

GLOBAL MARKETS, FARMERS AND THE STATE: SUSTAINING PROFITS IN THE INDONESIAN COCOA SECTOR

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The rapid expansion of cocoa farming among Sulawesi smallholders since 1980 has transformed the island into a hub within the global cocoa industry. It hosts a number of multinational trading firms and has an expanding grinding sector. In recent years, however, the cocoa sector has been struck by severe pest, disease and quality problems, which are undermining the long-term sustainability of one of Eastern Indonesia's most important rural industries. Some form of intervention is needed if the cocoa industry is to avoid steady decline. This paper examines the role of informal institutions, cocoa multinationals and government in attempts to maintain farm profits in Sulawesi.

IS COLLAPSE OF THE SULAWESI COCOA SECTOR INEVITABLE?

William Clarence-Smith and François Ruf (1996: 1) identify the basic problem of cocoa economies as 'their need for fresh supplies of primary forest to maintain themselves'. Cocoa cultivation over the last 200 years has been characterised by the emergence of 'pioneer fronts', as migrant farmers carve out swathes of primary forest to establish new production centres. According to this model, migrant farmers initially benefit from a 'forest rent', associated with good soil fertility and low levels of pests and disease. This 'rent' declines over time, and the pioneer front experiences falling productivity, declining farm profitability and eventually industry collapse. An edited collection by Clarence-Smith (1996) charts the emergence (and frequent collapse) of cocoa pioneer fronts from the Maya lands of pre-Columbian America through Venezuela, Ecuador, Ghana and Côte d'Ivoire. More recently, Ruf and Yoddang (2001) have described how Sulawesi is exhibiting classic symptoms of such a boom and bust cycle. Current initiatives by industry actors, international development agencies and the Indonesian government to sustain cocoa farm systems in rural Sulawesi must therefore strive to address this 'basic problem of cocoa economies'.

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TABLE 1 *Major Cocoa Bean Exporting Countries*
(‘000 tonnes, 2000–04 average)

Country	Quantity
Côte d’Ivoire	1,008
Ghana	400
Indonesia	309
Nigeria	196
Cameroon	89
Ecuador	59
Papua New Guinea	38

Source: FAOSTAT (2007).

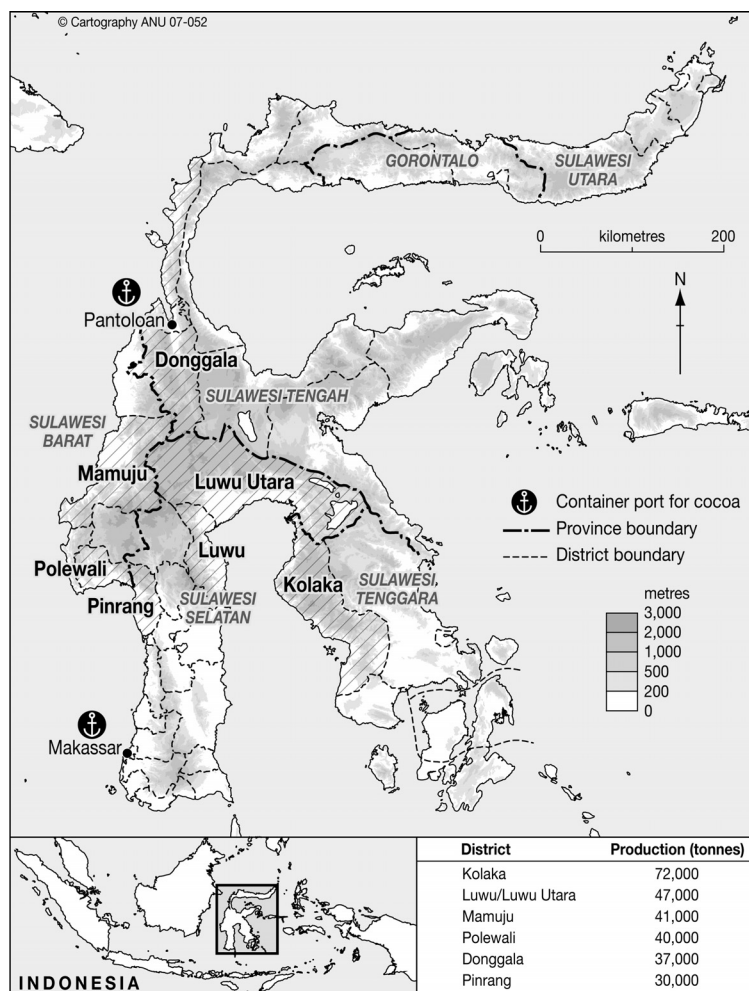
Rapid cocoa expansion in the 1980s and 1990s saw Indonesia become the world’s third largest exporter of raw beans by the end of the century (table 1). Production is dominated almost overwhelmingly by smallholders, and contributed a peak sum of \$521 million to export earnings in 2002 (FAOSTAT 2007). About half of these beans (some 200,000 tonnes) were exported from the Sulawesi port of Makassar which, 25 years earlier, was exporting only 30 tonnes annually (BPS 2004). Major centres of production on Sulawesi, accounting for more than two-thirds of national production (table 2), are found in the districts of Kolaka, Luwu/Luwu Utara, Mamuju, Polewali, Donggala and Pinrang (figure 1). Sulawesi cocoa farmers had a boom year in 1998, because the Asian financial crisis was followed by the uncontrolled devaluation of the rupiah which, coupled with

TABLE 2 *Indonesian Cocoa Production by Province (2002)*

Province	Share of Total Production (%)
South Sulawesi ^a	42.0
Southeast Sulawesi	15.1
Central Sulawesi	10.6
North Sumatra	9.2
East Kalimantan	4.0
North Maluku	2.8
Papua	2.5
East Java	2.9
Others	10.9
Total	100.0

^a Data combined with West Sulawesi province.

Source: Dirjen Bina Produksi Perkebunan (Directorate General of Estate Crops) (2004).

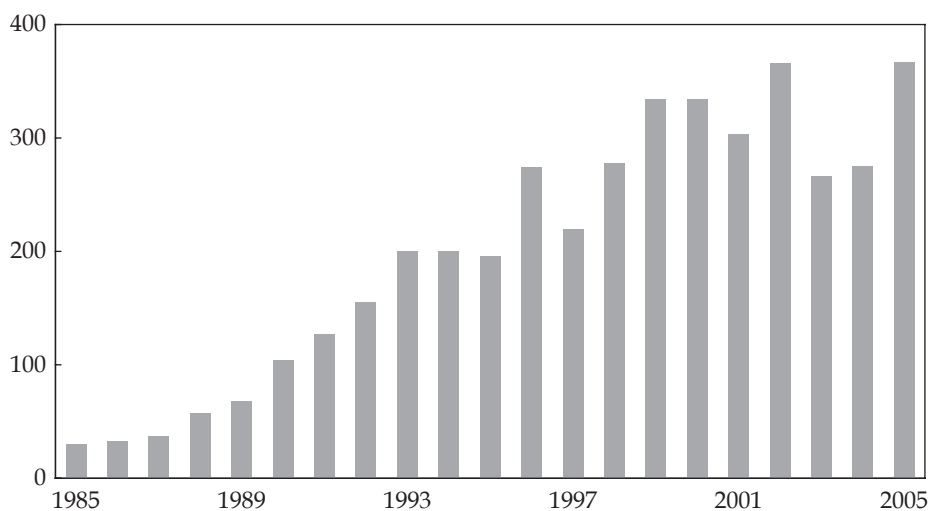
FIGURE 1 *Sulawesi Cocoa Production Areas*

Source: Production figures: Dirjen Bina Produksi Perkebunan (Directorate General of Estate Crops) (2004).

strong international demand, meant that farmers received up to Rp 25,000/kg for semi-dried cocoa beans (Ruf and Yoddang 2001), compared with an average of Rp 8,000/kg in 2005 and 2006 (based on field observations by the author). Moreover, most trees were at a productive age in 1998, with low levels of pests and disease, and relatively little crop maintenance was required. The euphoria was short-lived, however. Pest infestations led the volume of Indonesian cocoa exports to decline abruptly in 2003 and 2004 (figure 2), recovering only to 2002 levels in 2005. This raised serious questions about the future growth potential of the sector.

The primary threat to the long-term sustainability of the Sulawesi cocoa sector is an insect pest, the cocoa pod borer (CPB). By 2000, CPB had spread to most major growing regions across Sulawesi, and was causing significantly reduced yields and deteriorating bean quality. The World Cocoa Foundation (2006) estimates that

FIGURE 2 *Growth in Cocoa Bean Exports from Indonesia (1985–2005)*
(‘000 tonnes)

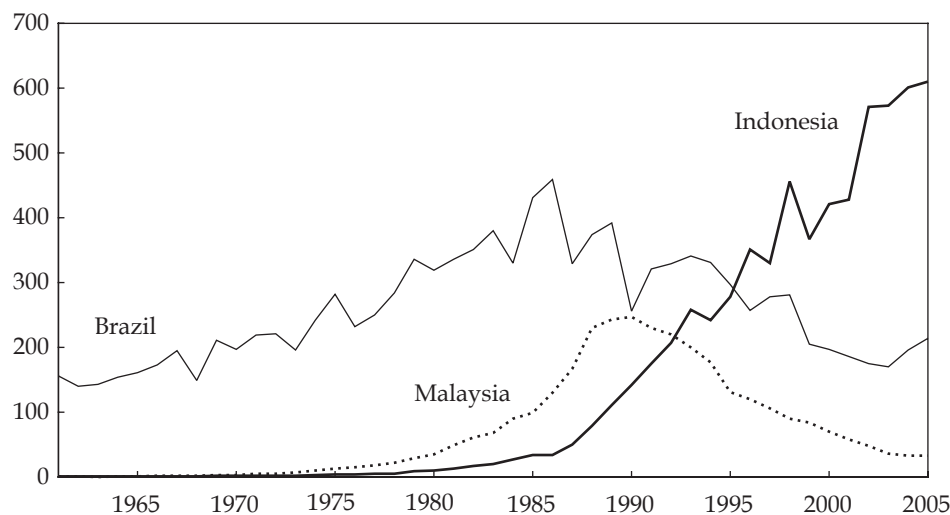


Source: As for table 1.

financial losses due to CPB across Sulawesi in 2005 were \$290 million, with a further \$60 million lost in quality discounts. The substantial costs of managing the pest at the farm level, and the increasing quality discounts applied in the market, have seriously eroded farm profits and are leading to declining smallholder interest in cocoa. The concern, therefore, is that Sulawesi cocoa farms have exhausted their ‘forest rents’ and that, after widespread conversion of forest lands to cocoa, the region’s cocoa sector is now on the brink of serious decline. It is clear that some form of intervention is required for it to remain globally competitive. In particular, intervention is needed to address technological issues related to pest management, information dissemination to improve farm practices, and enhanced supply chain efficiency to ensure that farmers are appropriately rewarded for quality production. Left to market forces alone, the ‘mining’ of cocoa regions will in all likelihood continue unabated across tropical frontiers until all potential cocoa lands have been physically exhausted.

There is unease, particularly among chocolate manufacturers, that a global ecological threshold for cocoa production is fast approaching, and that future supplies are by no means assured. Figure 3 shows the recent spectacular crashes of the national cocoa industry in Brazil, due to Witches Broom disease in the late 1980s (caused by the fungal pathogens *Crinipellis perniciosus* and *Moniliophthora roreri*), and then in Malaysia in the 1990s, due primarily to CPB. Chocolate manufacturers are also aware of the potential risks to brand reputation of being reliant on a rural supply base that systematically depletes tropical forest resources (and which faces allegations of labour abuse). A final complicating factor for future cocoa supplies is the concentration of production in politically volatile West Africa. Four countries (Côte d’Ivoire, Ghana, Cameroon and Nigeria) account for 64% of world production, with war-torn Côte d’Ivoire alone being responsible for 34% (FAOSTAT 2007). Even if we assume that Sulawesi cocoa farmers could effortlessly convert

FIGURE 3 *The Rise and Fall of Cocoa Production in Brazil, Malaysia and Indonesia ('000 tonnes)*



Source: As for table 1.

to other commodities—and there are few other crops suited to local conditions and offering the same flexibilities and reliable market access as cocoa—the future of the world cocoa-chocolate complex requires that sustainable sources of cocoa be established.

This paper looks at what possible role government might play in sustaining smallholder profits and preventing sectoral collapse. The Indonesian government has hitherto adopted a 'hands-off' approach to industry development, and this has allowed space for smallholder dynamism and a highly competitive marketing system (Akiyama and Nishio 1997). The impending 'crisis' in the sector, then, is presented in this paper as a combination of market imperfections related to research and extension, quality control and supply chain inefficiencies. The potential role of government in addressing these failures is substantially altered by the specific demand-side dynamics of the global cocoa industry, which have led to the close involvement of multinational cocoa companies in Indonesian production sites. The best role for government, therefore, would seem to be providing a supportive framework within which internationally driven interventions have a greater chance of sustaining farm profits.

The following section of the paper presents a background to smallholder agricultural development in Indonesia and specific problems related to tree crops, and outlines previous government approaches to these problems. The study assesses the impending crisis in the cocoa industry within this context, highlighting the limitations of a free-market approach. The paper then charts the emergence of new, globally coordinated organisational responses aimed at establishing an environment conducive to the long-term sustainability of the Sulawesi industry. Importantly, these responses increasingly necessitate, as a minimum, the cooperation of government authorities. The final substantive section of the paper discusses recent policy debates in Indonesia over heightened state involvement in the

cocoa industry. The primary challenge for government lies in the need to mediate between the increasing trend towards global interventions and a smallholder production base set within a sphere of traditional production and trade.

THE ROLE OF GOVERNMENT IN INDONESIAN AGRICULTURAL EXPORTS

Indonesia has been a major agricultural exporter since the 19th century, when world demand for various tropical commodities soared. Agricultural exports from Indonesia expanded rapidly under the forced deliveries of the *cultuurstelsel* (Culture System), which began in 1830 on the island of Java, primarily for sugar, indigo and coffee (Booth 1988). The Agrarian Law of 1870 opened up considerable areas of land for commodity production by private enterprise, resulting in the rise of a commercial plantation economy, along with a modern physical and financial infrastructure. Again, this growth was concentrated initially on Java, but then expanded to the outer islands and the east coast of Sumatra in particular. Expansion of smallholder agricultural exports had to wait until the period 1900–40, when rapid export growth occurred in the outer islands (Geertz 1963). Barlow and Tomich (1991) have shown how, during this expansion, tree crops such as rubber, coffee, cloves and coconut were easily inserted into the traditional shifting cultivation systems common to the outer islands. Importantly, the expansion of smallholder production of these crops was due to an increase in the area under cultivation, rather than to improved management techniques or intensification. By the end of the colonial period, estates and smallholders in Indonesia were producing roughly equivalent volumes of agricultural exports (Booth 1988).

The agricultural export economy, both its estate and smallholder sectors, stagnated during the immediate post-independence period, owing in part to a policy bias against exports by way of taxation, with the nationalisation of former Dutch-held estates in 1957 further contributing to industry decline (Mackie 1961). Very little official assistance was provided to smallholders (particularly export-oriented tree crop farmers) during this period, until agricultural development strategies changed significantly in the 1970s. The years 1978–86 were characterised by a high annual agricultural GDP growth rate of 5.7%, driven primarily by political intervention in national food security (Timmer 1996; Arifin 2005). This intervention was built on a three-fold approach: investment in rural infrastructure; dissemination of 'green revolution' technologies; and pricing policies managed by the national logistics agency (Bulog). While input subsidies under this policy were frequently transferred to the tree crop sector, the government used a rather different approach to stimulate development of export agriculture in the 1970s and 1980s. Its principal vehicle was the various 'block schemes' (Barlow and Tomich 1991).

Under these schemes, intensive and costly supports were provided to producers living within selected areas, and to smallholders surrounding nucleus estates. The nucleus estate model was a pillar of smallholder agricultural export development from the 1970s until support officially ceased in 2001, by which time an estimated two million people on 900,000 hectares had been affected by the schemes (Zen, Barlow and Gondowarsito 2005). Smallholder export agriculture was also targeted in other large government projects such as the Plantation Development in

Special Areas (P2WK) project, the Rehabilitation and Expansion of Export Crops (PRPTE) project, the Smallholders' Rubber Development Program (SRDP) and the Tree Crops Smallholder Development Project (TCSDP). Outside the Program Management Units (PMUs) through which these projects were implemented, limited government resources were available to support agricultural extension and research for smallholder export crops.

For the most part, Indonesian tree crop farmers have benefited more from supportive trade and taxation policies than from specifically designed development policies (Booth 1988). The expansion of agricultural export production, including cocoa, in the 1980s was stimulated by a supportive macroeconomic environment, especially low inflation and the competitive exchange rate following the 1986 devaluation of the rupiah (Akiyama and Nishio 1997). More recently, Ruf and Lançon (2004) have argued that a 'hidden' green revolution has taken place among tree crop farmers in Indonesia, initiated not by deliberate government policy but by technological innovation among the farmers and traders themselves.

The New Order government viewed farmer organisation with extreme suspicion, and almost the only farmer associations were those mobilised as political vehicles by the authorities. Despite official rhetoric about national economic development built on *pancasila* principles (the five principles of the state ideology), and an economic base of producer cooperatives, farmer groups were unable to evolve as meaningful economic actors. The village cooperatives (KUDs) were highly politicised, such that genuine farmer movements were given little space to develop. Moreover, Indonesia had an unfortunate history of state intervention in agricultural supply chains, based largely on the mistaken premise that traditional trade networks were unnecessarily extended and inefficient. The establishment of state marketing boards and local trade monopolies was common practice towards the latter half of the New Order period. Examples of such intervention include the marketing of citrus through KUDs in West Kalimantan, the channelling of unprocessed cashew nuts to high-cost local factories in South Sulawesi, the mandatory sales of cloves (used mainly by domestic cigarette factories) to a Clove Support and Marketing Board (BPPC), and tea factories being granted exclusive rights to areas of smallholder tea in West Java (Montgomery et al. 2002). Perhaps the most extreme case of state control over an agricultural commodity is the sugar industry, which is still suffering from government intervention in production, marketing and trade, effectively crippling a once lucrative export industry. In virtually all cases, the thinly veiled objective of these policies was to generate exclusive rents for business cronies of the regime, often as political favours; this resulted in depressed farm-gate prices and increased prices at destination markets.

Indonesia's most valuable agricultural export crop, palm oil, has also been subject to various government controls, such as a set domestic allocation price, export restrictions and an export tax. Ostensibly, the aim of these interventions was to guarantee adequate domestic supplies of cooking oil, considered an essential commodity in Indonesia. The overall effect, however, has been to generate lucrative profits for a small number of nationally owned cooking oil manufacturers, and a long-lasting negative impact on industry competitiveness (Hasan, Reed and Marchant 2001). The apparent re-emergence of protectionism in recent years, as Soesastro and Basri (2005) argue, is a worrying turn of events.

As a relatively new export crop, cocoa does not have long-established institutional structures and deeply entrenched business interests, and it has not been affected by a history of government intervention, marketing controls or excessive taxation. This, almost certainly, has led to its rapid adoption by Sulawesi smallholders, and the flawed experience of various other commodities outlined above should provide some insights for the effective future development of the cocoa industry. Clarence-Smith (1995: 157) argues that 'logical economic reasoning further counsels that the key role of the state in a cocoa economy should be to strive to guarantee the existence of an open and competitive marketing channel'. A 'hands-off' approach to industry development also has its limitations, however. A number of market imperfections in the industry are affecting farm profits. The ability of government, international agencies and industry actors to deal with these effectively will determine whether cocoa farming will be profitable into the future.

MARKET INSTITUTIONS AND IMPERFECTIONS IN THE SULAWESI COCOA SECTOR

Stimulating technological change through research and extension

On various trial sites, commercial estates and research stations, it has been shown that CPB can be effectively managed through improved farm practices. High-quality (though not necessarily high-technology) agronomic research is critical to providing farmers with the knowledge required to overcome pest problems and improve farm productivity. For the most part, Indonesian cocoa farmers do not have access to a reliable research and extension complex.

Before the 1980s boom, Indonesian cocoa production was concentrated on government estates (PTPNs) in East Java and North Sumatra, with research activities linked to the Indonesian Coffee and Cocoa Research Institute (ICCRI) at Jember in East Java. While ICCRI has a government mandate for research into issues of relevance to the national cocoa industry, it is effectively operated as a private research institute. Approximately 76% of ICCRI income is self-generated through provision of various industry services such as supply of improved genetic material (mainly through government contracts), consulting, and post-harvest technologies, with a further 17% of income coming from PTPN contributions (APPI 2003). Notably, the Indonesian Cocoa Association (Askindo), which administers a government-mandated export levy,¹ does not contribute financially to research activities at ICCRI.

Regional Estate Crops offices (Dinas Perkebunan, or Disbun, under the Directorate General of Estate Crops) are responsible for delivering agricultural extension to Indonesian cocoa farmers. However, Disbun have never developed effective extension capacity for smallholders outside the so-called 'block schemes'. Instead, agricultural knowledge in cocoa has been transferred mainly through informal social networks rather than government agencies. The 1999 regional autonomy law has further contributed to increased uncertainty about the role and function of

1 This levy is currently set at Rp 30 per kilogram of cocoa beans exported, implying an annual income for Askindo in 2005 of approximately \$1.2 million.

extension across Indonesia, with responsibility shifting to the district level. On the ground, the effect of regional autonomy has been a dwindling number of active field staff with skills specific to tree crops, and the increasing expectation that agricultural field staff with rice-specific expertise will also be responsible for tree crop development. The role of the regionally based Balai Pengkajian Teknologi Pertanian (BPTP, Agricultural Technology Assessment Agency) has increased in strategic importance over the last decade as an 'adaptive' assessor and provider of appropriate agricultural technology, with varying degrees of success in cooperating with Disbun extension providers. The quality of extension received by farmers has become highly variable across districts, and is increasingly divorced from central research institutes.

Ruf and Yoddang (2004) have commented on the largely spontaneous adoption of pesticides by Indonesian cocoa farmers: by 2005, most farmers who could afford to were using chemicals to control CPB. There is little effective regulation of the type and quality of chemical pesticides being sold in Sulawesi, and salesmen aggressively market cocoa-specific products to farm communities. Fraudulent product claims and adulteration are widespread in this environment. These distributors also commonly provide information to farmers about chemical usage and crop maintenance, and frequently interlock credit, agricultural inputs, extension and marketing. Despite widespread use of pesticides among Sulawesi cocoa farmers, Disbun officers lack the technical expertise to advise them on responsible chemical use, and have suffered a loss of credibility within the community. The widespread use of unregulated chemicals is a continuing cause for concern in the sector.

Problems related to agricultural research and extension in Indonesia are not confined to the cocoa sector. The World Bank and the government are discussing ways to address these deficiencies through a recently approved \$100 million project: 'Farmer Empowerment through Agricultural Technology and Information' (World Bank 2006). Real expenditure on public agricultural research in Indonesia is only 0.3% of agricultural GDP, one of the lowest shares in Asia – in China the share is 6% (World Bank 2006). The traditionally state-led initiatives in research and extension have not evolved with the rapid expansion of cocoa production in Sulawesi; nor have appropriate private sector institutions emerged to meet these needs satisfactorily.

Rural credit markets and competition

The work of François Ruf has focused on village-level factors contributing to cocoa adoption in the 1980s (Ruf, Ehret and Yoddang 1996; Ruf and Yoddang 1998, 2001; Ruf and Lançon 2004). Despite the centrality of 'forest rents' to his model of cocoa pioneer fronts, Ruf also emphasises that access to forest lands constituted only one of a number of components that coalesced to trigger the Sulawesi cocoa boom. In particular, the cultural and social characteristics of Sulawesi's Bugis people were considered pivotal, including migration patterns, trading acumen, ability to transfer 'green revolution' technology from rice production, and the existence of informal institutions within Bugis society (refer also to Jamal and Pomp 1993). The traditional homeland of the Bugis is the relatively densely populated southwestern peninsula of Sulawesi, and it is this ethnic group that has been primarily responsible for cocoa expansion across the frontier regions of Sulawesi (figure 1).

TABLE 3 *Average Yields of Major Cocoa-producing Countries (2005)*
(kg/ha)

Country	Yield
Indonesia	1,245
Côte d'Ivoire	700
Ecuador	546
Papua New Guinea	429
Ghana	391
Nigeria	344
Cameroon	321

Source: As for table 1.

The Bugis possess a widely recognised propensity for migration and establishment of agricultural colonies (Pelras 1996). Many Bugis farmers worked on productive Malaysian cocoa plantations in the 1970s, and later transferred skills learnt there to cocoa plantings in Sulawesi.

A reliance on family-related labour, knowledge and credit networks further allowed the Bugis colonies to develop as some of the most cost-effective cocoa producers in the world. By the 1990s, Indonesian cocoa producers had a far lower ratio of production costs to producer price (30%) than all other major cocoa-producing countries (Haque 2004). In comparison, costs of production were calculated to *exceed* farm-gate price in Brazil, Ghana and Nigeria. In 2005, it was estimated that the average yield of Indonesian cocoa farms was still the world's highest (table 3).

The development in the Bugis pioneer fronts of informal economic arrangements such as sharecropping, land pawning and heavily interlocked markets provided an important means for generating supply chain efficiency. Indeed, flexible institutions such as sharecropping have been identified elsewhere (Austin 1996) as a key reason why cocoa smallholders in Ghana were able continually to out-compete European-owned plantations during the colonial period. In Sulawesi, village traders (often linked to growers through ethnic and family ties) provided capital, genetic material, inputs and knowledge to encourage pioneer farmers. The ability of these institutions to reduce transaction costs contributed to a relatively efficient supply chain in Sulawesi, where farmers received a high share of the f.o.b. (free on board) price. This share has been variously estimated at 80–90% (Akiyama and Nishio 1997; Ruf and Yoddang 2001; Freeriks and Kusuma 2004; Panlibuton and Meyer 2004).

The Sulawesi cocoa value chain can be quite extended, with informal networks linking farmers to village collectors, middlemen, traders and eventually exporters and grinders in the main ports of Makassar, Kendari and Pantoloan (in the city of Palu). Price information is effectively accessed by provincial traders and even by village-level collectors. Indeed, it is not exceptional for collectors to monitor prices in New York and London via television reports, the internet

or mobile phone networking, and to translate these daily into local offers to farmers. However, it is unclear how well this 'highly competitive and efficient' marketing system extends to the exchange between farmer and village collector. Fieldwork in Sulawesi during 2005 and 2006 found that the price received by cocoa farmers varies considerably among individuals in a particular area, and across different villages, and apparently correlates with the level of dependence on money-lending village collectors, widely referred to as *tengkulak*.² McLeod (1978) has emphasised the three principal services offered by such middlemen to farmers: product marketing, money-lending and merchandising. These informal credit providers collect 'interest' through reduced farm-gate prices, and even attain moral legitimacy in the community by avoiding application of direct interest rates to loans, considered *haram* (forbidden) by strict interpretation of the Islamic Koran. The pioneering work by Dewey (1962) and Alexander (1987) on the role of traditional trade networks in facilitating trade across rural Indonesia also emphasises services middlemen perform for producers. This body of research (see also Hoff, Braverman and Stiglitz 1993) highlights the inability of formal credit institutions to compete satisfactorily with informal credit markets in many developing rural economies.

While not denying these observations about the services offered through informal credit markets, it is pertinent to recognise the shortcomings of *tengkulak*-dominated supply chains (without necessarily advocating government intervention in the provision of subsidised credit). In particular, interlocked markets can nullify the effects of competition on prices at the farm level. While numerous village collectors may be actively buying cocoa in a particular village, individual farmers are not necessarily free to sell their produce wherever they please, because of prior loans. This effect on competition brings into question a common claim made about the Sulawesi cocoa chain: that intense competition exists among buyers at the grower level. Price information used in many analyses may have relied on prices paid at relatively accessible sites, where the level of dependence on *tengkulak* is lower than in more remote farming locations. As a result, the actual share of the export price received by farmers may be considerably lower than the 80–90% quoted above. A report prepared by the International Finance Corporation (IFC-PENSA 2003) suggests that a more accurate figure may be as low as 57%. Interlocked markets also tend to discourage appropriate incentives for quality production, as farmers are virtually guaranteed a market for their cocoa. Further detailed research is needed at the farmer level on the nature of interlocked markets in Sulawesi to obtain an accurate assessment of price transmission and supply chain efficiency, and to identify the form of any appropriate intervention.

The vexed question of quality standards

With the exception of larger commercial estates on Java and Sumatra, Indonesia produces unfermented cocoa, known in the industry as FAQ (free air quality).

2 The slightly derogatory designation '*tengkulak*' refers to collectors using interlocked markets (through credit provision) to ensure an exclusive supply relationship with small farmers. Unlike most banks, the *tengkulak* accepts cocoa pods on the tree as collateral against a loan. *Tengkulak* are often tied to the farmers by social and family relationships as well as economic ones.

In many cocoa-producing countries, cocoa beans are conventionally fermented for up to five days in wooden crates to develop desirable flavours. Sulawesi smallholders, however, do not generally ferment their cocoa. FAQ cocoa from Sulawesi beans already receives a discount on world markets and, because of inherent characteristics of the cocoa varieties commonly planted in Sulawesi, it is never likely to be a premium-quality product. CPB infestation has exacerbated quality discounts, as CPB-affected pods produce flat, clumped or undeveloped 'placenta' beans. Increasing levels of waste are thus being traded along with poor-quality cocoa in Sulawesi, and domestic processors are claiming that the beans are virtually unusable in their grinding operations.

The Indonesian government sets national export quality standards for cocoa beans, as it does for various other products. All cocoa bean exports are legally required to have third-party certification by registered surveyors. However, it is widely acknowledged that Indonesian National Standards (SNI) are rarely met. Enforcement of the export standard has become an awkward political issue, with intermittent political commitments to monitor enforcement. But the government has hitherto been reluctant to prevent sub-standard exports when a global market continues to exist for poor-quality cocoa. As Ruf and Yoddang (1998: 173) put it: 'After all, is a low price not the essential "quality" demanded by industry, which is always ready to adapt to decreasing costs?'

The processing of cocoa beans involves grinding and pressing the roasted beans to produce a number of intermediate products, including cocoa liquor, cocoa butter and cocoa cake or powder. Much of the value resides in the cocoa butter component, and in many ways the cocoa powder is a saleable by-product of butter processing. This is particularly true for Sulawesi cocoa, which is valued almost entirely for its butter content, a relatively undifferentiated product in the world market and one not significantly affected by fermentation. Sulawesi cocoa powder and liquor (where flavour characteristics are more important) are of very poor quality and difficult to sell on the world market. Domestic processors, facing a severe shortage of locally available high-quality cocoa, find it difficult to operate profitably, with mounting stockpiles of cocoa cake and powder. Unfermented and poor-quality cocoa is less of a problem for whole bean exporters; they continue to find buyers in the international market where, through technological and organisational developments, both the European and US grinding sectors have adapted to poorer-quality cocoa beans (Fold 2001).

The decline in quality can therefore be considered primarily a concern for the domestic processing sector. It argues that the unrestrained flow of poor-quality beans into the world market sends the wrong signals to traders and growers, who have no incentive to maintain basic quality standards. Lobbyists from the processing sector continue to press not only for enforcement of the existing export standard but also for a ban on non-fermented cocoa exports. It is tempting to dismiss calls for the enforcement of export standards simply as an attempt to ensure that cheap inputs are channelled into local grinding operations. However, a major role of institutions in a society is to reduce uncertainty in human interaction (North 1990) and, as Bennett and Hasan (1993: 1) argue, 'the principle export quality problem is not low quality per se but uncertain quality'. The inconsistent application of the export standard has probably led to higher transaction costs (through increased monitoring by importing firms), which in turn tend to drive

down prices in the producing country. The solution is not, however, to prevent exports of poor-quality cocoa – which, as argued elsewhere for coffee by Bennett and Godoy (1992), can actually fuel a cycle of deteriorating quality. Rather, expansion of the number of allowable SNI grades would reduce incentives for surveyors to falsify conformance certificates.

In a discussion of global change in agri-food grades and standards, Reardon et al. (2001) similarly argue that poor grades and standards in developing countries cause a drag on business adjustment and flexibility, exacerbating transaction costs and risk along the supply chain. Difficulties exist in monitoring cocoa quality throughout the supply chain in Sulawesi, and the uncertainties this creates lead buyers to impose a cost on all suppliers, such that producers of good-quality cocoa are not differentiated through price incentives from producers of poor-quality cocoa.

In summary, the ‘hands-off’ government approach provided a suitable institutional setting for small farmers in Sulawesi to capitalise on conditions in the global cocoa economy and access to forest lands. Building on various cultural institutions, Bugis smallholders accessed informal credit and knowledge networks that allowed the development of cost-effective and reasonably efficient cocoa supply chains. However, formal institutions to enforce export standards, and to support the industry in areas such as research, farmer access to finance (through the formal sector), and extension provision, did not develop in the cocoa sector. Informal mechanisms emerged to address some of these requirements, such as credit and extension, predominantly through the services offered by tengkulak middlemen, input providers and social networks. It is questionable how effective these have been, in the long term, in encouraging sustainable farm practices, maintaining farm profits and rewarding quality producers appropriately. However, existing incentive structures are unable to respond effectively to the challenges the sector now faces, challenges that have been precipitated by CPB infestations.

GLOBAL INTERVENTIONS IN SULAWESI COCOA

The lack of state involvement in addressing market imperfections has created space for interventions coordinated by an assortment of global cocoa actors. Multinational chocolate manufacturers have been at the forefront of such interventions, in an attempt to restructure farmer incentives and so maintain a sustainable supply base.

A global institutional architecture for regulating the cocoa trade was established in 1973, through the International Cocoa Organization (ICCO), to administer the first International Cocoa Agreement (ICCA). From 1972 to 1988, the ICCAs implemented economic clauses that allowed for maintenance of an international buffer stock and specified floor and ceiling prices. However, following the deregulatory trends of the 1980s, the economic clauses were removed and the two subsequent ICCAs emphasised production management by exporting countries (in 1993) and a mandate for a ‘Sustainable World Cocoa Economy’ (in 2001). The primary role of the ICCO, as an inter-governmental organisation, is to provide a forum for the coordination of various international cocoa development projects, frequently directed at pest and disease problems. However, Indonesia is not a member of the ICCO at the time of writing, and is generally excluded from these activities.

Neither is the United States (historically Indonesia's most important buyer) an ICCO member.

More influential than the ICCO in Indonesia have been a number of non-state global actors such as the World Cocoa Foundation (WCF). The WCF was established in 2000 as a US-based private sector initiative whose membership includes nearly 60 cocoa-related companies worldwide. The stated mission of the WCF is to 'promote a sustainable cocoa economy through economic and social development and environmental conservation in cocoa growing communities'.³ The WCF was a key supporter of the *Success* and *Success Alliance* programs in Sulawesi, described in the following section.

A globally coordinated extension service

In an environment of minimal state support for efforts to address the public good problems of research and extension, the international cocoa community assumed a lead role in initial attempts to manage CPB in Indonesia. Shapiro and Rosenquist (2004) describe how the American Cocoa Research Institute (ACRI),⁴ together with Askindo, sponsored research in Central Sulawesi to combat CPB infestation in the late 1990s. This research identified simple good farming practices as fundamental to holding CPB infestation rates at manageable levels. A combination of frequent harvesting, pod sanitation, appropriate fertilisation and pruning (collectively known in Indonesia by the acronym PsPSP) was found to reduce losses to CPB considerably. These findings were introduced to Sulawesi farmers through the *Success* and *Success Alliance* programs, with primary funding from the US Department of Agriculture (USDA) and the US Agency for International Development (USAID) respectively (secondary sources of funding included the WCF and Mars Incorporated). The programs were implemented between 2000 and 2005 by the Washington-based non-government organisation ACDI-VOCA (Agricultural Cooperative Development International - Volunteers in Overseas Cooperative Assistance). These programs were instrumental in leading attempts to help Sulawesi farmers combat CPB. ACDI-VOCA maintained a strategy of training as many farmers as possible across affected areas (an 'extensive' approach). It claims to have trained more than 100,000 Indonesian cocoa farmers over the project period.⁵

The United States has traditionally been the key export destination for Indonesian cocoa beans (although it has recently been surpassed by Malaysia as that country develops its grinding sector). In 1999 the US relied on Indonesia for 38% of its total imports of cocoa beans (FAOSTAT 2007). The combined involvement of ACRI, ACDI-VOCA, USDA, USAID and the WCF in addressing CPB infestation in Sulawesi appears to reflect the concern of US-based chocolate manufacturers about the continuity of supply. As Fold (2005: 236) argues, the *Success* and *Success Alliance* initiatives are examples of 'wide-ranging private regulation encompassing the supply roots of a global chain', thereby internalising the positive externality of research and extension within the supply chain.

3 <<http://www.worldcocoafoundation.org>>.

4 ACRI merged with the WCF in 2000.

5 <<http://www.acdivoca.org>>.

Within the broader institutional setting of rural Sulawesi, these globally funded programs have performed an important extension function not offered by government agencies. It is, therefore, of particular note that this combination of globally coordinated research and extension effectively bypassed traditional state-led structures.

Multinational intervention in the supply chain

The chemical-free PsPSP technology has not been widely adopted by farmers, because of widespread availability and aggressive marketing of pesticides, and the perceived high opportunity cost of labour.⁶ On the whole, it seems that cocoa quality continued to decline despite the *Success* and *Success Alliance* programs, indicating the gravity of the CPB problem in Sulawesi.

Because Indonesian-based cocoa processors are affected more by declining bean quality than are whole bean exporters, processors in Makassar such as PT Effem, a sister unit of Mars Incorporated, have begun to search for alternative solutions to the quality crisis. Building on their involvement in the *Success* and *Success Alliance* projects, Mars initiated the PRIMA (Pest Reduction Integrated Management) project in 2003, with financial assistance from the Netherlands Ministry of Foreign Affairs and Development Cooperation. This project has conducted a number of field experiments and trials in the Luwu district of South Sulawesi to assess the relative effectiveness of alternative and conventional methods of CPB control. Through PRIMA and other globally coordinated activities, Mars plays an active role in an international research and development effort to sustain cocoa farming.

In contrast to the 'extensive' approach of the *Success* programs, PRIMA provides a locally intensive extension service to nearby farmers that includes training in responsible chemical use. Whereas the earlier *Success* initiatives were channelled through umbrella organisations such as the WCF, and conducted by third-party implementers, PRIMA is a direct supply chain intervention by a major international buyer. Mars argues that current supply chain arrangements do not deliver adequate incentives for farmers to improve quality. Building on an earlier direct-purchasing program in Central Sulawesi, Mars is experimenting with direct purchases from a network of farmer groups whose development they have supported through training and group strengthening initiatives.

While Mars is arguably the most active global buyer attempting to embed extension activities within a functioning supply chain, a number of domestic processors and international traders (such as Olam and Cargill) are initiating similar direct-purchasing programs to obtain higher-quality cocoa. This approach to extension marks a significant departure from traditional state-led farmer support structures, and suggests a movement towards the entwinement of private extension, input credit and purchasing through contract farming (although, to date, supply chain interventions in the Sulawesi cocoa sector have not progressed towards contractual binding of farmers). It should be noted that direct-purchasing programs by multinational buyers continue to be contested by the domestic trading lobby, and exist with a degree of legal uncertainty in Indonesia.

6 A stronger research emphasis is needed on farmer decision-making models and institutional arrangements in Sulawesi, to generate greater insights into the determinants of technological adoption.

Towards a world of certified cocoa

Other developing country agricultural sectors whose growth has been associated with the unsustainable depletion of natural resources, such as palm oil and shrimp farming, are already formulating supply chain traceability systems that allow branded manufacturers and retailers to present the environmental credentials of their supply base to consumers. Similar pressures have now surfaced in the chocolate industry, resulting in the global non-state regulation of production practices through corporate-driven certification. The rise of non-state corporate regulation of global supply chains (Giovannucci and Ponte 2005; Angel and Rock 2005; O'Rourke 2006; Neilson and Pritchard 2007) is now also starting to affect the world cocoa industry. Interestingly from the perspective of Sulawesi, however, these schemes have not been environmentally motivated. Instead, they have been driven primarily by the publication of allegations of child slave labour on cocoa plantations in West Africa (Blewett and Woods 2000; Raghavan and Chatterjee 2001; Toler and Schweisguth 2003).

The response of the global chocolate industry to allegations of labour abuse was immediate. In September 2001, representatives of the WCF and the Chocolate Manufacturers Association signed the 'Harkin-Engel Protocol', which demanded that the industry comply with International Labour Organization (ILO) Convention 182 on the elimination of the worst forms of child labour. This protocol led to the 2002 establishment of the Geneva-based International Cocoa Initiative (ICI), whose primary function is to make operational 'industry-wide standards of public certification'. The industry is currently trialling such a system of verification and certification in Ghana and Côte d'Ivoire.⁷

While these initiatives are yet to have a serious influence on cocoa production systems in Indonesia, the non-state regulation of international agri-food trade is clearly transforming governance systems in commodity chains worldwide. Importantly, the ability of NGOs, multinational agri-food companies and conservation agencies to orchestrate new forms of supply-chain regulation is increasingly dictating how farmers gain their livelihoods, how they interact with the environment and how local production systems are structured. The future implications for the institutional framework within which cocoa farming occurs in Sulawesi are immense, as a global regulatory structure challenges traditional state-led systems of governance. Market access for cocoa is increasingly dictated by the ability of producers to meet both process and product standards, highlighting the importance of global institutions in affecting local incentive structures. The associated need for product traceability will alter the competitive advantage of different supply chain structures, and will ultimately benefit either a system of direct purchasing or well-organised farmer groups.

CURRENT DEBATES OVER POLICY INTERVENTION

The above discussion suggests a government with little interest in the fate of the cocoa sector. To an extent, this was true historically. However, by 2006 cocoa was firmly on the government's political agenda, with the establishment of an Indonesian Cocoa Commission (ICC) under a decree of the Ministry of Agriculture

⁷ Details are available at <<http://www.worldcocoafoundation.org>>.

(*Bisnis Indonesia*, 18/1/2006). Cocoa has also been identified as one of 10 commodities selected for government support under a priority export program (*Jakarta Post*, 3/8/2006), and one of three agricultural commodities (with palm oil and rubber) involved in a program of subsidised rural credit (*Jakarta Post*, 23/6/2006).

The formal and informal institutional settings within which cocoa is grown, traded and processed in Indonesia are likely to be altered significantly by a shift in the 'rules of the game'. However, rather than addressing the various market imperfections outlined in this paper, there are worrying signs that intervention will attempt to protect the downstream cocoa processing sector, at the expense of farm profits if necessary. The bleak analysis by Stapleton (2006) of the institutions through which sugar trade policy is formulated in Indonesia provides insights into current cocoa policy formulation. As Stapleton (2006: 95) argues, 'the structure of regulatory intervention [in Indonesia] is due less to democratic pressures than to the inclusion of vested interests in the institutions that formulate policy'. In the sugar industry, these institutions 'entrench the interests of rent-seeking bureaucrats, import licence holders and traders to the detriment of consumers and downstream producers of processed products'.

Many of the interventions proposed would almost certainly have adverse effects on farm profits. Getting farmer interests represented in policy formulation is a continuing challenge right across Indonesia. Both the Indonesian Cocoa Farmers Association (APKAI) and the Indonesian Farmers Association (HKTI) are currently charged with representing farmer interests in the ICC. However, poor coordination and networking among farmers means that actual representation in such organisations is poor, with farmer interests largely ignored and negotiating power denied (Bourgeois et al. 2003; Agravante and Prianto 2005). Despite the obvious potential political power of an organised farmer movement in Indonesia (Pakpahan 2004), farmer networks remain largely impotent and, with the possible exception of APTRI (the Indonesian Sugar Cane Farmers Association), have not traditionally performed a meaningful advocacy function.

Protecting the downstream processing sector

The ICC is a coordinating body involving Indonesian cocoa stakeholders, government, the private sector and research institutions (but notably excluding international actors). Its primary role is to provide input to government policy and regulation; it is also charged with initiating and promoting the eventual establishment of a permanent Indonesian Cocoa Board with regulatory powers and the capacity to implement government programs directly. The first Strategic Action Plan of the ICC (Indonesian Cocoa Commission 2006) strongly indicates that its primary objective (and presumably, later, that of the Cocoa Board) is to support the development of the downstream cocoa processing sector. The downstream processing of raw agricultural materials certainly appeals to the government's strategic economic aims, presenting an apparently logical evolution towards agro-industrialisation (see, for example, Dradjat, Suprihatini and Wahyudi 2003; Hadiyanto 2006). As a key reference point, Malaysia's ability to establish itself as Asia's leading cocoa grinder is enviously viewed within Indonesia as the outcome of a successful state-led industrialisation strategy. However, policy makers in Indonesia should also keep in mind that this has occurred concurrently with the near total collapse of farm production in Malaysia (figure 3).

Cocoa-producing countries face serious economic, geographic and commercial obstacles to the development of a viable processing sector, and it should be noted that capital-intensive processing offers no comparative advantage to low-wage countries. Increasingly, the outputs of cocoa processing (cocoa cake, liquor and butter) need to be 'made-on-demand' to suit the specific needs of chocolate manufacturers. As a result, proximity to, and effective communication channels with, these manufacturers, along with flexible production processes, tend to generate advantage for processing activities located in major consuming countries. Dependence on one bean type, which is often seasonally available, leads to a limited range of products in many producing countries. There are also considerably increased costs in transporting intermediate products (especially solid butter in controlled conditions) rather than raw beans, and tariffs on processed cocoa persist in many importing countries. In Indonesia, the processing sub-sector is further disadvantaged by the limited market for residual products (such as cocoa powder) due to the low quality of local beans, and the imposition of a value added tax (VAT).⁸ A discussion of domestic cocoa processing in an International Trade Centre Report (ITC 2001: 98) concludes: 'Given the above disadvantages, it is not surprising that virtually all cocoa-processing operations in origin countries depend on subsidies in one form or another.'

The Indonesian Cocoa Industry Association (Asosiasi Industri Kakao Indonesia or AIKI) was established in May 2005 following an internal rift within Askindo over the proposed introduction of an export tax to support domestic grinding (*Bisnis Indonesia*, 12/5/2005). AIKI now sits alongside APIKCI (Asosiasi Pengusaha Industri Kakao dan Coklat Indonesia, Indonesian Cocoa and Chocolate Manufacturers Association) as an influential lobby group representing the domestic processing sub-sector. AIKI played a significant role in lobbying for the establishment of the ICC, which it hoped would promote fermentation by farmers (*Kompas*, 6/9/2005). It has been particularly forthright in appealing to nationalist sentiments to support industrial upgrading (*Kompas*, 6/11/2004; 1/4/2006; *Bisnis Indonesia*, 23/8/2005). Key aspects of policy reform reported to be under consideration by the ICC (Hadiyanto 2006) include:

- removal of the existing VAT for cocoa products;
- introduction of an export tax on raw beans;
- removal of restrictions on cocoa bean imports;
- revision and enforcement of SNI requirements, including minimum quality standards and a ban on exports of non-fermented beans;
- intervention in and rationalisation of the supply chain; and
- restrictions on the purchasing activities of international cocoa traders.

A number of similar interventions have already been attempted, often with disastrous consequences, over recent decades in Indonesia. There are clearly parallels with government efforts to promote downstream processing of crude palm oil (CPO), widely argued to have been at the expense of farm profits (Marks, Larson and Pomeroy 1998; Casson 1999; Hasan, Reed and Marchant 2001; Arifin 2004). It has been reported that an export tax on cocoa beans is imminent (*Kompas*

⁸ News reports in 2006 (*Jakarta Post*, 15/2/2006; 24/2/2006) suggest, however, that the Minister of Trade has approved the removal of the VAT from cocoa processing.

10/5/2005; *Antara*, 30/1/2006; *Jakarta Post*, 28/3/2006). It is clear to most observers that any such tax burden would ultimately be borne by farmers. In a detailed report prepared for the Ministry of Trade, Marks, Anas and Wicaksono (2005: 21) conclude that 'an export tax on beans would increase the poverty rate among cocoa-growing households in Sulawesi'; they estimate that a 10% export tax would reduce household income by Rp 1 million per year.

Of potentially even greater consequence are suggestions that the government plans to regulate the industry through trader certification and other forms of supply chain intervention (*Bisnis Indonesia*, 2/1/2006). This would significantly alter the 'hands-off' environment of the cocoa supply chain. The Minister of Agriculture was quoted as supporting:

a mechanism whereby the state, state enterprises and local government-owned firms would buy fermented cocoa at above the local market price, thereby providing an incentive for growers to produce the higher-quality fermented cocoa (*Jakarta Post*, 13/4/2006).

In addition to the fiscal burden of such a scheme, the potential for opportunistic rent-seeking would be immense, probably mimicking the experience with citrus, cloves, cashews, tea and other commodities outlined earlier.

The dominance of foreign trading companies in the export market is another politically charged issue in Indonesia. A recent USAID report (Panlibuton and Lusby 2006) estimates that 80% of Sulawesi cocoa beans are being exported by five international trading companies: Cargill; Archer Daniels Midland (ADM); Olam; ADF & Mann; and Continaf. These foreign traders possess solid international market networks and access to lower-interest operating capital in the global market. They are not, however, represented in the ICC, which appears intent on challenging their dominance (*Bisnis Indonesia*, 12/8/2005). Representing Askindo, Sikumbang et al. (2004) have called for increased restrictions to be placed on international traders, which would artificially deflate farm-gate prices.

Unless future meetings of the ICC give greater emphasis to the development of farmer support structures, the interventions discussed so far would almost certainly have a negative effect on farmer incentive structures. While in some circumstances there may arguably be legitimate reasons for protecting domestic trade and industrial interests, the precarious state of the cocoa sector in Indonesia (due primarily to CPB and declining farm profits) suggests that such a strategy is particularly risky at the current juncture.

CONCLUSIONS: PUBLIC-PRIVATE PARTNERSHIP IN THE SULAWESI COCOA SECTOR

This paper has presented the institutional settings along the Indonesian cocoa supply chain under which development agencies, industry actors and national policy makers are now operating to sustain farm profits and prevent serious sectoral decline. The story of the Indonesian cocoa sector thus far has been one of rapid expansion under free-market conditions, followed by declining profitability due to pest infestations compounded by market imperfections, and then increasing intervention by the global cocoa and chocolate industry, concerned over long-term supply sustainability. The more complex needs of farmers in the face of pests

and disease, sustainability concerns and quality decline are not being satisfied by the informal mechanisms that facilitated earlier expansion. The government has, for the most part, been a passive actor throughout these developments. However, the recently established ICC is poised to introduce a new era of policy intervention in the sector. Importantly, the options being discussed so far in the ICC are directed largely towards serving downstream industrial interests rather than sustaining farm profits.

The discussion of market imperfections suggests that the primary challenge for government intervention is effectively to incorporate local informal institutions within national policy, and to exploit the benefits being offered by globally coordinated development initiatives. Indeed, the global response to the cocoa crisis in Indonesia has, in itself, created a number of challenges for the government. Since 2006, a Sulawesi-based public-private partnership model is being pioneered through the 'Cocoa Sustainability Partnership', an initiative involving multinational cocoa firms, international development agencies, Askindo and agencies of the Indonesian government. Under this initiative, government plays a coordinating role, facilitating research and farmer development activities, rather than being directly involved. Effective public-private partnership on this scale is largely unprecedented in Indonesia, and formal state institutions are struggling to adjust to the altered demands of cooperating, as equal partners and facilitators, with international industry actors.

Through a heightened sensitivity to the role of informal institutions in the domestic supply chain, identification of appropriate interventions becomes possible. Understanding the services offered by existing tengkulak arrangements helps identify the potential role of more effective farmer organisation, which may be able to improve efficiency and transparency at the farm level. Farmer groups can also generate economies of scale for direct marketing, facilitate product traceability, disseminate improved technology, engage in labour-sharing activities and perform an advocacy role. The establishment of a warehouse receipt system may be another appropriate intervention in credit markets, addressing uncertainty over grades, providing easier access to rural finance, mitigating price risks in the supply chain, allowing farmers to build up tradeable volumes, curtailing cheating on weights and quality, and encouraging transparent quality incentives.⁹

This paper challenges the view presented in earlier accounts of Sulawesi cocoa development that adherence to non-interventionist policies will continue to benefit the industry. Quality decline in Sulawesi cocoa is presented here as a crisis of relevant institutional settings to sustain farm profitability. However, recent developments in Sulawesi, along with trends in the global cocoa sector, suggest that state-led intervention alone is unlikely to result in the necessary improvements. What is needed is effectively, and equitably, to enrol smallholder farmers within a globally coordinated array of institutional settings. Misplaced intervention, however, could adversely affect farm profits and accelerate a process of sectoral decline.

⁹ Warehouse receipts are 'documents issued by warehouse operators as evidence that specified commodities of stated quantity and quality have been deposited at particular locations by named depositors' (Coulter and Onumah 2002: 323).

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