s to provide early warning information, and to update the list of food insecure households to the National Coordinating Board for Disaster Management (BAKORNASPB). Another approach would be to tap the monitoring skills of NGOs to identify food-short areas.

58. The OPK program marks an important shift away from general food subsidies to targeted relief. Field reports suggest that it is being implemented effectively. The program is being restructured to focus assistance on the food insecure. A public outreach campaign is to be mounted to improve public awareness, and independent NGO monitoring and evaluation exercises have been used to make mid-course corrections in program design and implementation.

59. Beyond the immediate crisis, there are a number of reasons why an ongoing food assistance effort should be part of a long-term safety net. In the short term, economic growth cannot be counted on to provide incomes adequate to provide the poor with the income needed for an adequate diet. Targeting food relief to the very poor is a far more cost-effective means of augmenting purchasing power than are general food subsidies. Although food-for-work, community development, and other income-generating programs may ultimately help low-income families break out of poverty, there are too many food-insecure households to be reached through economic development programs. In addition to the OPK program, food relief schemes underway in 1998 and 1999 included provision of nutrition supplements for vulnerable women and children at selected health clinics, food-for-work schemes, school feeding programs, and food-based community development schemes. The medium-term challenge is to select measures that can be provided cost-effectively.

Rice Price Stabilization

60. The social returns from price stabilization of rice have historically been quite substantial (Timmer, 1997b). But these returns have fallen as rice has come to account for a smaller and smaller share of total consumer spending and as BULOG's costs have increased (Pearson). BULOG efforts to stabilize domestic food prices will become far more costly and far less effective, particularly if public stockpile and release policies drive a wedge between global and domestic prices.

61. Whether there is merit in stabilizing domestic rice prices depends on three main factors: the degree to which the rice requirements of the poor are protected through subsidized sales or
other income transfers, the degree of volatility in international rice market prices, and the cost of stabilizing domestic rice prices.

62. At the one extreme, the government could abandon all efforts to stabilize domestic prices, abolish the public procurement and distribution system, and rely solely on private trade (Short). That would entail certain risks, the most notable being the degree to which domestic producers and consumers would be willing to accept the consequences of increased domestic rice price volatility.

63. Another option would be to restore the government’s monopoly on rice imports and implement a price stabilization policy, much as was done prior to 1998. The disadvantage of this policy is that a trade monopoly—either that of BULOG or some other entity—confers economic rents which inevitably produce waste, corruption, and nontransparent behavior (Simatupang 1998). It also is costly.

64. The challenge is to adopt a path of reform that retains many of Indonesia’s traditional policy objectives but implements them in a more transparent, cost-effective, and efficient manner. There continues to be vigorous debate in Indonesia on food policy and food security, and on the government agencies that implement policy. Even if the reforms are implemented sequentially, it is important for policymakers to have a complete vision of food policy before undertaking changes.

Farm Income Support and Retail Price Stabilization

65. Historically, the government has set a floor price for rice to protect farm incomes. Public procurement has never exceeded 6 percent of the domestic rice crop, and primarily serves to ensure that domestic rice markets are contestable. With inelastic demand and a high degree of seasonality in production, supply gluts can trigger declines in producer prices and incomes. In this setting, a modest public procurement effort to defend a “minimum” price can serve to stabilize producer incomes. BULOG should be the buyer of last resort, and the floor price should not be higher than expected import-parity prices. If it is, BULOG will be forced to use ad hoc quality restrictions to limit domestic procurement.

66. In the medium term, the government should consider developing other programs which help farmers offset the risks of postharvest price declines. One option would be a warehouse receipts system, in which farmers and traders could obtain credit for a portion of their crop.

67. As the private sector shoulders more of the task of aligning global and domestic rice prices, BULOG’s costs will be vastly reduced. Budget subsidies for ration groups should be phased out, since there are few parts of the country where the armed forces and civil servants cannot procure basic foodstuffs. This would reduce BULOG’s normal stockholding requirements for rice by about one-half.

68. BULOG could continue to be a buyer of last resort for domestically produced rice while maintaining a smaller stockpile of low-quality rice to meet emergency needs (Tabor, 1997).
The rice would be used in the OPK program. In periods of economic or political crisis, BULOG should also be prepared to mobilize imports of rice to cover domestic supply shortfalls should the private sector fail to do so. A much smaller network of public sector food storage facilities will be required if BULOG’s role evolves as discussed above. Excess BULOG storage and marketing facilities should be spun off to the private sector.

Facilitating Resource Restructuring: From Sugar to Rice

69. Regulations that prohibited farmers from growing the crops best suited to their resource endowments have had a harmful effect on food security in the past. In 1998, the government announced that farmers would no longer be required to cultivate sugarcane on land that would otherwise be devoted to rice production. Assuming that farmers switch a large number of sugar factories on Java will face closure, and new investments will be required to expand rice processing and storage capacity.

70. Sawit estimates that farm income from forced sugarcane production is 40 percent less than it would be if the land was used for rice. Allowing Java’s sugarcane farmers to switch to rice could increase annual rice production by as much as 1.2 mmt. When Java’s sugarcane lands are converted to rice, imports of sugar will rise in the near term because Indonesia’s productivity in sugarcane lags far behind that of the major producers. Over time, however, sugarcane plantations could be established in the rainfed areas of Sumatra and Sulawesi (Pearson; Sawit).

Fertilizer Subsidies: An Obsolete Food Security Instrument

71. The ratio of urea prices to paddy prices has an important effect on food production because the effects of urea on rice yields are immediate and relatively strong. Over the years, the government has intervened to ensure that the ratio of urea prices to paddy prices give farmers a positive incentive to apply urea and increase output. This has meant that, in some years, fertilizer prices have been subsidized.

72. Subsidies peaked at 7 percent of total development expenditures in 1985 and then fell steadily for many years. By 1996, fertilizer subsidies were less than 0.7 percent of total development expenditures but rose sharply in 1998-99, to 2.3 percent of development expenditures.

73. The fertilizer subsidies had little apparent effect on fertilizer use, however, and indeed contributed to domestic shortages as subsidized fertilizer was either smuggled abroad or sold to estate crop producers.

74. Fertilizer subsidies were removed in late 1998, and domestic fertilizer prices doubled. That fertilizer subsidies were removed in the midst of the main rice planting season was perhaps poor timing, but elimination was an appropriate policy decision. Since fertilizer accounts for less than one-sixth of the cost of rice production, changes in output prices and wage rates have a more direct effect on fertilizer demand than do changes in the fertilizer price itself. (Gregory provides more information on fertilizer policy, present and future).
V. NURTURING RURAL ENTREPRENEURSHIP

75. Raising the productivity of the rural labor force is the single most important long-term strategy for enlarging income-earning opportunities and assuring greater equality of opportunity. The average rural dweller has less than five years of schooling and only rudimentary access to basic health care and sanitation facilities. Repelita VI calls for an increase in rural labor productivity of 3 percent a year that would be achieved through an integrated approach to human resource development (Hasibuan). The education centerpiece of Repelita VI is a nine-year universal basic education program. Implementing the program would require the elimination of school fees, an increase in education subsidies for poor children, and an upgrading and expansion of rural education facilities. The program would have a major impact on educational attainment in rural areas, where the rates of transition from elementary to secondary school are far lower than in urban areas (BAPPENAS).

76. Broadening access to secondary schooling while upgrading the quality of both primary and secondary education are key rural development challenges. They will require (among other things) higher salaries for primary school teachers, better equipped schools, increased availability of textbooks, better monitoring of student achievement, and greater devolution of managerial responsibilities to school principals and to Kabupaten authorities (World Bank, 1998a).

84. In the health care sector, the main objective is to increase access in rural areas to basic preventative and curative services. From 1990 to 1996 the share of public health care expenditures allocated to primary care gradually increased, enlarging the rural share of health care spending. Long-term health care priorities include immunizations, antenatal care, nutrition supplementation, treatment for malaria and tuberculosis, treatment for respiratory infections, vector control, health education, family planning, school health care programs, water and sanitation programs, and hygiene and sanitary education.

85. The crisis has stalled the gains in rural education and health care. The immediate challenge is to focus public expenditures on the most critical programs. In the medium term, a better setting of priorities in public sector spending on human resource development will be required. As a result of the crisis, many public sector urban facilities -- universities, hospitals, and so on -- claim that they are being underfunded, but their requests for additional funds should not be allowed to crowd out funding for rural needs.

86. Development of the physical infrastructure is central to the long-run well-being of Indonesia's rural areas. During the past three decades, Indonesia has made large public investments in rural transport, telecommunications, sanitation, and electrification facilities. Nonetheless, the comprehensiveness of Indonesia's rural infrastructure lags behind that of neighboring countries, such as Malaysia and Thailand.
During the first half of the 1990s the government adopted a number of policies designed to encourage private infrastructure projects, especially electric power plants and toll-roads. Such projects were mainly geared to serve large urban centers, and they augmented other demand-pull factors and contributed to an urbanization rate in excess of 5 percent a year. Although public expenditures to improve the rural infrastructure were not neglected, the gap between urban and rural amenities (electric water, and telecommunications systems in particular) continued to widen. During that period, the government also began to assign responsibility for rural infrastructure development to local authorities, using block grants and other methods. These local efforts have proved to be far more cost-effective than their central government counterparts.

Off-farm Employment as an Engine of Rural Growth

Structural change is gradually taking place in Indonesia’s rural areas as labor shifts from low-productivity agriculture to higher-productivity services and manufacturing. Close to 40 percent of all rural income on Java is now generated by nonagricultural occupations. Off-farm employment in the other islands accounts for a smaller share of rural income.

Over time, the shift in agricultural production toward high-value livestock, fisheries, and horticultural products will contribute to a greater demand for off-farm services, since those commodities require more processing and marketing activity than food grains. Although the devaluations of 1997 and 1998 will hold down the growth in demand for high-value foodstuffs, they will also induce the manufacturing sector to switch from imported raw materials to domestic sources.

Agribusiness Development

Promoting the agribusiness subsector has become one of the main planks of the government’s rural development effort. The construction of processing plants that add value to raw products can play an important role in reducing rural poverty. A variety of strategies have been pursued to assist agribusiness development and the subsector has attracted large investments, but much of it is concentrated in a small number of large, capital-intensive plantation crop and forestry projects. The challenge now is to promote small and medium-scale agro-enterprises that are labor-intensive and widely dispersed throughout the country while improving the integration of production, processing, and marketing.

The government estimates that Indonesia has some 624,000 agribusiness enterprises that employ about 4.6 million people. Close to 90 per cent are small-scale operations that account for more than 80 percent of all agribusiness employment but produce less than 15 percent of agro-industrial output. Agribusiness development is constrained by a number of factors, including its traditional trading orientation, a wide gap in productivity between small and large-scale agro-processors, the limited education of most of those who work in the sector, weak institutional arrangements for linking agro-businesses with producers, and growing pressure to meet the quality standards of global markets. Many of these will take time to
correct, but for now the government should ensure that it provides a policy and regulatory environment that is conducive to the development of rural enterprise.

92. Policy reforms introduced in late 1997 and 1998 were a significant step toward the deregulation of agricultural markets. Tariffs on more than 500 food items were reduced to 5 percent, local content requirements for dairy products were dropped, nontariff barriers to imports of new and used ships were eliminated, and the export cartel in plywood and wood products was dismantled. Restrictions on farmer sale of sugarcane to particular mills were lifted, as were BUKOG's trading monopolies. Taxes on agricultural exports were reduced to 10 percent, restrictions on interprovincial trade in commodities are being eliminated, and quantitative restrictions on palm oil exports were replaced by an export tax. Exports of rice, wheat flour, and milled sugar were liberalized in April 1999, and foreign investment in plantations was allowed to increase. Fertilizer imports have been liberalized, and subsidies for fertilizer use were eliminated. Market forces will have much greater sway in rural resource allocation if these deregulation measures are fully implemented in the future.

93. Direct restraints on farm imports and exports are not the only factors that influence farmers' incentives. As Garcia-Garcia demonstrates, Indonesia's high nominal tariffs on imported manufactured goods have acted as a significant indirect tax on agriculture and have especially retarded investment in farming in the outer islands. In 1995 the manufacturing sector's effective rate of protection was 53 percent, while agriculture's was 5 percent. The indirect effects of this unequal treatment were equivalent to a 32 percent net tax on agriculture relative to manufacturing. Despite the recent devaluations and trade reform measures, tariffs on manufactured imports are far higher than on agricultural imports. Reducing protection for domestic manufactured goods is an urgent priority, particularly in the wake of the sharp fall in the value of the rupiah.

94. There are numerous fees and charges imposed by local governments on transport of commodities. Such fees and charges (pungli) have been in violation of central government rules for more than a decade. There is a need for an independent monitoring body (perhaps a respected civil society organization) to track progress in the deregulating of agricultural markets and to cite violations of deregulation measures.

95. Public policies have fostered private monopolies in several commodities, most notably cooking oil and processed wheat products. These monopolies have created a great variety of trade restraints that have had negative effects on the entire agricultural sector because private investors fear that favored conglomerates will gain control of other sectors of the market. High priority should be given to breaking up these monopolies. The palm oil market is still has numerous controls and restrictions including an intermittent export tax which reduce returns and discourage investment in what is Indonesia's most rapidly growing agricultural export. These efforts have done little to ensure domestic availability but have raised costs, contributed to local shortages, and weakened Indonesia's reputation as a palm oil exporter. Export taxes on palm oil should be phased out and domestic marketing restrictions eliminated.
96. Although Indonesia’s deregulatory efforts have focused on trade, public policies in other areas continue to impede potential rural entrepreneurs. A recent study conducted for the Asian Development Bank (1997) found the large number of permits required to establish and operate a medium-sized enterprise in Indonesia to be a significant barrier to new agro-enterprises. More than a dozen permits—enterprise, utility, operating, handling, registration, and so on—must be obtained, and each must be accompanied by an “unofficial” payment to expedite issuance of the permit. The time required to obtain these permits, and uncertainty about the costs of doing so, discourages entrepreneurs and investors (Saragih). This system needs modernizing to determine which licenses are essential and which ones can be consolidated or eliminated.

97. In recent years the government has tried several methods to match large-scale rural operations with small ones. State plantations have been encouraged to create smallholder operations (NES projects), private investors have been required to develop facilities for smallholders in exchange for plantation concessions (under the PIR-TRANS programs), and contract farming arrangements (kemitraan contracts) have required poultry processors to buy from village producers. These efforts have had mixed results. In practice, large-scale operators have found ways to circumvent development agreements with smallholders.

98. The private sector will involve smallholders in agribusiness projects if it is economically attractive to do so (ADB, 1998a). Instead of using regulatory or credit inducements, the government could promote positive synergies between large and small producers by establishing contract farming models and a judicial apparatus to ensure fair and impartial resolution of contract disputes (Dillon).

Restoring Growth by Easing Public Restraints on Competition

99. In an earlier era, the government provided most important inputs and services to agriculture. That served to “get markets going” and to encourage technological innovation. Now, however, many of the government’s activities restrain competition and shield public enterprise inefficiency. Transforming public enterprises into private enterprises will inspire more competition in the delivery of those inputs and services, resulting in lower prices and better quality.

100. The government’s rationale for owning and operating commercial enterprises varies from case to case. Some of these enterprises, such as the state plantations, were privately owned operations that were nationalized when Indonesia ceased to be a colony. Others, such as the fertilizer factories and the seed and agricultural machinery producers, were established by the government at a time when high start-up costs and economies of scale were perceived to preclude private ownership. Today, however, there is little reason to think that the private sector could not efficiently manage such enterprises or that continued public control is necessary to prevent domination by foreign countries.

101. Selling many of Indonesia’s public agricultural enterprises would bring three important benefits to the rural economy. First, the sale of the most attractive public assets would encourage capital inflows. Second, private management would improve the return on the
assets tied up in these enterprises. Third, shifting the government’s attention away from the managing and rent-collecting of its commercial agricultural enterprises would sharpen its attention to its core responsibilities.

Privatizing the PTPNs

102. The 14 PTPNs, or plantation crop enterprises, are among the largest enterprises owned by the government. Management teams have reviewed each of the state plantations and have provided recommendations for restructuring their operations. Historically, privatization has been avoided because of fears that conglomerates would dominate the markets served by the PTPNs. There is a basis for this concern, since five or six private firms dominate the domestic palm oil market. Still, methods of privatization that promote widespread ownership of shares in the company, such as reserving a portion of the shares for employees, selling shares to the public, and selling a large group of shares to a single private investor, would help to prevent asset concentration while reaping the rewards of private management (Melkye, 1994). The government has announced that plantation crop producers, as well as local landholders, must have an ownership stake in the public plantations (Nasution).

103. Certain methods of PTPN privatization, such as the use of IPOs and twinning arrangements with private contractors, are likely to take a long time and may give existing management the opportunity to strip the SOE’s assets prior to sale. Therefore, a privatization strategy that is transparent and expeditious would be preferable. Replacing management with a “transition team” may be needed. If privatized PTPNs are to become engines of rural development, plantation labor will need to be given a significant stake in the enterprises. The traditional plantation enterprises have done little to stimulate regional economic growth because of their low-wage, captive labor forces.
VI. IMPROVING RURAL FACTOR MARKETS AND ACCESS TO IMPROVED TECHNOLOGY

104. Indonesia is unique in East Asia in that it still has land that could be brought into agricultural production. The government estimates that there are 40 million hectares that could potentially be brought into agricultural production. Of these, some 16 million hectares are swamplands that could be developed for irrigated agriculture. Another 24 million are in rainfed areas that could be used for perennial and secondary food crops. All 40 million hectares are on islands other than Java and Bali. The main factors limiting expansion are a meager infrastructure, limited natural fertility, and environmental concerns.

105. A well-functioning land market helps ensure that agricultural resources are allocated efficiently, that there are strong incentives for adopting new technology, and that rural resources are safeguarded for future generations. Indonesia’s land market functions in less than optimum fashion. The land ownership rights of most smallholders remain undocumented, and wealthy investors have been able to take over large expanses of traditional lands. Despite a decade of efforts to accelerate land titling and registration, only 20 percent of all agricultural land is registered. The past decade has witnessed a phenomenal rise in the assignment of land use rights to large investors in Kalimantan, North Sulawesi, and Irian Jaya. There have been numerous cases of confiscation of communal lands and violation of environmental requirements (ADB, 1997a). Other characteristics of Indonesia’s land market include a time-consuming and costly land certification and transfer process, illegal transactions of state-owned land, a proliferation of false land certificates, and overlap in the responsibilities of the pertinent government agencies (ADB, 1998a, ADB, 1997b, ADB, 1997d). Since May of 1998, Indonesia has witnessed numerous instances of plantations being spontaneously reclaimed by smallholders who have claimed that the lands were illegally acquired in the first place.

106. Efforts are under way to accelerate land surveying, titling, and registration, most notably through a Land Administration Project funded by the World Bank. Through 1997, the project had established title to 18 million parcels, with a target of 75 million to be titled in the next 25 years (ADB, 1998a). To augment the project, land title certificates should be delinked from tree-crop credit programs (NES and PMU projects) and the certificates given directly to owners. Badan Pertanahan Nasional (BPN) could establish a licensing system that would allow individuals to legally take part in land surveying, mapping, and adjudication matters. BPN could officially recognize the land surveying and mapping course developed under the Land Administration Project and allow this course to be offered by universities. In the medium term, training for people involved in land registration and titling work should be decentralized by accrediting university and private sector training courses and eliminating the requirement to attend courses sponsored by Sekolah Tinggi Pertanahan Nasional (STPN). The government should also develop a
system for licensing private land surveyors. Consideration should be given to
streamlining transfer requirements to reduce land transaction costs (Melkye, 1998).

107. The use of “location permits” (Izin lokasi) to allocate the rights to land has produced
land-grabbing, the use of land for purposes other than development, and bitter disputes
over land ownership. A “location permit” is issued by the National Land Agency (BPN)
to a private individual that officially designates a parcel of land as appropriate for
development, based on a finding that the proposed use is consistent with government
policy and with development and land-use plans. In practice, however, the use of
location permits has set the stage for unfair transactions in which those who occupy land
are forced to sell their claim to its development to a single buyer who has obtained a
location permit. To prevent such tactics, a location permit should be revoked if no
development has occurred within two years of the date the permit was issued. In the case
of particularly desirable lands, extending the validity of location permits should be
temporarily suspended while the government analyzes competing land claims, assesses
investment intentions, and ensures compliance with regional planning and environmental
regulations. New applicants for location permits should be required to post performance
bonds, and sanctions should be imposed on those who violate the terms of the permit
(Melkye, 1998).

108. In the medium term, responsibility for land management and development should be
consolidated at the province and district levels. As a first step, the authority to issue
location permits should be shifted from the BPN to provincial governments. Land
mapping and zoning efforts should continue, and decision-making authority over land
should also be vested eventually in provincial and regional governments. The validity of
land-use concession permits (HOU) should be extended from 20 years to a sufficiently
long period (50 or 100 years) to encourage sustained investor interest in land
conservation and development.

Irrigation Development

109. Water is the property of the government in Indonesia and has historically been provided
as a free good for agricultural purposes. But water shortages, water pollution, frequent
flooding, and fierce intersectoral competition for water have led many to conclude that
water, rather than land, will be the factor that determines whether Indonesia is successful
in achieving its food security and agricultural productivity goals.

110. Expanding irrigation in regions less subject to the pressures of urbanization is one of
Indonesia’s strategies for advancing agricultural growth. In some river basins, particularly
those with large urbanized areas, surface water and ground water resources are reaching a
critical stage of maximum use and intersectoral competition. There is little alternative to
coping with growing nonirrigation water demand on Java except through greater
irrigation efficiency and cropping diversification to less water-intensive crops. Irrigated
areas grow more than 80 percent of the nation’s rice.
111. Close to half of all public expenditures on irrigation are allocated to agricultural expansion, with the rest devoted largely to system rehabilitation, maintenance, and flood control (Table 9). Low-cost opportunities for groundwater development and run-of-the-river schemes are nearly exhausted, however, and the costs of expanding irrigation have risen very rapidly.

**Table 9: Government Expenditures on Irrigation: 1968 - 1998**

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<td>Pelita 6, 1994 - 1998</td>
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</tbody>
</table>


112. One recent study estimated that close to 700,000 hectares that could be brought into production if the current water distribution networks were completed (CID, 1998). Another study reports that 4.2 million hectares of tidal swampland have been reclaimed for production in Sumatra, Kalimantan, Sulawesi, Irian Jaya and Kalimantan. These are “open systems,” with no mechanisms for controlling water in the canals. Upgrading these systems by controlling water flow and drainage could lead to a substantial, low cost, increase in cropping intensity.

113. Indonesia’s irrigated area covers approximately 3 million hectares. Almost all of the irrigated area has been rehabilitated during the past 25 years, and at least one-third of it twice. Both the government and farm communities have neglected routine maintenance, assuming that the systems would be rehabilitated by means of high-cost public investment projects. But periodic rehabilitation, or deferred maintenance, costs about US$800 per hectare, compared to US$120 per hectare for routine maintenance. The government has attempted to improve system maintenance but these have had little actual impact (World Bank, 1998a). The most appropriate strategy at this time would be to halt further rehabilitation projects, except for emergency repairs on primary canals, and turn over routine maintenance funding to water user associations.

114. In 1987 the government initiated a Small Irrigation Turnover Program (Penyerahan Irigasi Kecil, or PIK), which has transferred about 315,000 hectares to local Water User Associations. The results, in terms of increased cropping intensities and yields, are good. But more could be achieved if the WUAs were authorized to take over systems serving
areas larger than 500 hectares and to form regional associations with the authority to operate, maintain, rehabilitate, and modify the system, and collect irrigation service fees.

**Rural Credit**

115. Rural credit policy has changed dramatically since the onset of the crisis. Prior to the crisis, credit policy was guided by the framework established by “PakJan ‘90” (i) credit allocation was to follow market mechanisms; (ii) liquidity credits for Bank Indonesia were to be gradually reduced to focus on food self-sufficiency and cooperative development; and (iii) interest rates would gradually move towards levels determined by market forces.

116. With the onset of the crisis, the government sought ways to rapidly expand access to rural credit. But the commercial banking institutions were in serious financial difficulty and were unable to respond quickly to GOI’s credit programs for small-scale rural clients. The government responded by developing many new, subsidized credit mechanisms. (Mink). The main instrument among these is production credit to farmers (KUT) through cooperatives.

117. The KUT has undergone radical changes in 1999 which raise serious concerns about its sustainability. The target amount to be lent has increased 17-fold in nominal terms from previous levels. At the same time, all nonperforming KUT debts originating earlier that 1995 were forgiven, and overdue payments in the intervening period have been rescheduled. Finally, banks no longer assume the credit risk and the collateral requirements have been considerably loosened. KUT lending policies need to be redesigned to small farmers. (Mink provides policy alternatives).

**Advancing the Technological Frontier**

118. In the past five years technological progress in Indonesian agriculture has slowed, while technological progress in other Asian countries has continued at a brisk pace (Table 10). The most important factor contributing to the dearth is the fragmentation of the agricultural R&D effort. Other factors are an erosion in the linkages between Indonesia’s R&D efforts and those of international R&D providers; underfunding of R&D; a disruption of AARD’s research because of a restructuring of the agency; the lack of an enabling environment for private sector R&D (with the notable exception of estate crop research); and a lack of market orientation in the research service (World Bank, 1995; ADB, 1997c). In addition, weak enforcement of the laws concerning intellectual property rights to improved seeds is a barrier to the entry of foreign seed companies and dampens research incentives.

119. A substantial increase in real expenditures on agricultural R&D is warranted, but funding should not be increased until substantial improvements are made in managing R&D. At all levels of the research system, institutes must be made accountable for agreed outputs. The newly created technology assessment institutes (BPTPs) must be appropriately
staffed and given sufficient funding to procure, test, and adapt new technologies to
diverse endowments. Agricultural research mandates (and funding) should be extended
to universities and even contracted to private or international research organizations.
Many agricultural research endeavors in industrial countries have become
commercialized and Indonesia could contract those firms for researchers, research
management, or even research outputs. Centralized planning and coordination of R&D
should be phased out, and much more competition injected into the system to produce the
greatest results for the expenditure.

**TABLE 10: CROP YIELDS IN SELECTED ASIAN NATIONS, AVERAGE AND GROWTH RATE, 1990-1996**

<table>
<thead>
<tr>
<th>Crops</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Thailand</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean M/ha</td>
<td>Growth %</td>
<td>Mean M/ha</td>
<td>Growth %</td>
</tr>
<tr>
<td>Rice, Paddy</td>
<td>4.37</td>
<td>0.51</td>
<td>3.06</td>
<td>0.84</td>
</tr>
<tr>
<td>Maize</td>
<td>2.23</td>
<td>1.92</td>
<td>1.78</td>
<td>0.99</td>
</tr>
<tr>
<td>Potatoes</td>
<td>15.26</td>
<td>3.88</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Soybeans</td>
<td>1.14</td>
<td>0.83</td>
<td>0.33</td>
<td>0.00</td>
</tr>
<tr>
<td>Coconuts</td>
<td>5.50</td>
<td>-0.36</td>
<td>3.71</td>
<td>2.42</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>5.45</td>
<td>2.76</td>
<td>16.29</td>
<td>-1.08</td>
</tr>
<tr>
<td>Chillies + Peppers, green</td>
<td>2.24</td>
<td>0.52</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Coffee, green</td>
<td>0.56</td>
<td>0.84</td>
<td>0.68</td>
<td>6.50</td>
</tr>
<tr>
<td>Tea</td>
<td>1.52</td>
<td>-4.67</td>
<td>1.96</td>
<td>1.37</td>
</tr>
<tr>
<td>Natural Rubber</td>
<td>0.72</td>
<td>1.89</td>
<td>0.75</td>
<td>-1.33</td>
</tr>
<tr>
<td>Palm Oil</td>
<td>0.17</td>
<td>-4.90</td>
<td>0.11</td>
<td>-0.92</td>
</tr>
</tbody>
</table>

Source: FAO Agrostat, Internet Version.

120. Agricultural biotechnology merits special attention, since the pace of development in this
area is expected to radically alter tropical agriculture and provide technologies suitable
for small farmers (Byerlee and Gregory). Indonesia has mounted an aggressive
biotechnology effort through LIPI, the universities, and the AARD Institutes, spending
approximately US$4 million a year on experimentation. A national biotechnology
strategy has been prepared, intellectual property rights legislation has been modified, and
public consultations have been held on biosafety issues. But the overall biotechnology
effort is extremely fragmented, public/private sector cooperation is limited, and few of
the research activities involve "near-to-market" technology (Kasryno). Publicly financed
biotechnology merits support, but given the complexities and high costs associated with
establishing local capacity, government should import technology and processes;
collaborate internationally in biotech research; and forming active partnerships with the
private sector and international research institutes.
Providing Participatory Farmer-Demand Driven Extension Services

121. Improving the quality of information provided to Indonesia’s millions of small farmers would enable them to make better use of limited resources and reduce the risks associated with diversification and the adoption of new technology. Although there are approximately 40,000 public extension agents, well-trained agents are in short supply. Cooperation between the extension service and private agricultural operations is limited. Further, the training model for extension agents has created generalists. Extension funding was disrupted after extension services were decentralized to Kabupaten’s in 1991. The near-collapse of public sector extension work has stimulated greater involvement by NGOs and the private sector in distributing agricultural information (Duewel). The current fragmented extension units, with separate agricultural support service offices are not an appropriate structure for creating the decentralized, systems-based support for farmers.

122. There are several steps the government could take to make more effective agency: (i) dismissing the large numbers of extension agents lacking advanced training; (ii) hiring technically trained university graduates; (iii) forging partnerships with NGOs, university researchers, and relevant private-sector organizations; (iv) improving transport and demonstration funding for qualified extension personnel; and (v) testing a variety of community-inspired initiatives.

123. A more fundamental change is the extension model in place in many industrial countries and Latin America. In that the delivery of extension services is a private sector activity. Public financing, general or targeted (through vouchers), is then decided on based on the particular circumstances of the country or of the individual farmer. Poorer farmers are provided with more vouchers.

Nurturing a Modern Seed Industry

124. The current seed industry is highly compartmentalized, with a small formal sector that is strictly regulated and segmented between public and private, and a large informal sector with little active support from the public sector. The concern is the lack of progress and innovation, and the collaborative arrangements between public and private seed producers (Tsakok and Tunis).

125. The government is aware of the shortcomings of the current system. The Ministry of State-Owned Enterprises (SOE) has decided to restructure the two state-owned seed companies, during calendar 2000. The objective is to make them profitable without subsidies, before privatizing them. To improve on the functioning of the public sector, the government is also considering (i) allowing research institutes to sell breeder seeds to private contract growers instead of channeling them mainly to state-owned farms; (ii) developing more efficient alternatives to central seed farms to improve the flow of quality seeds; and (iii) exploring the possibility of developing Mutual Recognition Agreements
between Indonesia and other governments to streamline quarantine regulations while still safeguarding public health interest. These are important steps in the right direction, but by themselves will not enable Indonesia to achieve a commercialized seed industry capable of generating a large variety of high-yielding and high-quality seeds at competitive prices.

126. The tightly regulated seed sector is a major factor contributing to the under-development of the commercial seed sector. Thailand has developed a policy of actively promoting the private seed sector, both domestic and multinational. As a result, seed buyers have a wide range of choices in seeds at competitive prices. Many private seed companies also extend credit to their customers.

127. The cost of the existing framework in Indonesia is likely to increase with rapid advances in biotechnology abroad. The absence of intellectual property rights and tight regulation will discourage major involvement by multinationals in Indonesia’s seed sector. Replacing forced by voluntary registration would increase the range and quantity of breeder seeds, as in the United States. To increase the flow of breeder seeds, other important improvements in the regulatory framework are: ensuring intellectual property rights, and adopting legislation allowing companies to register ownership of varieties. Rather than use strict seed market controls, the objectives of a reliable supply of good quality seeds can be better fulfilled by making the private sector responsible for quality, with government enforcing truth-in-labelling instead of forced certification; ensuring that seed quarantine rules are only based on sound scientific information; and by disseminating information on seed choices and quality to farmers. (Tsakok and Tunis).
VII. REDUCING RURAL POVERTY IN EASTERN INDONESIA

128. Repelita VI and PJP-II give special emphasis to poverty reduction in eastern Indonesia. Current programs in this region concentrate on the development of rainfed agriculture, fisheries, and tree crops. Earlier attempts to promote development in the region began with government programs to assist the migration of settlers from Java, Bali, Lombok, and other densely populated islands. Although these efforts helped to open up new areas, their impact on poverty was less pronounced. In many instances the efforts did little more than transfer the poor from densely populated to sparsely populated areas. During the past decade the goal has shifted from migration to smallholder development schemes. These experiences can be helpful in selecting new rural development approaches that are well-suited to the region's highly varied resources.

Tree-crop Development

129. While there is little scope for establishing large-scale irrigated rice plantations in eastern Indonesia (World Bank, 1994b), large parts are well-suited for tree crops. Tree crops have expanded rapidly in eastern Indonesia over the past three decades, from 8.5 million ha of rubber, oil palm, coffee, tea, coconut, and spices in 1970, 13.1 million ha in 1997. The aggregate growth in planted area for the estate crops was 3.5 percent per annum, while for oil palm alone it was 21 percent per annum (Arifin). Smallholders produce most of the coconut, rubber, cacao, and coffee crops (Tables 11 and 12).

130. Government efforts to expand smallholder tree crops have involved block-planting, either by public or private plantations, or by project management teams. Considerable success has been registered in developing the production of palm oil, cashews, and cocoa, but efforts to develop other commodities have had a mixed record. Future efforts should focus on funding plantation development for commercially viable producer cooperatives, improving the land tenure of smallholders, and building on the more successful PMU-type models.

**TABLE 11. INDONESIA ESTATE CROP PRODUCTION (000 TONS), 1987-97**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>1987</th>
<th>1997</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Rubber</td>
<td>1130</td>
<td>1549</td>
<td>3.56</td>
</tr>
<tr>
<td>Palm Oil</td>
<td>1506</td>
<td>5385</td>
<td>15.21</td>
</tr>
<tr>
<td>Cacao</td>
<td>50</td>
<td>307</td>
<td>22.29</td>
</tr>
<tr>
<td>Coffee</td>
<td>389</td>
<td>454</td>
<td>1.74</td>
</tr>
<tr>
<td>Tea</td>
<td>126</td>
<td>151</td>
<td>2.01</td>
</tr>
<tr>
<td>Coconut</td>
<td>2099</td>
<td>2752</td>
<td>3.06</td>
</tr>
<tr>
<td>Other</td>
<td>2411</td>
<td>2893</td>
<td>2.04</td>
</tr>
</tbody>
</table>

TABLE 12. PRODUCTION SHARE OF SMALLHOLDER, PRIVATE, AND STATE-OWNED PLANTATIONS, 1997

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production Share (%)</th>
<th>Smallholders</th>
<th>Private-Owned Plantation</th>
<th>State-Owned Plantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Rubber</td>
<td>76.28</td>
<td>11.43</td>
<td>12.29</td>
<td></td>
</tr>
<tr>
<td>Palm Oil</td>
<td>22.31</td>
<td>42.51</td>
<td>35.18</td>
<td></td>
</tr>
<tr>
<td>Cacao</td>
<td>77.91</td>
<td>10.74</td>
<td>11.36</td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td>94.90</td>
<td>2.27</td>
<td>2.83</td>
<td></td>
</tr>
<tr>
<td>Tea</td>
<td>20.62</td>
<td>22.23</td>
<td>57.15</td>
<td></td>
</tr>
<tr>
<td>Coconut</td>
<td>97.43</td>
<td>1.90</td>
<td>0.67</td>
<td></td>
</tr>
</tbody>
</table>


131. In the past, the government has sponsored a number of schemes in which the private sector would develop tree crop processing facilities, a nucleus of their own crops, and small estates that would be turned over to smallholders. In many of these schemes the bulk of the profits came from processing the tree crops, thus reducing returns to participating smallholders. The government has announced a new agro-industry tree crops development scheme (KIM-BUM) in which public sector credit is to be provided to small farmers and private investors who cooperate in all aspects of tree crop production and processing, with joint ownership of both production and processing activities. This model should foster collaboration between the private sector and smallholders in a way that will ensure that all parties share fully in the risks and returns from new tree crop development ventures.

Livestock Development Efforts

132. The less densely populated regions of eastern Indonesia have the potential to become livestock supply centers for Indonesia's main urban centers. Livestock development suffers from: limited breeding stock, nutrition, and disease control efforts; a shortage of veterinarians; and small herd size (Hadi, Kasryno 1999).

133. Domestic demand for livestock products is increasing at more than 12 percent a year far outstripping domestic supply. Between 1991 and 1995, the value of exports of livestock products declined while the value of imports trebled. Beef imports alone rose by 40 percent per annum from 1990 to 1997. But even after a decade of rapid growth, per capita meat consumption in 1996 was just under five kilograms per annum, of which 3.6 kilograms were from poultry (Hadi).
In 1998, the domestic poultry and beef industries nearly collapsed because of higher import prices for feed ingredients. Poultry and beef producers slaughtered their animals to reduce carrying costs. Government attempts to revive the poultry industry are based on promoting traditional (and lower cost) breeds of ducks and chickens. In livestock, the goal is to increase cattle production in eastern Indonesia through a combination of better breeding, nutrition, and disease control to substitute for the 500,000 head imported annually.

The crisis has provided a boost to efforts to develop domestic substitutes for imported livestock feeds and to reorient commercial poultry production from domestic to international markets. Once domestic substitutes for imported livestock feed are identified and export markets developed, prospects for a swift recovery in the poultry industry are likely. In terms of the large ruminants, programs which enjoyed considerable success prior to the crisis, such as the smallholder nucleus estate beef fattening program, could provide a model for future efforts to rebuild the cattle industry (Tangendjaja 1999).

One inhibiting factor has been the government’s restrictions on the shipment of cattle from one province to another. The effect has been to raise prices artificially in major urban areas while depressing the returns to producers. In parts of Sulawesi the restrictions have driven local abattoirs and slaughterhouses out of business. There is little apparent reason for the restrictions, and they should be replaced with an appropriate system of health and safety regulations for animals shipped from one island to another (World Bank, 1997a; ADB, 1998a). In addition, subsidization of public abattoirs has crowded out the private sector and has impeded vertical integration in livestock production and marketing. If an appropriate of health and safety inspection for private abattoirs was in place, there would be no reason to retain of public abattoirs (Tangendjaja 1999).

Fisheries Development Efforts

Fisheries are a major source of employment and income in eastern Indonesia. Recent evidence suggests that coastal fisheries need to be carefully managed to ensure sustainability. This can be done by assisting communities to develop licensing and enforcement capabilities, and developing better monitoring systems. In the near term, catches are expected to decline because of stock depletion in the north coast of Java, the Malacca Strait, and the south coast of Sulawesi.

Export-oriented fisheries production benefited from the 1998 currency devaluation. Profitability has substantially increased for shrimp and tuna skipjack producers. This has induced a sharp rise in shrimp farm investment, an upsurge in deep sea fisheries, as well as an increase in destructive coastal fisheries techniques. A program has been mounted to increase fish exports.

The fisheries export boom has not been shared by all categories of fisherman. Small-scale fisherman have witnessed a marked decline in real incomes due to weak domestic
demand for fresh fish products and rapid increases in the cost of fuel, fish feed, and spare parts. Special credit programs have been mounted to help the small-scale artisanal fisheries sector cope with the impact of higher costs (Jusuf 1999).

140. There is considerable scope for the development of brackish water fisheries. Shrimp became the single largest fisheries export during the past decade. Initial development efforts were concentrated on Java’s coast but more recent ones have focused on Sulawesi and other islands in eastern Indonesia where coastal waters are less polluted. But Indonesia’s shrimp exports now face severe competition and disease has also become a major concern. When disease management is effective and marketing arrangements are well-established, however, brackish water aquaculture has proven to be extremely profitable.

141. Indonesia’s exclusive economic zone (EEZ), (the ocean 12 to 200 miles offshore) is one of the largest in the world. In light of evidence that tuna stocks may be diminishing, international competition for these fish is expected to increase. Foreign fishing boats are already exceeding their legal catches, leading to pronounced declines in domestic catch rates and forcing tuna processing factories in Bali and North Sulawesi to close. The government must ensure that its blue-water fisheries are well managed for sustainable catches. Surveillance will be needed to ensure that permit holders—both Indonesian and foreign—respect their quotas and do not use prohibited practices. Collusion between the Indonesian Navy and the fisheries department in granting exemptions from catch regulations is a major problem. A satellite-based surveillance system could be established, with larger vessels monitored via transponders to ensure that they don’t encroach on the EEZ and that access fees are paid. Blacklisting vessels that violate catch quotas or engage in prohibited practices, an enforcement mechanism used by several South Pacific nations, merits consideration. There would also be high payoffs to further collaborating in the management of fish stocks with neighboring countries.

142. Indonesia’s off-shore fleet is at a disadvantage in its competition with foreign vessels because of past restrictions on imports of fishing boats and because of the number of permits that Indonesian owners must obtain in order to operate. The lifting of restrictions on the importing of second-hand vessels is likely to result in a large influx of vessels. These imported vessels, as well as large domestic boats, should be required to operate outside the EEZ in the immediate future. There would also be an advantage in consolidating licensing, docking, and inspection requirements. One recent study reported that 37 different licenses are required to operate a fishing boat in Indonesia (ADB, 1998b). That magnifies the problem of unofficial pay-offs and gives boat owners an incentive to avoid regulatory control and inspection.
VIII. IMPROVING THE SUSTAINABILITY OF AGRICULTURAL RESOURCES

143. Economic development has imposed heavy strains on Indonesia's natural environment. Industrialization and urbanization are the largest sources of air and water pollution, but the frequent absence of clear title to rural property and a tendency to undervalue rural natural resources have also contributed to environmental problems. Unwise logging practices, expansion of subsistence farms into wooded areas, soil degradation, soil erosion, expansion of plantation crops, the marginalization of indigenous people, pollution from processing plants, and unsound pesticide and fertilizer use have imposed heavy burdens on the environment. The laws designed to promote sustainable resource use are generally adequate, but the will to implement the laws is often lacking. Price, trade, and tax policies have also contributed to unsustainable use of rural resources. Greater use of market signals to correct environmental failures is warranted.

144. The current crisis has further increased pressure on fragile natural resources. Export prices have increased, raising the incentive to extract fisheries and forestry products and to expand the pace of plantation crop development. In the forestry sector, total log extraction was increasing in 1994 at a rate of about 5 percent per annum. In 1997-98, log extraction increased at a rate of almost 10 percent, largely for pulp and paper expansion. Increased expansion of plantation crop estates has contributed to land clearing and illegal logging in a number of national parks, at the same time that budgetary support for conservation efforts is falling in real terms (Brown).

Forestry

145. The amount of land in Indonesia covered by tropical forest give it one of the largest forested area in the world. With approximately 100 million hectares, Indonesia's rainforest is one of the most species-rich ecosystems on the planet. It is also an absorber of carbon dioxide, thus helping to reduce the adverse effects of that gas in the atmosphere. The rainforest is also an important source of livelihood for close to a million rural families. But logging and land development companies are rapidly cutting into the forested areas, and the use of fires to clear land has damaged and destroyed the habitats of many endangered species.

146. In 1980, Indonesia's forestry exports totaled about US$2 billion a year. By 1996 they exceeded US$9 billion a year, or about 20 percent of non-oil exports. Of the 150 million hectares of forested area that existed in the mid-1960s, somewhere between 93 and 112 million hectares remain. The sustainable output from selective logging is believed to be about 22 million cubic meters a year, but actual output is estimated to be in excess of 40 million cubic meters. At that rate, the most accessible old-growth forest will be decimated within a decade. Estimates vary, but the rate of deforestation run about 1 million hectares per annum. Forest-dwelling communities are rapidly being displaced as a result of logging and plantation operations (World Bank, 1995a).
147. The government has pledged to retain some 84 million hectares of the natural forest area. But keeping the pledge hinges on the country’s ability to implement decisions reached by policymakers. In 1997 the government incorporated the reforestation fund into the consolidated government budget and agreed to make its use of the funds more transparent. The crisis has placed additional strains on the rain forest as Indonesia seeks to increase export earnings. Management and pricing policies that reflect its true value are required if this valuable natural resource is not to be wasted.

148. There are many ways to achieve sustainable use of the forest. One of the most important is to ensure that opportunity costs are reflected in the prices that are paid to harvest logs or convert forest land to other uses. The government has traditionally undertaxed the forest sector, thus allowing the rents to accrue primarily to resource extractors. Stumpage fees were recently introduced, and these should be significantly increased over time to promote more sustainable cultivation. Monitoring improvements will also be needed to ensure that actual logging rates do not exceed regulations.

149. Better extraction methods, together with replanting of trees in denuded areas, could help reduce the pressure to expand logging and plantation crops. The rate at which plantation crops can expand into forested areas should be reduced, and reforestation funding, the bulk of which is committed to growing pulpwood, should also be used for the development of plantation crops on land already denuded of trees. The holders of forest concessions are allowed to operate for a period of 20 years, a period that is too short to give them an incentive to plant new trees in logged-out areas. Extending the period to 99 years or more, and allowing permits to be transferred, would help encourage enterprises to adopt more sustainable practices (World Bank, 1993a).

150. Giving local communities a stake in forest development would also help to promote sustainable forestry. Proposals to develop forested land could be made subject to notification to affected communities and a favorable response from them. In some cases, giving local inhabitants tenure or use rights in designated areas would be appropriate; in others, shares in the concession or investments in buffer zones would be best.

151. Some of the holders of forest concessions will be tempted to violate forest use regulations. The use of performance bonds, greater involvement by NGOs and private-sector monitoring agencies, heavy fines for noncompliance, automatic withdrawal of concession rights for certain violations, and the creation of an independent inspection service could all significantly improve forest use. The need to improve regulatory compliance is so strong that the government might even consider hiring an outside inspection and management agency for the purpose, as it did in the late 1980s to improve the operations of its Customs agency.

152. The government’s forestry policy has been influenced by its desire to enhance the value-added activities of certain downstream industries. Exports of logs and sawn timber are heavily taxed, while logging firms with business connections to plywood processors have been given priority in the awarding of forest concessions. Such firms have also been
granted tariff exemptions for imports of capital equipment and have been provided with subsidies to develop plantations. Meanwhile, the plywood industry association has restricted new capacity in an attempt to control supplies of plywood on the world market. As a result, Indonesia has a large share of the world market, but the earnings of log and sawn timber producers have been depressed because there is little incentive to produce sawn timber for the secondary processing sectors (furniture, moldings, woodworking). Indonesia's high tax on logs results in log prices that are only 25 to 30 percent of international parity. That is a strong disincentive to investment in hardwood plantations (World Bank, 1995a). But it is far more important to promote sustainable forest development in Indonesia than to protect the plywood industry. Recognizing this, the Government withdrew APKINDO's market monopoly. Phasing out the other trade preferences and investment privileges granted to plywood producers has considerable merit.

Watershed Management

153. As urban demand for water increases, urban wastewater will become a larger cause of degradation of river waters (Sardjono). Urban and industrial water pollution have already had negative effects on rural economic activity. In 1992, nearly US$900 million in shrimp exports were lost because of urban-related water pollution in Java. More recently, tiger shrimp exports to Japan were found to have excessive antibiotic residues, leading the Japanese to move to alternative suppliers. Fishing is also threatened. Phosphate concentrations in the Bay of Jakarta doubled between the late 1960s and 1992, while concentrations of nitrates increased five-fold over the same period. In 1986, Indonesia established a new government department (PKT) to manage the watershed reforestation program, but PKT has operated at a very low level of effectiveness.

154. In 1996, responsibility for managing river basins was decentralized to provincial governments, and a number of river basin authorities were established, the most successful of which is the Brantas Corporation (PJT). When they function effectively, such authorities allocate water between sectors, establish operating fee schedules and water use licensing arrangements, enforce clean water requirements, impose pollution discharge fees, and allocate responsibilities for maintaining flood control structures. Water pollution and pricing problems are bound to persist, however, and one approach to ensuring more sustainable use of limited water supplies (initiated by Brantas) would be to implement integrated management in all of the nation's major river basins. In some cases, such as the Citarum basin, the existing agency will need to be strengthened. In other areas, especially in the Jakarta metropolitan zone, new agencies will need to be established. Such corporations can more effectively manage watershed basin if there is appropriate regional and water user representation in corporate management; if they have authority to levy water user and effluent discharge fees; and if irrigation, effluent cleanup, and flood control responsibilities of water basin corporations are clearly defined.
Integrated Pest Management

155. As a result of efforts to combat an outbreak of the brown plant hopper in 1986, the government banned the use of 57 insecticides on rice, phased out pesticide subsidies, and recommended adoption of integrated pest management (IPM) methods. In 1989, the government instituted a training program for extension workers and farmers on the theory and use of IPM. The IPM program started with irrigated rice and now includes secondary food crops and intensive horticulture (World Bank, 1993b). The Directorate General of Estate Crops has started an IPM program for smallholder tree crops. The use of pesticides on rice has fallen, and since rice accounts for close to 90 percent of pesticide use in the agricultural sector, this has meant a significant drop in total use. Chemical pesticides continued to be available after 1986 for non-rice crops, including secondary food crops, horticulture crops, and tree crops.

156. The government’s IPM program is generally sound and recognizes that there are appropriate roles for the full range of pest control strategies, from biological controls and IPM to biotechnology and safe chemicals. The IPM program should be extended to rice farmers in eastern Indonesia, especially in the swampland areas of new development. Since devaluation has led to a sharp increase in agro-input prices, farmers will be inclined to seek less costly approaches to pest control, and this would be a good time to intensify IPM programs.

157. Herbicide use is forecast to rise, particularly in areas where labor is scarce. The labor requirements for land preparation in swampland soils are about half as high with herbicides as without. Herbicides are also recommended in areas where minimum tillage is desirable. Herbicide use, however, raises the risk that dead weeds will serve as tinder for fires, and it destroys the habitat for insects, small mammals, and birds. The government should ensure that efforts are made to promote safe use and to monitor the effects of herbicides on the natural environment. There are safe herbicides which should be promoted in areas where weeds inhibit small-scale production. Where safe herbicide use can be substituted for the use of fire to clear land and kill weeds, the net environmental effect will be positive.

Erosion and Soil Degradation

158. As population density has increased, upland farming has progressed from low-input, low-yielding, shifting cultivation to more intensive, higher-yielding operations with clean tillage. This shift to more intensive tillage has caused a marked increase in the rate of soil loss (Arifin, 1995). Attempts have been made to introduce terracing in steeper zones, to promote zero tillage, to bring perennials into fallow rotation, and to introduce contour farming and leguminous cover crops. Some progress has been made, but the higher labor requirements and investment costs have discouraged widespread adoption of these conservation technologies. It may be possible to promote the use of contour farming with natural vegetative strips in intensively cultivated highland zones, as has been done in parts of the Philippines. In the Outer Islands, a more pro-active approach should be
adapted to reduce soil degradation and to safeguard forest margins. Agroforestry has proven to be an effective strategy for safeguarding vulnerable highland. There, multi-storyed tree-crop canopy provides protection against erosion, reduces temperature extremes, and discourages burning (ADB, 1997a). Experience gained under ICRAF's ASB program suggests that there is no single agro-forestry model that is appropriate everywhere, and that more dialogue on location-specific technology is needed. The private sector should be encouraged to form multi-species nurseries to ensure that good quality planting material is available for agro-forestry expansion (Hayami).

Coastal Resource Management

159. Indonesia has about 75,000 square kilometers of coral reefs, or 12 to 15 percent of the world's total. Within these reefs are some 2,500 species of mollusks, 2,000 species of crustaceans, and over 2,000 fish species. Cyanide poisoning, blast fishing, overfishing, sedimentation, and pollution endanger the reefs. The National Science Institute (LIPI) estimates that 70 percent of Indonesia's reefs are in poor condition. An effective framework for coral reef management would include secure user rights for coastal communities, effective prohibition of unsound fishing practices, protection against external threats, dissemination of alternative (sustainable) coral fishing approaches, and better reef management (World Bank, 1998b). Experience in the Philippines demonstrates that there are economically viable fishing technologies whose effects on coral reefs are relatively benign. There, the adoption of these techniques, together with an appropriate system of export certification, has significantly reduced the stress on the reefs (Barber and Pratt). In Indonesia, a 15-year multi-donor coral reef rehabilitation and management program (COREMAP) will put an appropriate surveillance and monitoring system in place, develop alternative (reef-based) income sources, expand fisheries laboratory capacity, and establish a network of small reef sanctuaries to allow regeneration of endangered fish species (World Bank, 1998b).
IX. THE ROLE OF THE WORLD BANK IN RURAL DEVELOPMENT

160. As Indonesia’s next Government leads the country’s emergence from economic crisis, it will face both old and new realities in establishing a strategy for rural income growth and poverty alleviation. Poverty will still be predominantly rural. On Java rural poverty alleviation will remain only partly dependent on agricultural incomes since households have diversified their sources of income while on the outer islands, and in the eastern islands in particular, incomes will mainly come from agriculture activity. Welfare improvements in these rural community will come first through increasing their agricultural productivity and sustainable natural resource management. This means a focus on the small farmer and his/her working environment.

161. The crisis has not fundamentally altered this distinction between Java and other areas. It has narrowed, but not eliminated, the gap in rural poverty between Java and the outer islands. Smallholder farmers on the outer islands are more likely to grow tree crops for which profits have risen sharply as a consequence of rupiah depreciation. Farmers on Java have not had the same profit gains on their food crop production, and have also had their off-farm incomes squeezed.

162. The Government’s rural policy during the crisis has been pushed in the direction of liberalization and decentralized management. But the sustainability of policies put in place over the past 18 months is far from assured. Decisions taken have been erratic, reflect lack of internal consensus, and pre-crisis decision-making processes and inter-ministerial roles have broken down. Food self sufficiency is being pursued by one ministry while another pursues free trade in food commodities. In villages, farmers face new options for organizing themselves since KUD have lost their primacy. Sound natural resource management is more distant than ever, with increased uncertainty over property rights resulting in conflict and increased risks of investment for the long term. The agricultural sector has managed to grow, but only marginally.

Issues, Constraints and Opportunities

163. Four priorities for the Bank in the rural sector are:

2 This section was written by Malcolm Bale and Stephen Mink.

3 The Bank’s rural strategy was reoriented beginning in the early 1990s following a 1990 Bank report on poverty which led to the 1992 sector strategy “Agricultural Strategy for the 1990s...”. There followed a series of area agricultural development projects on the outer islands: Sulawesi, Nusa Tengara, Maluku, Bengkulu. Preparation of projects on the same model in West Sumatra, Jambi, Central and South Kalimantan was underway but halted when the crisis hit.
• food security through efficient production, trade and domestic marketing;
• improved farmer access to quality input supply through reliance on market forces;
diversification and decentralization of rural institutions, particularly representative farmer organizations and public research and extension, with a focus on accountability and transparency; and
• improved natural resource management that better balances sustainable growth with conservation and with adequate treatment of land security conflicts and constraints.

164. **Food Security, Rice Policy, and BULOG.** A consistent set of policies need to be put in place that address food security, farmgate rice price stability, the appropriate level and use of public stocks, and BULOG’s future. The Ministry of Trade and Industry (MOIT) acquired oversight of BULOG, and has been a proponent of liberalization of agricultural commodity trade, ending Bulog’s non-rice responsibilities, and opening rice trade to private activity.

165. Rice production offers significant scope for growth, employment generation and productivity improvement. The immediate challenge is to craft a set of consistent rice market policies that ensure that the poor are protected within an incentives framework conducive to agricultural growth and rural development. The current debate within Government over options spans the extremes. Government could abandon price stabilization efforts, abolish the state procurement and distribution system, and rely on private trade to ensure distribution. Or it could restore Government’s monopoly of rice imports and implement a rice stabilization policy much as before 1998. There is still merit in using a floor price scheme to protect farm incomes, but this should be done so that the support is a minimum guarantee price and BULOG acts as buyer of last resort. In the medium term, other programs such as a warehouse receipt system could be developed to assist farmers manage price risk. Government should be cautious about completely abandoning its rice price stabilization objectives, however, since the world rice market is much more volatile that the domestic market, and pass-through of this volatility has welfare costs to low-income rice producers and consumers. The volume of public stocks can certainly be reduced by phasing out, through monitoring, the rice rations for civil servants. Government’s definition of its rice policy objectives will determine the path of BULOG’s restructuring.

166. In the medium term, agriculture faces a continued restructuring process of basic commodity production gradually shifting from land-short Java to the outer islands. Increasing opportunity costs of land on Java means a growing focus on higher-valued agricultural outputs marketed to the major urban centers, and inevitably, continued conversion to non-agricultural uses. Two commodities which are likely to be most affected are rice and sugar. This evolution has several implications for the public sector. First, infrastructure to support this shift will be needed, primarily in irrigation, roads, port facilities and communications for market development. Second, Government will face a basic issue of what balance to promote between large-scale and smallholder production as the basis of the production expansion on the outer islands. Past agricultural expansion on
the outer islands has had several approaches: private plantation development, transmigration schemes, nucleus estates. For the future, a greater focus on small-holder farming development is warranted, and in particular, greater reliance on inclusion of indigenous populations and their existing agricultural activities into the development approach. Regardless of the balance that is chosen, it would need to overcome social, technological and environmental constraints particular to each situation to achieve sustainable expansion. Third, strengthened provision of agricultural research and extension for the outer islands’ agro-economic situations will be critical to address the technology and environmental foundations of production. A subsidiary issue is what to do with the existing state enterprises (PTPNs) in agricultural production, primarily on the outer islands. Privatization will be a central part of improving the performance of these assets, but risks related to the policy framework and social conflicts over land rights and labor practices are immediate impediments to this approach.

167. **Agricultural Input Policy.** Agricultural productivity faces the ongoing constraint of inadequately performing input markets, mostly because of outdated public intervention. The government remains overly involved in fertilizer, seed, credit, and water delivery, particularly under the banner of self-sufficiency in food crop production. The consequences have been subsidies that distort markets and depress private sector involvement, poor timeliness of input availability, and inadequate range of product types compared with farmers’ demands. There is inadequate regulation of the quality of inputs found on the market.

168. Changes in Government policy in the direction of greater reliance on private sector delivery are the solution to the existing constraints in input supply and marketing. For irrigation water services, an agenda for strengthening water users’ associations, pricing and investment framework has been defined in the WATSAL. For fertilizer, seed and credit, a strategic path for future policy has been prepared and discussed with Government for possible inclusion in an upcoming adjustment operation. This path involves deregulation, freeing the market, and eventual privatization of the fertilizer and seed industry. Public programs are currently directing subsidized credit to agriculture that is unsustainable and hinders the development of commercial credit programs. Many small farmers, processors and traders of agricultural products have no access to formal credit markets.

169. **Institutional Foundations for Rural Development.** Diversification and decentralization of rural institutes is a top priority to promote future rural growth and agricultural productivity. There are encouraging openings after years of State control. Three institutional levels that are primarily involved are public service providers, cooperatives, and other farmer groups.

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4 In contrast, Government has taken a positive and leading role in promoting integrated pest management, providing the appropriate regulatory framework for pesticide marketing and use.
Decentralization of public services such as research and extension, which pre-dates the crisis, needs continued implementation. Better partnerships with private sector, university and NGO's, and greater responsiveness to farmers’ priorities, are two areas where decentralization will contribute. Completing these institutional reforms will remain a top priority. The Bank is already supporting decentralization of agricultural research through the Agricultural Research Management II Project. Improving the capacity of extension services, which are being decentralized to the Kabupaten level, is the focus of the proposed Decentralized Agricultural and Forestry Extension Project.

The development of dynamic, representative and empowered farmer organizations will be an essential ingredient in producing better agricultural policies and service delivery. Public sector orientation and priorities do not resonate with rural constituencies. But the absence of truly representative farming organizations has permitted this development. Rural institutions have been co-opted to the purposes of central Government. At the decentralized level, farmer organizations are needed to focus public expenditures on real needs of the farming community. At the level of commodity and sectoral policy, such organizations are needed to prevent policy reversals back to marketing monopolies and input management that served a privileged few behind a screen of purported farmer interests. A key is to lock in place legislation and regulations that promote true membership cooperatives while eliminating the privileges and controls of KUD’s improving their governance and making viable an exit strategy should they fail. At the village level continued support is needed to spread participatory setting of priorities, activity planning and implementation of relevant government projects. The Ministry of Cooperatives has in the past year supported the reduction in inter island trade regulation, the dismantling of a number of commodity trade monopolies, the elimination of the requirement that farmers be members of the local KUD, of KUDs’ local procurement monopsony privileges, and the reactivation of the 1992 cooperatives law. These are positive steps towards creating a healthy framework for cooperatives creation.

Government will increasingly be challenged to deepen its partnership with diversified farmers’ groups. These include small farmer groups in area agricultural development projects, water users’ associations, cooperatives, and village development committees (LKMD). The farming community is already organizing in small farmer groups (kelompok tani) which will be the foundation for emerging cooperatives. Government policy should promote and engage with larger farmer organizations: federations of WUA, larger cooperatives and cooperative federations, rural community development NGOs, and commodity producers’ associations. Continued effort is needed to assist these groups develop capacity and to grow in the complexity of problems they can address. This organizational terrain will be going through a fluid and transitional period, which will complicate the task of finding dependable development partners for the Government as it seeks a deeper and more interactive dialogue with rural communities.

Natural Resource Management. Indonesia’s challenge in natural resource management is to achieve a better balance between efficient economic growth and protection of environmental services provided by the natural resources. The key resources are water,
forestry and biodiversity. A cross-cutting constraint to improved resource management is better definition and security of resource rights, with land and forest resource rights being the main priority.

174. Water is a growing constraint to growth in economic activity. An increasing number of Indonesia's watersheds are confronting water quality deterioration and intersectoral competition for available quantities. Bringing economic incentives to bear on quality and allocation decisions within a strengthened regulatory and institutional framework will be critical so as to avoid water becoming a growing constraint to economic growth. This agenda is one of the axes of the WATSAL. Completing the WATSAL policy reforms for river basin management is expected to take 18 months, during which time preparation of a river basin investment operation would begin.

175. Forests are a major and contested resource. Addressing their mismanagement is important for more equitable growth, slowing degradation of the important environmental services they provide, and alleviating social conflict arising from disputed traditional rights. The recent opening to policy reform has resulted in first steps. But powerful industrial interests and an old-guard bureaucracy are obstacles to consensus on reform.

176. Indonesia's biodiversity assets are of global importance, a valuable national asset, and an important source of livelihood for local people. The current economic crisis has led to further exploitation of these resources, as poor communities often resort to harvesting timber and collection of the forest products in times of economic hardship. The Government's current decentralization policy may also have a negative impact on protected areas, given local political pressures to develop such areas for mining and other resource extraction activities.

177. Contested rights to land and forest resources and an inadequate legal and institutional framework for resolving these conflicts are rapidly emerging as major constraints to sound natural resource investment and management. Failing to address these constraints will both accelerate unsustainable exploitation of these resources for short-term profits, and dampen private investment, both small and large scale, in more sustainable resource uses. In addition, even in farming areas where rights are mostly uncontested, only a small fraction of land is properly titled, limiting both its use as collateral for credit and incentives to make productivity investments with a longer-term pay-off. Two agendas emerge, one involving land policy reform, the other involving land administration reform.

178. In support of land administration reform, the Bank-financed Land Administration Project (LAP) is supporting a first phase of an expected 20-25 year process of titling agricultural land. Effective mechanisms are being implemented, and institutional capacity and the regulatory framework strengthened, but with application so far being restricted to Java. Reformasi is bringing fundamental changes to which the Project approach would need to adapt: decentralization of land administration operations to local government, and pressure to expand activities to the outer islands where there are more complex issues of collective and traditional rights. Discussions are underway with Bappenas on the
possibility of extending the LAP closing date to permit continuation of the land certification program, and during which time the definition of a new project would be scrutinized. Apart from consolidation of what is working in the current land certification approach, the next phase of land administration would likely: (i) support the transfer of land administration functions to local government and re-engineer remaining central functions; (ii) assist Government with decentralized land management; (iii) continue systematic registration with priority for safeguarding rights at risk, targeting low income beneficiaries, and resolution of land disputes; and (iv) extend systematic land registration outside of Java.

179. Land policy reform is a more complex and contentious agenda, although one on which the Government is already moving. Long-smoldering land use conflicts are erupting in parts of many outer islands. Grievances frequently relate to the pressure on traditional land uses related to transmigration, state forestland, timber concessions, estate crop development and land use regulation. Finding mechanisms to resolve these conflicts is important because of their impacts on social stability, rural investment, natural resource use, and indigenous peoples. A longer-term, participatory process is going to be needed to develop the institutions and mechanisms capable of identifying and registering community lands in an equitable and appropriate way.

Bank Work Program Priorities

180. There are two overarching priorities improving how the World Bank does its rural development work: leveraging our existing portfolio, and improving cross-sector collaboration.

181. Maximizing learning from existing projects to build the foundations for future lending:

- Natural resource management projects (an sectoral loan for forestry)
- Using our experience with area agricultural development projects to address decentralization issues: planning and coordination by provincial and kabupaten governments; developing tools for participatory priority setting and implementation; and strengthening financial management of resource transfers to farmer groups. Thematic supervision across our area agricultural development projects would be an effective way to address these issues.
- The Java Irrigation Improvement and Watershed management Project is being supervised to provide support to the policy content of the WATSAL, and to provide a base to a subsequent return to irrigation and river basin management investment lending.

182. Strengthening cross-sectoral collaboration internally on the following priorities:

- land policy and administration, and their social, governance, environmental and fiscal aspects;
• rural poverty alleviation through participatory community development – build lessons from our area agricultural development projects, particularly the production activities, into the more flexible framework of the Kecamatan Development Project, starting with joint supervision.
• rural credit – ensure consistence with macroeconomic interest rate management, and with small- and medium-scale enterprise finance being worked on by PREM and the private sector unit.

Immediate Agenda

183. Agriculture policy: Policy reforms are needed to consolidate and address gaps in recent decisions that improve the framework for agricultural growth and development. Three areas that are under discussion with Government for potential formulation as a sector adjustment operation are:
   • maintaining food security through domestic price, BULOG and trade policy;
   • improving the efficiency of key farm factor markets: fertilizer, seed, credit;
   • reorienting agricultural cooperatives.

184. Finalization of the policy package will be concluded with the next Government. USAID is playing a major role on rice policy and the ADB may take some initial steps with Government on small and medium enterprise credit policy; we are collaborating with both these efforts.

185. Water: A comprehensive irrigation and river basin management program will emerge from the water sector adjustment loan. A 12-18 month phase that encompasses policy, legislative, regulatory and institutional reforms would create a framework that justifies a return to future lending for separate irrigation and river basin investments operations. Work could begin on either in FY00. Both are amenable to donor partnership and co-financing, and work is well advanced to develop this coalition that includes Canadian, Dutch and Japanese bilateral aid, as well as the ADB.

186. Forestry: In forestry there is the possibility for fundamental policy reform. A three phase agenda for World Bank assistance is proposed: (i) a period of 6-8 months of intensive consultation with stakeholders on sector strategy and forthcoming changes to policies and regulations (ii) maintenance of policy reform momentum, based on the consultative process, through development and strengthening of the policy and regulatory measures initiated in earlier loans; and (iii) a later decisions on an adjustment operation followed by investment activities (possibly including a major GEF project supporting community involvement in decentralized protected area management.

187. Land: The priority on land administration is to decide how to best bring the Land Administration Project (LAP) to a close and move on to the next phase of the long-term program. A mid-term review (MTR) is scheduled for September 1999 to assess the direction of the project in light of the major changes in land policy environment and
institutional setting since the project was launched. It would be preceded by a social assessment to measure: (i) the impact of project activities on land holders in project areas; and (ii) the appropriateness of the project design in addressing emerging land conflicts. Where there are conflicting claims, particularly over the validity of adat rights, the Bank can contribute uniquely in several ways to finding answers. We can: (i) facilitate learning from other countries that have made progress on recognizing traditional land rights; (ii) catalyze the negotiation with all stakeholders of benchmarks and a timeline for adat rights recognition with respect of other land titling; (iii) co-sponsor some pilots together with BSP and the USAID/GTZ mapping group; and (iv) use the Learning Center to train and deploy land lawyers to work with local communities to assert local claims.

188. **Decentralization and rural institutional development.** Immediate work in this area will focus on research, extension and irrigation service delivery. Vehicles will be the ongoing Agricultural Research Management II Project, the Decentralized Agriculture and Forestry Extension Project and the water users’ association action plan of the WATSAL. Several aspects of cooperatives policy may also be addressed through agricultural adjustment policy lending.

189. **Biodiversity conservation** is an objective of our activities and a focus in three of our existing projects. These include national coral reef management (COREMAP), biodiversity cataloguing and documentation (Biodiversity Conservation Project) and integrated conservation and development (Kerinci-Seblat). Three additional projects are at advanced stages of preparation: a Maluku Maconar project (LIL) and two medium-sized grants for an elephant habitat conservation project and support for Berbak-Sembilan National Park. This portfolio has effectively mobilized Global Environmental Facility grant resources (preparation budgets are also additional to BB resources), and are pursuing objectives and mechanisms that were sharpened through the ESW on integrated conservation and development completed in 1998. We will continue to support policy work on biodiversity through an update of the Biodiversity Action Plan, recently requested by Bappenas.
BIBLIOGRAPHY


ADB. (1997a). *Agriculture and Environmental Sustainability* (draft). Study B-5 under project ADB TA 2660-INO.

ADB. (1997b). *Ways in which Small Scale Farmers and Other Rural Dwellers can be brought into the Process of Policy*. Study B-4 under project ADB TA 2660-INO.

ADB. (1997c). *The Implications of Technology Change* (draft). Study B-2 under project ADB TA 2660-INO.

ADB. (1997d). *Constraints on, and Opportunities for Further Growth in Agriculture* (draft). Study A-2 under project ADB TA 2660-INO.


Darmawan, Delima (1999), *Future Direction of Rice Policy in Indonesia*, Prepared for the Round Table Discussion of Indonesian Rice Policy, Ministry of Agriculture, Jakarta.

Dawe, David (1999), *Rice Price Stabilization in the Philippines and Indonesia*, draft, IRRI.


Jusuf, Gellwynn and Rokhmin Dajuri (1999), *The Impact of Economic Crisis on Fishery Subsector: Challenges and Opportunities,* CASER, Bogor.


Pranolo, Tito (1999), Kebijaksanaan Beras di Simpang Jalan, Prepared for the Round Table Discussion of Indonesian Rice Policy, Ministry of Agriculture, Jakarta.


Short, Cameron (1999), Future Direction of Indonesian Rice Pricing Policy, Prepared for the Round Table Discussion of Indonesian Rice Policy, Ministry of Agriculture, Jakarta.


Sumodiningrat, Gunawan (1999), Economic Stabilization and Social Safety Net: Achieving Public Prosperity, Paper prepared for the International Seminar:
Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions,” held by the Center for Agro-Socio Economic Research, 17-18 February 1999, Bogor.

Tabor, S.R. (1997b), Macroeconomic Distress: Boon or Bust for Indonesia’s Food and Agriculture Sector, Presented at the Indonesian Society of Agriculture Economics (PERHEPI) and the Center for Agriculture Policy Studies Seminar on the Macroeconomic Situation and Agriculture, November 21, 1997, Kartika Chandra Hotel, Jakarta, Indonesia.


Tabor, S (1999b), The OPK Program: Options for Reform, prepared for the Ministry of Food, Jakarta.


Warr, Peter G. (1999), Indonesia’s Crisis and the Agricultural Sector, Prepared for the CASER Seminar on Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions, Bogor.


