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OPRA^{Active} Word

Technical Note 1

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Smallholder Productivity

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The oil palm industry is one of the more successful rural developments in Papua New Guinea. Oil Palm is grown in five areas: Hoskins and Bialla in West New Britain, Popondetta, Milne Bay and New Ireland, with over 14,500 smallholder oil palm blocks. In 2000, smallholders produced approximately 531,263 tonnes of FFB (worth K36.5 million), which accounted for 33.4% of total production, the company estates producing the balance. In 2000, oil palm exports

In 1999 project funding was approved by ACIAR to research the biophysical and socio-economic interactions of factors affecting productivity among oil palm smallholders in Hoskins and Popondetta. The primary aim of the research was to help improve smallholder oil palm productivity. The main objectives of the project were to:

- gain an understanding of the socio-economic constraints upon smallholder production;



accounted for 32% of the total value of Papua New Guinea's agricultural exports, and 5% of total Papua New Guinea exports. In the same year the value of oil palm exports exceeded coffee, "traditionally" the most important commodity crop in terms of foreign exchange earnings.

Whilst there have been large increases in production and the area planted by smallholders, improving smallholder productivity remains the industry's major challenge. Smallholder productivity is much lower than the estate plantation, and village oil palm (VOP) productivity is consistently lower than the land settlement schemes (LSS) (except for Popondetta).

- evaluate the Loose Fruit Mama Scheme;
- develop strategies for more effective extension interventions;
- make recommendations for change that might result in further increases in smallholder productivity, and
- produce a work manual for extension officers.

Research was undertaken at the Hoskins and Popondetta schemes with smallholders the focus of data collection. Other key stakeholders that participated in the research included OPIC, NBPOL, HOPL, customary landowners, and industry associations, such as the oil palm

growers associations. The research employed semi-structured interviews, case-studies, questionnaire surveys, workshops, focus groups, analysis of industry smallholder databases and the review of relevant reports and published literature.

At the beginning of the data collection phase, workshops with extension officers at Hoskins and Popondetta identified the key variables explaining variation in smallholder production as: physical factors; agronomic and farm management practices; intra-household relations and decision-making; income distribution; time and cash management skills; tenure security; economic necessity to harvest; level of interest in oil palm harvesting; and, the personal characteristics of growers. Building on this knowledge and working closely with smallholders, the study identified the following socio-economic factors affecting production and, more importantly influencing the everyday activities and decisions of smallholders.

Smallholder livelihood strategies

In addition to oil palm, smallholders are involved in a diverse range of economic activities which we define as livelihood strategies. Smallholder livelihood strategies promote household economic and social security by increasing income and diversifying income sources, strengthening people's capacity to meet their needs, increasing the range of options and choices available to households, increasing food security and reducing household risks.

The main smallholder livelihood strategies include managing a range of cash crops, wage employment, small business enterprises, garden production for home consumption and local markets, and indigenous exchange. These non-oil palm labour and time demands sometimes compete with oil palm production; at other times they have a positive influence where they contribute to livelihood security thereby adding to social stability on the schemes.

For many smallholders, access to alternative income sources is often necessary to meet household needs, especially on highly populated LSS blocks

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and/or during times of depressed oil palm prices. An important reason why smallholder pursue income diversification is to lower income risks by reducing their vulnerability to the fluctuating price of oil palm.

For many VOP smallholders in Hoskins and Popondetta, entry into oil palm production is relatively recent and many retain holdings of other export cash crops, especially cocoa and copra. In a survey of 100 VOP and LSS smallholder blocks at Hoskins, 72% and 26% respectively had access to other export cash crops. Of the Hoskins VOP blocks with cash crops, 83.5% had two or more types of cash crops in addition to oil palm.

The oil palm plantation estates provide opportunities for short-term casual employment and long-term employment of smallholders. The former often provides temporary financial relief for block residents during peak cash demands such as payment of school fees, bride-prices or other customary obligations.

Access to off-block wage employment can add significantly to material standards of living on smallholder blocks. The association between off-block or self employment adversely affecting oil palm production requires further research, although evidence suggest that off-block employment is only a problem when it limits the labour availability at harvest times. On the more heavily populated blocks at

terms of labour demands and meeting household consumption requirements. At Hoskins labour allocated to gardening exceeds that allocated to oil palm and is the dominant activity carried out by smallholders. This is most notable among women who allocate almost 2.5 times as much of their labour to gardening than to oil

from LSS schemes and 8% were settlers residing on village land, and LSS women were disproportionately over-represented in local markets in terms of the values of items for sale, especially garden produce. At Hoskins, VOP women are not as heavily involved in marketing garden produce. Average earnings per market visit were



palm; for Hoskins men, gardening and oil palm are of about equal importance in terms of the amounts of time allocated to each activity. At Popondetta, men spend more time in oil palm related work than gardening, and women spend considerably more time in gardens than in oil palm.

K10.91 at Hoskins and K4.64 at Popondetta.

Most smallholders are involved in various forms of indigenous production and exchange, especially VOP producers. For many VOP smallholders, the motivation to harvest is not so much concerned with accumulating savings for capital investments or consumption in the market economy, but with redistributing wealth through kin exchange. Some smallholders with intermittent involvement in oil palm production may not harvest for several months but will do so to contribute to a communal feast or exchange. For more regular VOP producers, oil palm production may increase significantly when the demands of the indigenous economy are unusually high. Thus, the requirements of indigenous exchange can drive people's involvement in oil palm production.

Smallholder household type and oil palm production strategies

A major feature of the LSS and VOP subdivisions is the diversity of smallholder household types and oil palm production strategies.

Smallholder households can be divided into four different types according to household type and oil palm production strategies:

1. Single household (wok bung), where all or most adult family members participate in harvesting.
2. Caretaker household, usually single household working together (wok



Approximately 80% of meal ingredients at Kavui LSS and Popondetta were from gardens compared with about 50% of meal ingredients from food gardens at Gaungo VOP. The balance at Gaungo is made up of store foods, (mostly tinned fish and rice) and fresh fish and meat. The higher protein diets of VOP smallholders at Hoskins are partly a reflection of the wider range of income choices available to VOP smallholders and the greater population pressure on LSS blocks, where falling per capita incomes from oil palm are increasing settlers' dependence on subsistence food production.

The marketing of food crops, coconuts, betel nut, tobacco, processed foods and manufactured items at local markets provides a regular additional income for women at Hoskins and Popondetta. At

Hoskins, off-block employment provides very important supplementary income, and relieves some of the economic and population pressures on the block.

Food garden production is extremely important for LSS and VOP smallholders in

Hoskins, market income is especially important for women from the LSS schemes. A survey of women selling at several markets around Kimbe and Hoskins, revealed that 54% of sellers were

bung).

- Multiple household (mixed), where most adult members from each household participate in FFB harvesting and adult women rotate the collection of loose fruit and loose fruit income between households.
- Multiple household (rotate), where harvesting and loose fruit collection and the associated incomes are rotated monthly between different households co-resident on the block.

The type of smallholder household production unit present on a block reveals much about household labour supply and organisation, decision making, income distribution, family/gender relations, the range of livelihood strategies pursued and production motivation. These factors affect oil palm production.

Single household blocks are largely found on VOPs, except in Popondetta where population pressure is less on the LSSs. The various types of household production units reflect a transition on the older LSS schemes such as Hoskins where single households are being replaced by multiple families co-residing on a block. As a consequence, labour arrangements, harvesting practices and methods of payment are changing in a variety of ways. These multiple household blocks are complex economic and social units and far more heterogeneous in terms of labour and income strategies than the nuclear single families that first settled on the scheme in the 1970s.

At Hoskins, some blocks have moved away from a multiple household mixed production unit where most adults from all co-resident households contribute to harvesting, to more individualised units of production where harvesting is rotated between co-resident households with less shared inter-household labour harvesting. This system of production usually emerges as a response to the increasing number of co-resident households on blocks. However, the rotation production system, which appears to be increasing, may be a less efficient oil palm production system than shared family labour harvests. There is some evidence to suggest that oil palm productivity is lower on highly populated blocks that employ a rotation system than on highly populated blocks that continue to practice shared family labour harvesting where more adults tend to participate in harvesting. Also under a rotation system there is a higher probability that block maintenance will be neglected or disputed, replanting will be delayed and that there will be problems with loan repayments.

Multiple household rotation production units

are predominantly on the LSS schemes at Hoskins where up to five or six households reside on one block. The shift to a rotation system on highly populated blocks where households are operating more like independent nuclear family units is a major socio-agronomic transformation occurring on the land settlement schemes at Hoskins (and possibly at Bialla). At Popondetta this study did not record the rotation system operating among smallholders, and OPIC



officers could recall only a small number of blocks that had adopted the rotation system.

Population growth and second-generation issues

Population pressure is beginning to emerge at the older LSS schemes such as Hoskins (and possibly Bialla) as second generation marry and establish their own households on the block. Many blocks are now supporting multiple families. The presently high numbers of households per LSS block at Hoskins partly reflect the difficulty settlers now face in returning to their "home" villages or acquiring land or employment in WNB or elsewhere in Papua New Guinea.

Acquiring additional land is the primary desire of most smallholders experiencing population pressure on their blocks. However, opportunities for second-generation smallholders to purchase LSS blocks are becoming constrained by limited savings potential and the rapid inflation of

LSS block prices. In response, some LSS settlers are "purchasing land" from customary landowners, squatting illegally on government or private land, seeking land in another province or moving into an informal (squatter) settlement in an urban centre.

Growing number of smallholders illegally residing on government or company land, or "purchasing" insecure VOP land are important issues that have the potential to seriously undermine social stability in the future.

Social instability and conflict is associated with heavily populated blocks. Many multiple household rotation blocks experience economic and population pressure, and disputes and violence often occur on payday over the distribution of oil palm income. Inter- and intra-household disputes reduce social harmony and can sometimes lead to significant disruptions to oil palm production and in the longer term are a disincentive for smallholder investment.

Economic pressure on populated blocks is leading to the development of supplementary income sources to maintain household livelihoods. The trend to increased reliance on non-oil palm income sources is likely to continue as population grows and as it becomes more difficult through time for second-generation settlers to return home.

There are increasing numbers of under-employed people on blocks, especially youth, who are unable to participate fully in oil palm production. They are an under utilised resource for the industry, and in the longer term may pose a threat to the social sustainability of the schemes as they become more disaffected and alienated.

With population it appears LSS smallholders are becoming more reliant on gardens, although the Mama Lus Frut Scheme may have offset this reliance in Hoskins. Those blocks with high population and which do not have alternative sources of income are reverting to more subsistence lifestyles in which garden

production is becoming much more important.

Conflicts over land tenure

Land conflicts take many forms in the oil palm smallholder sector, from the large compensation claims demanded by customary landowners for land alienated for estate plantations and land settlement schemes to inter- and intra-household disputes over block ownership.

Land conflicts are critical production issues. Land disputes reduce smallholder productivity by removing disputed stands of oil palm from production and lowering smallholder incentives to investment in their long-term futures (e.g. replanting or fertiliser uptake). Also, insecure tenure undermines smallholder confidence in and commitment to oil palm, and deters economic development.

Land conflicts on both VOP and LSS blocks are particularly serious in Popondetta and are a major constraint on and challenge to improving smallholder production.

The "sale" of customary land at Hoskins is leading to land disputes between settlers and some landowning clan members, especially younger clan members who perceive future land shortages for clan members. These disputes are undermining the future tenure security of settlers "owning" VOP blocks.

At Hoskins and Popondetta there is growing intolerance and resentment towards settlers that is partly linked with wider feelings of unease held by indigenous landowners and a new generation of young landowners who see "outsiders" as the cause of growing land shortages in the area.

Industry and OPIC Interventions

In all project areas VOP plantings are increasing. Popondetta's VOP expansion programme under the Oro Expansion Project funded by the World Bank has increased by over 7,840 hectares since the project commenced in 1993, far exceeding the initial project target of 3,500 hectares.

Oil palm mini-estates (based on lease, lease-back arrangements) are a recent phenomenon and undergoing rapid expansion, yet the long-term socio-economic impacts are little understood and difficult to predict. A particular concern is how to ensure that the benefits from mini-estate development flow to women and groups holding secondary rights in the resource.

The Mama Lus Frut Scheme introduced at Hoskins in 1997 has provided substantial financial benefits for the company and women. In 2000, women earned K1, 443. Women spend a high proportion of their oil palm income on food and family needs and this partly explains why smallholders view the scheme as significantly improving the social environment and general quality of life on the blocks.

The mama card has helped households meet their needs and strengthened livelihoods through improving income distribution and labour arrangements within households, reducing reliance on garden income, enabling households to meet short-term cash demands and social obligations, and, opening up new avenues for men to contribute to the household economy.

The success of the mama card can be explained partly by the way it was introduced, the employment of female extension officers in OPIC, and the high level of committed support of the scheme by OPIC and NBPOL. Also there were few structural/cost barriers to participation in the scheme, and loose fruit collection was easily incorporated into existing gendered work roles and patterns. Most importantly, it strengthened household livelihood security through increased financial and social benefits for women.

Replanting programmes at Hoskins and Popondetta are challenged with a reluctance by smallholders to replant. At Popondetta, smallholders are reluctant to replant for several reasons including high debt levels, loss of income, low oil palm prices, tenure insecurity, rental arrears, poor road conditions and a view by some smallholders that replanting is unnecessary.

Despite problems with debt avoidance, interest-free in-kind credit to smallholders at Hoskins and Popondetta remains very important for maintaining and enhancing smallholder productivity, social harmony, and for ensuring the future growth of the smallholder sector.

In a process of weighing up an industry or OPIC intervention, smallholders are often focusing on how a proposed intervention fits into and strengthens their existing livelihood strategies and their objectives. Smallholder initiatives are more likely to be successful if they are compatible with household livelihood strategies which smallholders see as important in maintaining economic and social well-being.

Recommendations

- Smallholder initiatives to increase smallholder production or productivity should aim to promote sustainable livelihoods through increasing household choices, income, land security and social harmony.
- Develop more flexible payment systems to encourage greater labour mobility and more equitable distribution of income between co-resident households.
- Encourage the development of supplementary income sources that do not interfere or conflict with oil palm production. This will help relieve some of the economic pressure on smallholder LSS blocks at Hoskins.
- Maintain and support food security by encouraging strategies of sustainable food garden production.
- Examine land issues to ensure future land security and social stability.
- Develop strategies for overcoming the reluctance to replant by smallholders.
- Continue interest free credit schemes currently provided to smallholders by the oil palm companies. The value of these schemes to smallholders could be enhanced significantly by making repayment rates more flexible to take account of fluctuations in oil palm prices.

This Technical Note is a summary of the main project report that appears as a supplement to the 2000 PNGOPRA Annual Research Report. Copies of the main report are available on request from PNGOPRA.

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