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PLANTATIONS AND DEVELOPMENT

Both critics and supporters of plantations tend to think in terms of stereotypes. For critics, plantations are typically seen as enclaves owned or dominated by transnational corporations (TNCs), imperfectly integrated into the local economy, producing mainly for export, disruptive of smallholder food production, and offering poor conditions and low wages to their workers. Supporters see them as well-managed, capital intensive large farms, introducing the latest technology, achieving higher yields than possible under other forms of agricultural management, and contributing vital foreign exchange. Both images are partial and somewhat out-dated. Many developing country governments now see plantations as positive assets in generating employment and export income, despite past misgivings. However, the prospects for estate expansion are constrained by the market outlook and competing demands for land.

Changing attitudes to plantations

Despite past criticisms, many governments of developing countries are now encouraging investment in plantations. The shift in attitude is due partly to creditor pressure, but also to changes in economic and political conditions, and to fashions in economic theory. With many plantations now owned by nationally based companies or by the state, they are no longer seen as colonial relics. The growing acceptance of economic liberalism, disillusion with the outcome of state enterprises, the need to attract new investment flows and to compete vigorously for market share, particularly in countries that have accumulated large debt burdens, are factors in a change of attitudes.

Some less developed country (ldc) planners are now adopting policies to persuade TNCs to increase their involvement, either in order to provide access to the latest research and development or to introduce new plantation crops that will diversify the country's exports. Plantations as agents of development also have supporters within aid agencies; Britain's Overseas Development Administration (ODA) is one which has funded plantation developments.

While political opinion is thus now more favourable to plantation investment, some of the TNCs most closely involved in the sector have become cautious in investing in land and fixed assets in the Third World. Some prefer management or technical service agreements for estates owned wholly or partially by government (Booker Tate, a UK agricultural management consultancy, has such arrangements in more than 20 countries). Alternatively, companies enter into contract arrangements to supply inputs to and buy output from independent farmers (Coca-Cola does this extensively in Central America, for example).

Changes in the plantation industry

Structural changes

Since about 1960 various intermediate forms between the estate (see Box) and the independent smallholder have been developed:

- nucleus estates with tenant or independent out-growers
- controlled settlement of specialised smallholders with an authority supplying production requirements and processing facilities
- contract growing.

In the *nucleus estate* model, a central estate with a processing plant obtains additional supplies either from tenants on a part of its land, or from independent farmers with their own land in the neighbourhood. There is a fundamental difference between the two types, since the independent farmers, like contract growers (see below), can vary the proportion of their land put to the plantation crop. Tenants may be obliged to maintain a fixed area in production. Vuvulane in Swaziland is an example of an irrigated sugar scheme with tenants; Palmindustrie in Côte d'Ivoire of one with independent farmers.

The *settlement* model does not necessarily have a nucleus estate, but a central authority provides land development assistance and services such as processing, inputs, credit and extension to tenants or mortgage holders on newly-settled land or an estate that has been taken over. In settlement schemes the tenant may have a farm which is very small by comparison with an estate, but large compared with the norm for smallholders in the country concerned.

The Federal Land Development Authority (FELDA) in Malaysia has settled about 60,000 families on palm oil or rubber schemes with 4 ha each, and created additional jobs through the associated processing plants. Similar programmes have been carried out by other Malaysian authorities and the land now under smallholder cultivation of export crops is greater than the area under estates of more than 100 ha. In the Malaysian case, the smallholders benefitting from the schemes are obtaining incomes substantially larger than average small farmer income. Other countries have introduced similar programmes. In the late 1970s the Indonesian government promoted an Intensified Smallholder Cane programme, and in Java smallholder sugar production now exceeds estate production.

The term *contract growing* is normally used when the central supply of processing and other services is undertaken by a commercial company. However, they can be provided by a government authority such as the Kenyan Tea Development Authority (KTDA). The commercial company is normally also active in the final marketing stages of the product. Contract growing for bananas and other fruit is expanding on plantations in central America; it has always been usual for tobacco in West Africa and some other areas.

In the KTDA example, smallholder tea, which hardly existed before 1960, has grown to about one half of Kenyan production, and two thirds of the total area under tea. In 1980 it was estimated that smallholders served by KTDA earned three times the average national agricultural income. As land development is undertaken by the farmer, investment by the central buying agency is much lower than in settlement schemes.

Ownership

Foreign ownership diminished with the nationalization of large estates, particularly in the 1960s and 1970s, in countries such as Tanzania, Benin, Mozambique, Cuba, the Dominican Republic, Guyana, Jamaica, Peru and Nicaragua.

In Sri Lanka, almost all large estates (approximately one third of plantation crop area) became state-owned, while private owners were restricted to 20 ha. A large proportion of the remaining plantation crop area is now owned by smallholders with less than 4 ha each.

In Cuba, Jamaica, Peru and the Dominican Republic nationalization particularly affected sugar estates. Jamaica's sugar estates were workers' cooperatives from 1972-85. In the Dominican Republic only one very large plantation is now foreign-owned, two large plantations are privately owned, and the rest are nationalised. In some cases, such as Nicaragua, there has also been a redistribution of estates to small private farmers.

In other parts of the Americas, local private estate production has expanded. In Brazil tenant farmers and sharecroppers have often been replaced as estates increased

Box 1: Plantation estates and their crops

Crops

Discussion of plantations is beset by difficulties of definition. The term is normally used only in relation to the production of a limited number of crops. In its first Plantations Convention in 1958 the International Labour Organization* included any undertaking employing hired workers to cultivate listed crops. The following crops are commonly associated with plantations at the present time: bananas, cocoa, coffee, tea, sugar, rubber, palm oil, pineapples, coconuts, jute and sisal; tobacco is also sometimes included.

These crops characteristically:

- are tropical or sub-tropical
- need prompt initial processing
- are capital intensive (either because of the processing requirement, or because they are tree crops, or both)
- require labour during most of the year, making monocropping and standardized management practices economically feasible
- were initially grown for export.

Most of these crops can also be grown by smallholders if there is access to a nearby processing plant, or if initial processing can also be done by small-scale techniques, as, for example, with coffee and cocoa. In fact most cocoa and coffee in West Africa is grown by smallholders. In Fiji sugar is grown mainly by smallholders, and in India some sugar processing plants are co-operatively owned by farmers, who produce their cane individually. The fact that smallholders grow plantation crops makes some of the literature and statistics difficult to interpret.

Estates

The dividing line between smallholdings and plantations is drawn in different places by different authorities. In 1982 the ILO amended the Plantations Convention to exclude holdings of less than five hectares (ha) and 10 workers. However, Malaysia and some other countries define them as having a minimum size of 40 ha. Those owned by TNCs, or by national parastatals, are typically several hundred or even thousand hectares. A rough classification is therefore:

- smallholdings: typically less than 10 ha
- small plantations, frequently family owned or belonging to small companies operating only in the country concerned: typically 10-500 ha
- large plantations, typically owned by a TNC, a large national company, a state organisation or an exceptionally large landowner: 100 to several thousand ha. The minimum economic size required to support a processing plant has been quoted at 7,500 ha for oil palm, 6,000 ha for bananas, 3,000 ha for rubber and 600 ha for tea.

A plantation is distinguished from large farms or ranches because:

- it generally cultivates only one, or more infrequently two, of a restricted range of crops
- it has a higher capital to land ratio, due to its investments in tree crops, processing plants, and in the case of large companies, research and development
- it has a large labour force, which includes a large proportion of permanent employees, unlike ranches or mechanised cereal production.

*The International Labour Organisation's Committee on Work on Plantations consists of a tripartite delegation (government, management and workers) from member countries, viz Bangladesh, Brazil, Cuba, Guyana, India, Indonesia, Israel, Côte d'Ivoire, Kenya, Malaysia, Mauritius, Mexico, Nigeria, Papua New Guinea, Philippines, Sri Lanka, Tanzania, and Uganda. Its April 1989 meeting reviewed improvements made since 1982 on training, health, labour inspection, union rights and the position of women workers. It also considered recent developments, including the issues discussed in this Paper.

direct production with wage labour. In Bolivia most new development has been on a large scale. Large-scale plantation production has always been more important in the Americas than in Asia and Africa, but contract growing of bananas and fruit is now a growth area there.

The experience of nationalization has been mixed; there was often a decline in managerial efficiency, profitability, and investment levels, as for example, in Tanzania and Sri Lanka. In some cases this has also adversely affected the standard of workers' conditions, although improving these was an important original motivation for nationalisation. Many African countries, including Tanzania (especially for sisal), Benin, Cameroon, Côte d'Ivoire, and Madagascar are now inviting back foreign or indigenous private sector owners, or are arranging management contracts with TNCs. In Uganda, major sugar estates have now passed back to their former Asian owners.

The retreat from nationalisation is not confined to Africa. Bangladesh is encouraging private interests in jute. The Indonesian government, which nationalised plantations in the 1960s, is now promoting local private investment in palm oil and encouraging overseas companies to develop large-scale plantations in Kalimantan.

In Malaysia, India, Zimbabwe and Mauritius there have long been some locally owned companies, and this private sector has grown rapidly either through expanding existing estates or by takeovers of foreign interests. By 1981 foreigners controlled only 41 percent of Malaysian plantations; since then this has been further reduced by takeovers of the foreign-owned Harrison and Crosfield and Dunlop interests.

Markets

When TNCs withdraw from land ownership, they may remain dominant in marketing and processing; eight TNCs account for 55-60 percent of coffee sales and six buy about 90 percent of the tobacco leaf coming on to the world market.

In India, Malaysia and Nigeria a large part of estate production is not for export but provides edible oils, sugar, beverages or industrial raw materials for national buyers. India consumes more than half its tea output. Nigeria has become a palm oil importer and is justifying new estate production on import substitution grounds. Export markets are becoming more diversified, with promising growth potential in non-Western markets; for example, Pakistan is an important buyer of Kenyan tea.

Enclaves?

As well as providing for local consumer needs, plantations in some countries now have extensive linkages with local industry. Malaysia has important oleo-chemical, rubber, tobacco and pineapple industries producing partly for the local market and partly for export. Much tyre production is for the local market and elderly rubber trees provide timber for furniture manufacture. Some 90 percent of Malaysian palm oil exports leave the country as refined, fractionated or manufactured oil, and 20 percent of its cocoa beans undergo further processing. However, a strong protectionist campaign against palm oil is now being waged in the US domestic market. This has already affected Malaysian sales of the refined product.

Sugar has now become an important industrial material. Ethanol production in Brazil in the mid-1980s had created over 600,000 jobs through backward and forward linkages from distillery construction to the output of chemicals. Industrial uses of sugar are also important in India, Sri Lanka and Zimbabwe. The byproducts of bagasse and molasses create the basis for further industries such as paper production, fertiliser and rum.

Other commodities, such as tea, offer less scope for processing, but in India packaging and distribution to the local market is an important source of jobs. Even in a country with a smaller population, such as Kenya, between 10 and 15 percent of the crop is now packaged locally.

The plantation work force creates its own linkages; adjacent smallholders are frequently engaged in food production for sale to the workers. There are one million regular plantation workers in India, and between 200,000 and 300,000 in both Malaysia and Kenya.

Dependency?

Small economies, for example islands, are exposed to particular political, social and economic risks. They may become dependent on a single crop and exposed to export market fluctuations, but they are not large enough to provide a home market or an industrial base.

The trend in most countries is towards reduced dominance of plantation crops in national export earnings. Mauritius is one country making great efforts to diversify out of over-dependence on sugar, and the same is true for many of the banana-exporting countries of central America. In Sri Lanka, the contribution of the tree crop plantation sector fell from over 90 percent before 1965 to 47 percent in 1980-82. Nevertheless, such exports remain important to many countries and several are still very dependent on a single crop: coffee, for example, represents about 90 percent of Uganda's exports and the bulk of Rwanda's and Ethiopia's, while sugar continues to dominate the export value of Cuba, Mauritius and Fiji (in the latter case from smallholders).

Governments may also be heavily dependent on plantations for revenues to support infrastructure development and general services in other sectors of the economy. Sugar provides not only 40 percent of Swaziland's exports, but also 20-25 percent of its government revenue. A number of African governments (for example, Ghana) which control the marketing of plantation crops by smallholders have in the past imposed taxes or their equivalents to the point of damaging incentives to produce. Sri Lanka penalised estates in similar ways.

Exploitation?

Plantation workers belong to the poorest sections of rural society: those who own no land or who have a small or unproductive holding. Whenever prices and profit margins fall, there is pressure to reduce the wage bill as labour costs are a high proportion of operational costs. This is often done by the partial substitution of cheaper forms of labour (seasonal in place of permanent, women and young people in place of men). The seasonal labour may be migrant, or supplied by local small farmers. A common first casualty of lower prices, or of any reduction in efficiency which leads to a squeeze on profit margins, is maintenance on workers' housing, or the standard of other services provided as part of the workers' remuneration.

The total package offered, wages and services, is generally less than that offered by industry, while in private plantations longer hours or harder work may be required than in government service. Family labour earnings in the small farm sector are not necessarily higher, but there are compensations in independence and a familiar social environment. Regular plantation labour tends to be unpopular even in countries with high unemployment, partly because the permanent labour force is residential, with tied housing. Workers may live in regimented conditions in isolated rural areas without attractions.

A main function of the Committee on Work on Plantations of the International Labour Organisation, which held its Ninth Session in Geneva in April 1989, is to establish codes of practice on employment conditions, health and safety issues and to collect data on progress in the major problem of enforcement. The International Union of Plantation Workers has found that while conditions and services are generally unsatisfactory, they are on average worst on locally-owned small plantations, less bad on nationalised ones, and least bad on those owned by TNCs. Labourers employed by smallholders are commonly the worst off: a study in Malaysia showed that they were paid rates which were 50 percent less than on estates.

Plantation and smallholder production

In comparing estates and smallholders, we are comparing two different production modes. Smallholders have not only less land, but also a lower ratio of fixed and working capital to land owned. Economic efficiency for them generally indicates a strategy of low purchased inputs, and low output. They have lower wage costs, because they pay family labour below general wage levels. They may therefore compensate for lower capital intensity with greater labour intensity, though this contrast is less apparent in the plantation crop sector than it is in regard to large farms in general. They tend to value stability of income, and avoid dependence on a single crop by maintaining a mix of activities. Because they have a smaller proportion of capital in fixed assets such as processing plants, they have greater flexibility when the market turns down to switch labour to other activities. However, because they have less access to working capital, they are also less able to invest in replanting with upgraded material when the market improves.

Responding to price fluctuations

Plantation estates, particularly if owned by a large, well-capitalised organisation, have a greater ability than smallholders to ride out downward fluctuations in price and to resume expansion when prices recover. They must maintain a certain volume of production to avoid increasing costs in their processing operations. Hence, their first reaction to lower prices is to economise, not on inputs, but on labour costs.

Because they have less fixed capital, smallholders can reduce production costs by cutting inputs, even though this will also lower output. They are able to compensate to some extent by increasing food and livestock production. On a national level, this suggests that a mix of production types is advantageous, with plantations providing a steady level of output and smallholders best able to expand and reduce activities in response to price changes.

Tenant producers tied to a nucleus estate are the most at risk from lower prices; if they reduce their effort on a crop that has become less profitable they may lose their land, and they are often denied the option of switching to another crop because the estate factory depends on a certain level of throughput for its own economic efficiency.

Productivity

The production advantages of plantations do not relate directly to the size of land-holding, because most of the agricultural operations are manual and there is less scope for large expensive machines which give advantages to scale in

Average yields on plantations and smallholdings (kg/ha)

Crop	Country	Year	Estates	Smallholdings	Source
cocoa	Papua New Guinea	1984	440	330	Goldthorpe, 1985
coconut	Papua New Guinea	1984	900	500	Goldthorpe, 1985
coffee	Papua New Guinea	1984	2000	700	Goldthorpe, 1985
	Kenya	1984	1372	539	Mwauro, 1988
palm fruit	Papua New Guinea	1984	21490	11900	Goldthorpe, 1985
	Côte d'Ivoire	1980s	10200	5800	Terpend et al, 1986
	Malaysia	1980s	24100	15700	Terpend et al, 1986
rubber	Sri Lanka (10 districts)	c1984	950-1025	565	Dissanayake, 1984
	Papua New Guinea	1984	500-600	200-600	Goldthorpe, 1985
	Peninsular Malaysia	1980	1428	1103	Barlow, 1986
	Peninsular Malaysia	1980	1218	725	Smit, 1982
	Indonesia	1978	610	338	Smit, 1982
sugar	Guyana	1982	5430	4450	Thomas, 1984
tea	Sri Lanka (10 districts)	c1984	918	667	Dissanayake, 1984
	Kenya	1970s	900-1200	500	World Bank, 1983; Lugogo, 1984
	Kenya	1980s	2654	838	Terpend et al, 1986

grain production. The economies of scale are associated with the volume of production needed to supply the processing plant. Plantations compete effectively with smallholders mainly through better and more specialised management, giving precise attention to the timing of operations, the level of inputs, the training of workers, etc. The capital resources associated particularly with the larger companies enables new technology to be researched, developed and introduced. Higher yielding varieties replace old trees in timely replanting programmes.

Because of their different strategies, different access to working capital, and — in some cases — different qualities of land, estates usually have higher yields per hectare than smallholders. The table illustrates this in cases where detailed information is available. Well-managed estates with a good land resource can now produce even higher yields than these examples show: 2,000 kg/ha for dry rubber or 2,200 kg/ha for cocoa and coffee beans. However, in cases where smallholders have access to capital and new inputs, as in the FELDA settlements, they can equal or exceed the average estate.

Because of higher yields, the contribution of plantation crops to national income tends to be larger than their planted area would infer. In Indonesia, for example, rubber estates operate 20 percent of the planted area for that crop, but contribute 40 percent of rubber output, while in Brazil coffee farms over 100 ha operate 17 percent of the planted area and produce 47 percent of output. The estate sector in Kenya produces about half the tea from one-third of the land.

Employment

Whether estates or smallholdings generate more direct employment opportunities depends on the age and type of the plantation crop, and the size and activity mix on the typical small mixed farm. As a general rule, smallholdings employ more labour per ha than large farms, but this is less the case with plantation crops. Smallholders with tree crops tend to use more labour than estates during the establishment phase, but less in harvesting. Tea is particularly employment intensive, with estates commonly employing two workers per ha whereas with oil palm and cocoa there may be one worker to three or four ha.

When considering the jobs generated in secondary industries, it seems likely that the higher production per ha on estates, concentrated in a smaller area, favours the establishment of industries based on their raw materials and byproducts, as already cited for Brazil and Malaysia.

Environmental protection

Estates (and also ranches) have been under attack in recent years for damaging the environment. Intensive production of crops in new areas, whether by estates or smallholders, inevitably reduces the number of species in those areas. However, crops grown on trees and bushes (including coffee, cocoa, rubber, palm oil, bananas, tea and spices), provide continuous root structure and canopy cover. The maintenance of soil fertility depends in part on the incentive and ability to make the necessary investments, and this applies to both the smallholder and estate sector. Many estates have now gone through several replanting cycles without soil degeneration as the high inputs necessary to balance the nutrients removed by high yields are provided. Smallholdings with a low input/low yield strategy and a mixture of tree crops are unlikely to mine the soil. All farmers, however, can be forced into bad practices (for example, inadequate fertilization) if their incomes fall.

Social and political choices

The choice between smallholder production and estates depends not only on economic efficiency but also on the social and political order desired by particular countries. Those who favour equity of income distribution in rural areas will prefer the smallholder alternative, as in Tanzania or Fiji. However, if smallholders have to be specially encouraged to grow plantation crops, governments may create a class of privileged growers with favoured access to land and inputs. Those, like Malaysia, who want to build a rural middle class between plantation labourers and managers will support measures that enable smallholders to reach higher productivity levels. Some politicians desire to maintain or create a supportive class of large and comparatively wealthy estate owners, and this can lead to stark contrasts in living standards for owners and workers, as in Malawi and the Philippines under the Marcos regime. In other societies, unions may be an important part of the local political structure, as in Sri Lanka and Mauritius, and plantations are regarded as acceptable if working conditions are satisfactory by local standards.

The outlook for plantations

The plantation estate is almost certainly here to stay, although the number of nationalised estates is likely to diminish. However, there is unlikely to be much expansion in plantation activity overall because of the prospects for plantation *crops*.

Plantation crop prices have always been characterised by volatility, due to the difficulties of making small adjustments in supply in an industry in which there is so much investment in tree crops, land development and processing plants. There are also political influences on prices. Sugar is a notorious case where prices depend on a country's economic alliances, and its price (together with vegetable oils and tobacco which can also be produced in temperate countries) is strongly affected by the progress of multilateral trade agreements between industrialised countries. For these crops, and for beverages, there is likely to be only small growth in demand from the developed market economies, but greater demand from the less-saturated, centrally planned economies and from the developing countries themselves. The outlook for growth in demand for rubber is slightly more encouraging.

Increases in demand for plantation crops may not, however, create upward pressures on prices. Supply increases will come from existing replanting programmes of higher yielding varieties, by higher yields from existing plantations using new production techniques, or, in the case of palm oil, by the use of substitutes based on temperate crops. Although the United Nations Common Fund for commodities should be operational in July 1989, it is unlikely to usher in a period where producers of plantation crops, and of tropical products in general, can force prices up while disregarding demand factors.

In many countries plantations will not be able to expand because with increasing population density, land is no longer available at a price that is financially or socially acceptable. But in the competition for markets and for the improvement of yields while containing costs, plantations are likely to maintain their position relative to smallholders, although we are likely to see an increase in contract growing for some crops.

Further information and references will be found in *Theory and Practice in Plantation Agriculture: an Economic Review*, Mary Tiffen and Michael Mortimore, ODI 1989, and in Reports to the *Committee on Work on Plantations, 9th Session, Geneva 1989*, ILO, Geneva, 1989.

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