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**IFAD**  
**INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT**



**The Independent State of Papua New Guinea**

**Country Programme Evaluation**

**Evaluation Report**

**January 2002**

**Report No. 1230**

Photo on cover page:  
The Independent State of Papua New Guinea:  
A street in Port Moresby  
Source: Fabrizio Felloni

# The Independent State of Papua New Guinea

## Country Programme Evaluation

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## Acronyms and Abbreviations

ASF	Artisanal Fisheries Project
BMI	Body Mass Index
CBO	Community-based Organisation
CDF	Community Development Fund
CDO	Community Development Officers
CPE	Country Programme Evaluation
DNPM	Department of National Planning and Monitoring
DT&P	Department of Treasury and Planning
FAO	Food and Agriculture Organisation of the United Nations
GONZ	Government of New Zealand
HHs	Households
HRMG	Highlands Region Maintenance Group
IFAD	International Fund for Agricultural Development
IGA	Income-generating activities
LLDAT	Lik Lik Danau Abitore Trust
MIS	Management Information System
NGO	Non-governmental Organisation
NSRDP	North Simbu Rural Development Project
OE	Office of Evaluation and Studies, IFAD
PNG	Papua New Guinea
ROSCAs	Rotating Savings and Credit Association, also known as " <i>Sandes</i> " in Pidgin
SAP	Structural Adjustment Programme
SDR	Special Drawing Rights
SSRDP	South Simbu Rural Development Project
UNDP	United Nations Development Programme
WB	World Bank
WDC	Ward Development Committee

## Glossary

<b><i>Merisin Meri:</i></b>	community health worker
<b><i>Wok Meri:</i></b>	informal savings arrangement group

## Currency

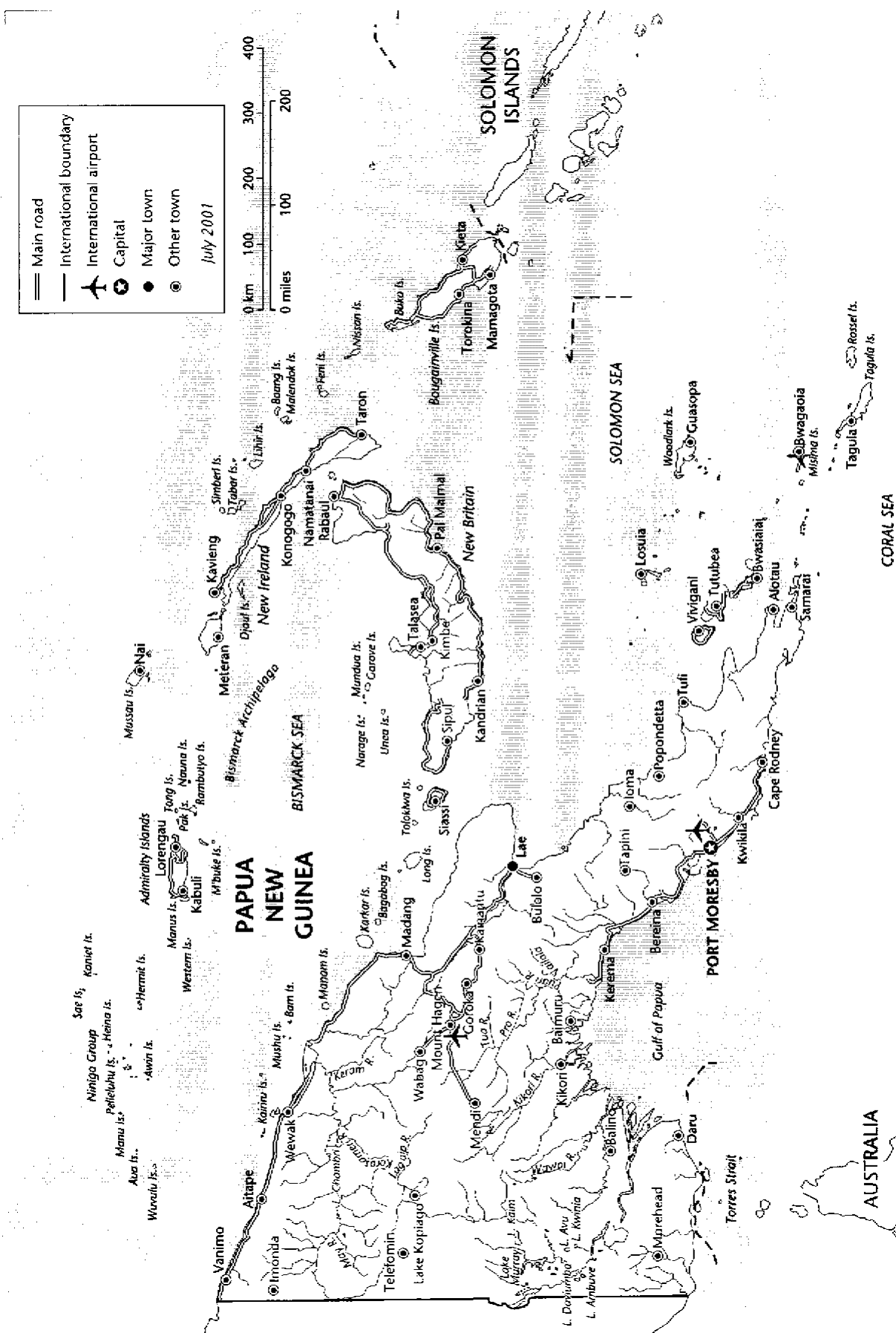
Kina

## Exchange Rate (as of August 2001)

Kina 3.40:US\$1

“The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof”

## Map of Papua New Guinea







# **The Independent State of Papua New Guinea**

## **Country Programme Evaluation**

### **Executive Summary**

*Regarding the adverse effects of chronic malnutrition (stunting), Partha Dasgupta in his An Inquiry into Well-being and Destitution states that beyond efforts to provide emergency and food relief .....*

*“Much the harder problem, in intellectual design, political commitment, and administration, is to ensure that those who remain alive are healthy. It is also a problem whose solution brings no easily visible benefit. But the stunting of both cognitive and motor capacity is a prime hidden cost of energy deficiency and anaemia among children and, at one step removed, among mothers. It affects learning and skill formation, and thereby future productivity. The price is paid in later years, but it is paid.”<sup>1</sup>*

### **A. Context and Rationale for Evaluation**

IFAD's Office of Evaluation and Studies, in October 2000, per agreement with the Government of Papua New Guinea undertook a Country Programme Evaluation (CPE) in Papua New Guinea. IFAD has funded three projects in PNG: the Artisanal Fisheries Project (AFP) closed in 1991, the South Simbu Rural Development Project (SSRDP), closed in 1995 and the North Simbu Rural Development Project (NSRDP), scheduled to be closed in 2002.

Evaluations of programme impact need to reflect an understanding of the variations in agro-ecology, living standards and institutional support systems within and across provinces. It is vital that staff in implementing organisations and local stakeholders participate in evaluations. In the current case, project staff in Kundiawa in Simbu themselves assessed their performance and that of government funding and support systems. Moreover, the mission undertook PRAs and formal surveys to shed light on the extent of nutrition security and emerging solutions.

The IFAD mission visited four provinces (Simbu, East Sepik, Eastern Highlands and Madang), including the project area of North Simbu Rural Development Project. Moreover, the mission undertook a formal survey of CBOs across these four provinces. An in depth survey was conducted in Simbu and East Sepik. In total, mission members interviewed 310 households and 112 community-based organisations.

The Foreign Aid Management Division of the Department of National Planning & Monitoring (DNPM) facilitated the mission. The IFAD Mission conducted two workshops with the PNG Government representatives and other stakeholders. The Government endorsed the workshop recommendations. Finally, IFAD (OE) conducted a final Round Table Workshop in August 2001: the IFAD team presented findings and lessons learned.<sup>2</sup>

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<sup>1</sup> Partha Dasgupta, Oxford, Clarendon Press, 1996.

<sup>2</sup> Per Eklund, Sr. Evaluation Officer together with Fabrizio Felloni (consultant) and Ms. Rhonda Eva (consultant) facilitated this workshop that took place at Vulupindi Haus on August 3, 2001. Dr. Oruve Sepoe (consultant) produced the workshop proceedings.

The evaluation team intends this assessment for use by the wider community of partners in the PNG rural development effort. The evaluation to this end explored possibilities and institutional solutions with which to raise effectiveness and sustainability of efforts by the Government and donors alike in promoting better living standards in the rural areas. Findings are intended to be useful for assessing performance with different institutional approaches and types of interventions. The several lessons learned from this evaluation and the in depth surveys conducted support the need to shift the development focus away from mere “hardware”. The case is strong for building up the management capabilities of community-based organisations – not least the *Wok Meris* - through empowerment and diffusion of relevant organisational skills.

## **B. Vicious Circles**

The rural population studied in PNG is faced with a breakdown in the delivery of essential social and economic services. The impact is serious: children face prospects of receiving less schooling and health outreach compared to the previous generation. Road and market access is not improving in line with expectations. In the absence of markets, there is little possibility for households to pay for essential inputs such as improved seeds and fertiliser with which to intensify production. Fertile land is becoming scarcer in line with increasing population density. Declining soil fertility is associated with lower productivity of land and labour. Especially women work longer hours to maintain previous levels of production.

Vicious circles operate. The maintenance of livelihood standards is at stake. Higher labour loads at declining productivity in the face of common food insecurity, are coupled with declining services for large segments of the rural population. The break down of services is worrisome given already high levels of chronic malnutrition. In the final analysis, low or deteriorating living standards fuel conflict, strife and more violence.

## **C. Problems and Prospects from Simbu and Other Provinces**

### **(1) Simbu**

The mission used a Project Performance Measurement Matrix to assess the outcomes of the two area development projects implemented in Simbu Province (i.e. SSRDP 1987-94 & NSRDP, 1995 - 2000). The mission conducted this assessment with present and past project personnel. Five important lessons emerged from this exercise.

- 1) **Management Capabilities and Ownership:** Management systems in the public sector and provincial operations in PNG are not performing in line with expectations. Line agencies at the national level do not define spending priorities in consultation with provincial governments. In the absence of consultation and devolution of power to provincial governments, provincial level authorities do not assume “ownership”. In combination, this translates into delayed implementation, low impact and limited sustainability.
- 2) **Dissemination and Service Delivery Systems:** SSRDP used the government line departments to deliver services such as health, formal education and agriculture extension. The impact and sustainability of such efforts were not in line with

expectations. Nevertheless, during the course of implementation, NSRDP management shifted to increasingly use voluntary village level based agents: in health and MCH (birth attendants). Moreover, very praiseworthy is the shift that has taken place to seek to use ward extension agents and village informal education agents. The efforts are laudable, but so far they have not attained required impact.

- 3) **Micro-credit:** The NSRDP design provided a framework for mobilising farmers to form groups and to deliver credit to these groups. Yet, the design did not set out a process with which to mobilise and empower groups, develop skills, and generate trust and social bonding within groups as a prerequisite prior to credit delivery. The group approach to credit delivery was not effective. On the other hand, successful results were obtained with the credit provided to individuals.
- 4) **Multi-sectoral Area Development Project:** Multi-sectoral area development projects are complex. Implementation capacity at the provincial level to implement such projects is limited. Projects that seek to address deprivation in PNG, regardless of domain, need to focus on two core activities. Two activities that will only minimally stress the human and financial resource capacity at the provincial level are: (i) community development activities and (ii) creating a community based financial service delivery system. The communities themselves would plan, prioritise, implement and supervise the activities.
- 5) **Participatory Methodology:** SSRDP used a sectoral/top-down approach to implement the project. Project management programmed each activity and put it in place without consulting local communities, or intended beneficiaries. Not surprisingly, the provincial staff rated the sustainability of most project interventions as “low”. The NSRDP has begun to support communities to become more involved in decision-making. Yet, promoting sustained efforts has been thwarted by the absence of a consistent participatory methodology and the limited and fluctuating government funding to wards and LLGs.

## **(2) Other Provinces**

In East Sepik, Eastern Highlands and Madang, the mission assessed performance in rural development as against institutional constraints and decentralised governance structures. The Organic Law with reforms was initiated precisely to start the devolution of power to the provinces. The machinery and the capabilities with which to ensure steady progress in such devolution are not yet in place.

Across provinces, two issues stand out. First, there is little or no data available with which to demonstrate that progress-monitoring systems have become operational, let alone that data on impact at household and community levels are collected and analysed. Second, even when directors, managers and project staff report that they perceive, or rate impact to be high, sustainability of interventions is rarely if ever assured.

Three factors that explain this situation prevail. First, assured funding to maintain the activities beyond the date when the project will close is very rare. Second, ownership of the interventions at ward and LLG levels is rare, even in the primary health service sector. Third, the delivery system are high cost, vide the case of the UNDP supported micro credit schemes in Eastern Highlands, as well as the NSRDP supported scheme in Simbu. The former lends at a rate of 30%, whilst the *Wok Meri* groups lend at a far lower rate, or at 14% (on an annual basis).

Four dimensions were explored:

First, programme management capacity is limited. The Government’ capability to service the rural poor remains limited. The line departments are being restructured and downsized to

reduce government expenditure on staff costs. Such downsizing generally starts with closure of offices and staff working in remote locations. This reduces further the access to services of already deprived families in remote locations. Withdrawal of aid posts in the remote locations illustrates the point.

Second, sustainability of service delivery to rural communities is at risk. Three factors contribute to this situation. First, the delivery cost of institutions involved in providing services to rural communities is high. Staff costs and overhead are high. Law and order problems and difficulty to access rural communities compound problems. Second, the government resource allocations to deliver services to the rural communities are low and are declining over time. Third, cost efficient community owned models for delivery of such services are yet to emerge.

Third, community participation remains at its infancy. Community participation in providing primary health care services is increasing. Reduction in the size of the government makes it all the more urgent to enhance community participation in a wide array of service delivery ranging from primary health, non-formal education, micro-finance to maintenance of access roads. But community participation and community level planning are yet to become the building blocks of bottom-up planning as enshrined in the reformed Organic Law. Most donor interventions remain sector specific and physical output oriented. The stakeholders have limited exposure to the concept of participatory development.

Fourth, the efforts in the formal development sector towards building social capital in PNG remain at an “infancy stage”. Four factors contribute to limited efforts in creating much needed social capital, or trust and “bonding”. First, formal programme interventions in PNG typically have not recognised the untapped resource base provided by the indigenous networks and social systems of rural women, despite the diversity of the latter in faith, clan and political affiliation. Second, the directive planning processes combined with top down service delivery have created dependency of the community upon government handouts (the “cargo cult”). Third, the social capital is further eroded when communities do not own the interventions. Fourth, most women groups at the rural community level are not supported with the exception of assistance *inter alia* from AusAid and Save the Children funded by the GONZ. Even in these cases, the support remains sector specific without a step-wise process of “graduation” for women to assume leadership roles.

#### ***D. Analysis of Survey Data: Little Progress in Reducing Malnutrition***

Hidden poverty in rural PNG is high and not decreasing. The prevalence of chronic malnutrition is a precise indicator for endemic poverty at community level. It is reliably measured by the prevalence of stunted children in the age group up to five years. In PNG, in 1982/83, stunting at the national level was estimated at 43%. This level represents a hidden poverty: it is a cause of concern. This concern is heightened. The most recent survey was conducted in 1996: it recorded over not less than a fifteen year period no progress or reduction (World Bank 1999).

The current year 2000 IFAD-OE surveys in Simbu and East Sepik provinces demonstrated that children were more likely to be chronically malnourished (stunted) in Simbu (46%) than in East Sepik (30%). By contrast, the prevalence seasonal malnutrition (wasting and underweight) was higher in East Sepik (20%) than in Simbu (4%). Preliminary results of the determinants of child nutritional outcomes suggest that, in areas that have received no assistance (from PNG Government, NGOs, International Organisations), measures that significantly improve child nutrition status comprise improving the safety of the drinking water, supporting savings and credit groups, improving access to land, and improving access to health services.

The IFAD-sponsored NSRDP targeted the most deprived households in Simbu province, but the survey data do not demonstrate that the intervention was successful in reducing stunting among children. On the other hand, better-educated group leaders were able to attract external

programs to support their CBOs. Yet, such training did not have a significant impact in reducing child malnutrition.

These findings contrast with results of another recent IFAD-OE study conducted in Nepal (2000-2001); this study confirmed that training on nutrition contributed to reduced malnutrition. An important difference was that training package in the surveyed district of Nepal included regular child growth monitoring. This was not the case in Simbu: growth monitoring (especially height for age) was not conducted on a regular basis. Without regular monitoring and associated interactions with parents, it is difficult to diffuse knowledge, awareness and improved practices among beneficiaries.

### **E. Emerging Longer Term Solutions: Suggested Framework for Strengthening Community Capabilities**

Community-based organisations (CBOs) have capabilities for becoming focal points for broad participatory-based development to reduce deprivation or chronic malnutrition.<sup>3</sup> The mission suggests a 'Four-Pronged Approach':

#### **(1) A 'Four-Pronged Approach'**

Focus on sub-ward level women organisations: Creating raised capabilities of community level women organisations: support with which to raise capabilities of *Wok Meris*, similar organisations, and women church groups.

Providing a component with which to raise awareness and knowledge of women organisations about causes of chronic malnutrition and household and community level solutions in reducing malnutrition.

Micro-finance: Provision of small equity funding for creating and strengthening community (self-administered) revolving funds to raise individual household food and nutrition security. Community development fund (CDF): Providing funds for micro projects at community level for improving infrastructure with self-help to go hand in hand with gradual improvement of capabilities – an important incentive mechanism.

A supporting national strategy for communication, awareness and knowledge generation is well justified. Normally of value is to use radio to diffuse relevant knowledge about causes to chronic malnutrition, growth promotion and associated solutions. Female village level volunteers are supported to become “focal points” for radio listening groups.

Moreover, training infrastructure: units need to be set up for curriculum and content development with which to train female volunteers. A training of trainers' approach is required. Relevant approaches need to be defined for training of trainers so as to widen outreach and programme impact.

### **F. Learning and Diffusion of Applied Knowledge**

The several lessons learned from this evaluation and the surveys conducted support the need to shift the development focus from mere emphasis on “hardware” towards diffusion of relevant

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<sup>3</sup> Field surveys suggest that CBOs in PNG can be classified into three categories: (i) *Wok Meris*, mothers' groups; (ii) religious groups; (iii) externally supported (by Government, credit programs, or NGOs).

knowledge. Development programmes need to focus more than in the past on developing a proper content prior to training and diffusion to rural women. It is critical in PNG to empower rural women and their organisations to demand the services and the skills required with which to improve their standards of living, especially to reduce high levels of socially non-acceptable chronic malnutrition.

Malnutrition in rural PNG reflects combined energy and animal protein deficiencies. The report contains solutions in this area. Development of small stock in PNG represents a promising avenue with which to raise protein supply and reduce prevalence of chronic malnutrition (Chapter IX).

## **COMMUNITY BASED APPROACH TO ADDRESS HIDDEN POVERTY**

### **SOLUTIONS GENERATED BY IFAD'S COUNTRY PROGRAMME EVALUATION Round Table Workshop in Port Moresby, August 3 2001**

#### **AGREEMENT AT COMPLETION POINT**

##### ***A. Participatory Evaluation with PNG Core Learning Partnership***

IFAD's Office of Evaluation and Studies, in October 2000, per agreement with the Government of Papua New Guinea undertook a Country Programme Evaluation (CPE) in Papua New Guinea. IFAD per its Approach Paper, in agreement with the Department of Treasury & Planning (DT&P), for the purpose of this evaluation formed a Core Learning Partnership. The latter would take stock of lessons learned, review them and facilitate their subsequent use so as to ensure better impact in rural development programmes. This Partnership has been composed of representatives of the Foreign Aid Management Division of the DPNM, UNDP and other donors, the Provincial Administration and the Project Management Team in Simbu, and NGOs.

The evaluation mission in October 2000 conducted two workshops so as to be guided by this Learning Partnership. Representatives of the Foreign Aid Management Division chaired these workshops. The Secretary of the DPNM opened the second workshop.

In the first workshop, the mission presented the context and its objective. It presented its proposed evaluation and survey methodology, and plan of visits. In the second workshop, the mission presented its preliminary findings and suggested solutions. In the latter, the Government with other stakeholders welcomed and endorsed the mission's recommendations for the 'Four-Pronged Approach' (see below). The Government, moreover, welcomed a final Round Table Workshop in 2001 for the IFAD team to present findings and lessons learned. The latter workshop took place on August 3, at the Vulupindi Haus, in Waigani, Port Moresby.

This assessment with its suggested generic 'Four-Pronged Approach' is intended for use by the wider community of partners in the PNG rural development effort.<sup>4</sup> The Government in year 2000 adopted a plan to reduce national prevalence of chronic malnutrition from 43% to 21% over a period of ten years. But modalities and instruments are not in place to ensure such progress. In contrast, the present study sets out an approach with which to accelerate reductions in malnutrition.

The 'Four-Pronged Approach' represents a core menu of solutions, coherent yet flexible, with which to raise effectiveness and sustainability of efforts by the Government and donors alike in promoting better living standards in the rural areas. The approach with its focus on use of anthropometric indicators to reveal progress in reducing the prevalence of chronic malnutrition - the hidden poverty - has merits for assessing performance with different institutional approaches and types of interventions. The several and unique lessons learned from the findings of our in depth surveys of community based organisations support the need to shift the development focus away from mere "hardware". The case is strong for building up the management capabilities of community-based organisations – not least the *Wok Meris* - through empowerment and diffusion of relevant organisational skills, and simultaneously to support them in addressing the widespread malnutrition.

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<sup>4</sup> IFAD has funded three projects in PNG: the Artisanal Fisheries Project (AFP) closed in 1991, the South Simbu Rural Development Project (SSRDP), closed in 1995 and the North Simbu Rural Development Project (NSRDP), scheduled to be closed in 2002.

## **B. Findings**

### **(1) Limited Impact and Sustainability of Development Efforts**

In Simbu, East Sepik, Eastern Highlands and Madang, the mission assessed performance in rural development as against institutional constraints and decentralised governance structures. The Organic Law with reforms was initiated to start the devolution of power to the provinces. The machinery and the capabilities with which to ensure steady progress in such devolution are not yet in place.

Moreover, across provinces, two issues stand out.

First, there is little or no data available with which to demonstrate that progress-monitoring systems have become operational, let alone that data on impact at household and community levels are collected and analysed.

Second, even when directors, managers and project staff report that they perceive or rate impact to be high, sustainability of interventions is rarely if ever assured.

Three explanatory factors prevail. First, assured funding to maintain the activities beyond the date when the project will close is very rare. Second, ownership of the interventions at ward and LLG levels is rare, even in the primary health service sector. Third, the delivery systems are high cost, vide the case of the UNDP supported micro credit schemes in Eastern Highlands, as well as the NSRDP supported scheme in Simbu. The former lends at a rate of 30%, whilst the *Wok Meri* groups lend at a far lower rate, or at 14% (on an annual basis).

### **(2) Little Impact in Reducing Malnutrition**

Hidden poverty in rural PNG is high and not decreasing. The prevalence of chronic malnutrition is a precise indicator for endemic poverty at community level. It is reliably measured by the prevalence of stunted children in the age group up to five years. In PNG, in 1982/83 stunting at the national level was estimated at 43%. This level represents a hidden poverty: it is a cause of concern. This concern is heightened. The most recent survey was conducted in 1996: it recorded over not less than a fifteen year period no progress or reduction (World Bank 1999).

The current year 2000 IFAD-OE surveys in Simbu and East Sepik provinces demonstrated that children were more likely to be chronically malnourished (stunted) in Simbu (46%) than in East Sepik (30%). By contrast, the prevalence of seasonal malnutrition (of wasting) was higher in East Sepik (20%) than in Simbu (4%). Our study findings of the determinants of child nutritional outcomes suggest that, in areas, and for the CBOs, that have received no assistance (from PNG Government, NGOs, International Organisations), measures that significantly improve child nutrition status comprise improving the safety of the drinking water, supporting savings and credit groups, and improving access to land, and to health services

### **(3) Four Dimensions Explored**

First, programme management capacity is limited. The Government's capability to service the rural poor remains limited. The line departments are being restructured and downsized to reduce government expenditure on staff costs. Such downsizing generally starts with closure of offices and staff working in remote locations. This reduces further the access to services of



already deprived families in remote locations. Withdrawal of aid posts in the remote locations illustrates the point.

Second, sustainability of service delivery to rural communities is at risk. Three factors contribute to this situation. First, the delivery cost of institutions involved in providing services to rural communities is high. Staff costs and overhead are high. Law and order problems and difficulty to access rural communities compound problems. Second, the government resource allocation to deliver services to the rural communities has been low and is declining over time. Third, cost efficient community owned models for delivery of such services are yet to emerge.

Third, community participation remains at its infancy. Community participation in providing primary health care services is increasing. Reduction in the size of the government makes it all the more urgent to enhance community participation in a wide array of service delivery ranging from primary health, non-formal education, micro-finance to maintenance of access roads. But community participation and community level planning are yet to become the building blocks of bottom-up planning as enshrined in the reformed Organic Law. Most donor interventions remain sector specific and physical output oriented. The stakeholders have limited exposure to the concept of participatory development.

Fourth, the efforts in the formal development sector towards building social capital in PNG remain at an “infancy stage”. Four factors contribute to limited efforts in creating much needed social capital, trust and “bonding”. First, formal programme interventions in PNG typically have not recognised the untapped resource base provided by the indigenous networks and social systems of rural women despite the diversity of the latter in faith, clan and political affiliation. Second, the directive planning processes and top down service delivery have created dependency of the community upon government handouts (the “cargo cult”). Third, the social capital is further eroded when communities are not owning the interventions. Fourth, most women groups at the rural community level are not supported with the exception of assistance inter alia from AusAid and Save the Children funded by the GONZ. Even in these cases, the support remains sector specific without a step-wise process of “graduation” for women to assume leadership roles.

### **C. Recommended Longer Term Solutions: Framework for Strengthening Community Capabilities**

#### **(1) ‘The Four-Pronged Approach’**

Community-based organisations (CBOs) have the capabilities and the potential for becoming focal points for broad participatory-based development to reduce deprivation or chronic malnutrition.<sup>5</sup> The mission suggests a Four-Pronged Approach:

- 1) Focus on sub-ward level women organisations: Creating raised capabilities of community level women organisations: support with which to raise capabilities of *Wok Meris*, similar organisations, and women church groups.
- 2) Providing a component with which to raise awareness and knowledge of women organisations about causes to chronic malnutrition and household and community level solutions in reducing malnutrition.
- 3) Micro-finance: Provision of small equity funding for creating and strengthening community (self-administered) revolving funds to raise individual household food and nutrition security.

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<sup>5</sup> Field surveys suggest that CBOs in PNG can be classified into three categories: (i) *Wok Meris*, mothers’ groups; (ii) religious groups; (iii) externally supported (by Government, credit programs, or NGOs).

- 4) Community development fund (CDF): Providing funds for micro projects at community level for improving infrastructure with self-help to go hand in hand with gradual improvement of capabilities – an important incentive mechanism.

## **(2) Normative Steps and Sequencing of Interventions in Rural Development Projects in PNG**

Much testing has taken place in the use participatory methodologies. In the current phase, attention has shifted to explore processes and strengths and weaknesses in building viable village level institutions. Experience to date suggests that the participatory processes that promote empowerment and equity through self-help activity are yet to be fully understood. The importance of a proper phasing and sequencing of activities is not sufficiently emphasised. Four steps normally need to be considered for driving success in the use of participatory planning exercises at community levels. These steps are:

- Community institution building that includes capacity building of the communities for collective action and testing resolve of the communities to work together for common good.
- Facilitation of the community to identify core causes for their problems and search for feasible and low cost solutions.
- Establishing budgetary allocations for within which communities need to set priorities.

Establishing a step-wise graduation process with explicit benchmarks for performance. This would include provision of a smaller budget initially and increasing the budget in the subsequent years based on performance.

### **D. Agreed Solutions**

#### **(1) Presentation**

The IFAD team presented the 'Four-pronged Approach', based on the following components: (i) to improve capabilities of women organisations at community level (training); (ii) to raise awareness and knowledge of causes to chronic malnutrition and provide regular growth monitoring and promotion sessions; (iii) to provide small equity funds to strengthen community revolving funds and raise nutrition security and (iv) to provide "community development fund" for micro projects to improve infrastructure with self-help.

The team elaborated on the recommended phasing and sequencing of the four-pronged approach. It remarked that sustainable and accelerated growth in service provision at community level requires that priorities expressed by communities (CBOs) be reflected in development plans and budgets at provincial, district, LLG and ward levels. Communities should also receive support and facilitation to raise capabilities; finally their needs and plans would be integrated into formal budgeting processes. The team recommended the start up of pilot programmes in at least three provinces of PNG, including Simbu and East Sepik.

#### **(2) Round Table Workshop Endorsement of Multi-pronged Approach**

During the August 3 Workshop, discussions were held in three small groups, each reflecting a cross-section of participants' affiliation and background. Participants in these deliberations

validated the suggested multi-pronged approach and particularly the setting by communities of own objectives in terms of health, food security and well being using regular monitoring through anthropometric indicators.

The Chairman of the session, Mr. Kwayaila, First Secretary, Department of Planning and Monitoring, expressed appreciation of the presentations made. He stated that according to the most recent estimates, the PNG population has reached 5.3 million and it is imperative that all citizens be provided with sufficient and nutritious food. Mr Kwayaila thanked the IFAD team for the important and relevant information provided in the draft evaluation report. He stated that the Government endorses the Four-pronged Approach: the PNG Structural Adjustment Programs has resulted into declining availability of public funding for rural areas, thus alternative low cost solutions are to be planned. Pilot programmes hinging on the four-pronged approach should be initiated not only in three provinces but also progressively in all PNG provinces. Funding from donors will be sought for the purpose.



# **The Independent State of Papua New Guinea Country Programme Evaluation**

## **Main Report**

### **I. INTRODUCTION**

#### ***A. Context and Rationale for Study***

IFAD's Office of Evaluation and Studies after agreement with the Government of Papua New Guinea, in October 2000, undertook a Country Programme Evaluation (CPE) in Papua New Guinea. The Foreign Aid Management Division of the Department of National Planning & Monitoring (DNPM) facilitated the mission. The team arrived in Port Moresby on October 5. It departed on November 1.

The assessment would be of use to IFAD, as well as for the wider community of partners in the PNG rural development effort. The evaluation team explored possibilities and institutional solutions with which to raise effectiveness and sustainability of efforts by the Government and different donors in promoting better living standards in the rural areas. Findings are intended to be useful for taking stock of progress with different institutional approaches and types of interventions.

IFAD's efforts over ten years have been confined to the Simbu Province. The mission, nonetheless, has drawn lessons from efforts by different donors also in other provinces. The mission operated in two teams, the first team visited Simbu and East Sepik provinces. The second team visited Madang and Eastern Highlands provinces. Findings at the end of the mission were presented first to the Secretary of the DNPM on October 27 and second, to a wider audience in a workshop on October 30, at the University of PNG.

To wit, a complementarity emerges in the goals stated by donors to assist PNG. Donors seek to provide foremost the "institutional technology" with which to improve governance, regulatory frameworks and related capabilities. In PNG, the current government has emphasised better governance as a much-needed pathway with which to raise effectiveness and efficiency in public sector resource use. Sustainable efforts can then be more easily generated. But an equally important question to explore is the actual speed of progress that can be foreseen in PNG across and within provinces towards generating good governance, trust and participation.

Participation by populations increases the more there is of trust reflected in accountability and transparency of public sector operations, and the more sanctions are put in force to uphold the rule of traditional customs and formal regulatory frameworks.

A critical issue of concern in PNG is the absence that remains of clearcut procedures with which to ensure that a fiscal decentralisation is operational. The reformed Organic Law on Provincial and Local Government has still not been put into practice, as expected. The present dysfunctional system for decentralised service delivery represents a case of an "incomplete contract" with the rural population. The rural population in large measure does not receive the services expected. Accountability and transparency represent issues especially for those who see their government spending levels on essential services to be declining.

The Government of PNG issued recently its rightly praised Human Development Report 2000. This document set out the stark reality of deprivation faced by vast number of the rural population. The levels of trust and bonding that can be found across rural communities do not correspond with expectations. "Social capital" is diminished when government services are being withdrawn, and when the Central Government does not endow Local Level Governments with sufficient resources and decision making power to compensate for declining financial resource allocations from the Centre.

In this context, the decision on the type of evaluation methodology to follow has a particular importance. The mission chose a three-pronged approach. First, it analysed the performance over time of the two IFAD projects in the Simbu province. Second, it chose to analyse in depth the capabilities and the performance of community-based organisations, especially those where women had a decisive role and influence. An empirical analysis of strengths and weaknesses of community-based organisations becomes important, particularly when the rural population views governance issues as increasingly important.

The mission has interviewed women from some 120 CBOs across four provinces. Our interactions with members of these CBOs support the argument that building stronger women organisations at the community and sub-ward levels cannot but accelerate progress in generating more trust, and participation in development programmes across rural populations.

## ***B. Itinerary and Meetings***

The representatives of the PNG Government had prepared well for our mission. We acknowledge the support by the DNPM. We thank especially Messrs. Camillus Midire, Secretary and Paul Enny, First Assistant Secretary, Aid Co-ordination Management Division of the DNPM. They kindly released Mr. Joe Degemba, Senior Adviser with the DNPM to assist the mission. We appreciate the welcome given to this mission also by the Mr. Joseph Sokuwianomb, Secretary of the Social Development and Welfare Department. Moreover, several donor representatives from the UNDP, AusAid and the New Zealand High Commission advised the mission and gave freely of their time.

Not least important for the sake of our learning, the DNPM conducted with the mission a one-day consultative workshop at Vulupindi Haus, open to other government agencies, donors and NGOs alike.<sup>6</sup>

The North Simbu Rural Development Project together with the Simbu Provincial Government had very well prepared for our mission. We acknowledge and thank especially Messrs. Michael Temai, (Project Manager, North Simbu Rural Development Project) and Mr. Joseph Dorpar, (Provincial Administrator) for their welcome and support

The first team, composed of Messrs. Per Eklund, Ganga Datta Awasthi, Joe Degemba, Abel Rajaratnam and Shreekantha Shetty, Ms. Anna Golan and Eva Rhonda, visited Simbu and East Sepik provinces.

The second team comprised Messrs. Ganesh Rauniyar, Frands Dolberg and Ms. Mayumi Ozaki. It visited Madang and the Eastern Highlands. We acknowledge and thank especially Mr. Charles Goto, Acting Provincial Administrator of Eastern Highlands.

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<sup>6</sup> Mr. Paul Enny chaired this workshop; the latter endorsed the presented methodology for the study and our suggested plan of provincial visits.

## **II. COUNTRY AND ECONOMIC BACKGROUND**

### ***A. Geography and Demography***

Papua New Guinea (PNG) extends over 1,300 km from north to south, from the equator to its southernmost latitude, and 1,200 km from the border of Irian Jaya in Indonesia in the west to its easternmost longitude. Of the total land area of 462,840 sq km, 85% is on the PNG mainland and the remainder on some 600 islands.

The PNG population in mid 1998 was estimated at 4.6 million and the most recent estimate was 5.3 million. Population growth has been stable at around 2.3% per year over the past decade. Government projections assume a slight decline in fertility and a continuing fall in mortality in the years up to 2015, at which point total population would reach 7.4 million.

The two main languages of communication are Tok Pisin (Pidgin English) and Hiri Motu, but over 800 languages are still spoken. English is the official language of government, commerce and education. According to UN statistics, PNG's literacy rate as a percentage of the adult population was only about 52% in 1990; for women the figure is far lower, or 38%.

### ***B. Economy***

More than 70% of the land area in PNG is covered with forests and woods. Agriculture is the mainstay of the economy. About 85% of the population depends on it for their livelihood, either through subsistence agriculture or by cultivating cash crops (cocoa, coconut, coffee and oil palm). However, the sector's contribution to GDP has fallen in recent years, from 29% in 1988 to 24% in 1998, as other sectors, particularly mining, have developed. Similarly, agricultural exports as a proportion of total merchandise exports have declined from 37% in 1985 to 14.6% in 1995.

Relatively rich in raw materials, PNG has become increasingly dependent on the extraction of non-renewable resources. Moreover, given its small size both as a producer and a consumer, in international trades it has to act as a price taker and can be immediately affected by adverse fluctuation of world prices.

Transportation infrastructure, concentrated around urban areas, is not well developed and maintained. A study from the PNG government has shown that US\$ 72 million should be spent per year to maintain rural roads, whilst during the 90s, in total less than US\$ 10 million was spent.<sup>7</sup>

From independence until 1994, governments kept the national currency (kina) at a fixed rate of exchange with a basket of foreign currency. But, the slow growth of the economy combined with an increase in budget deficit generated a reduction in reserves. In 1994, the government decided to adopt a floating rate and negotiated a Structural Adjustment program (SAP) with the World Bank, IMF, AusAID, ADB, EU and the Japan Export-Import-Bank. The government agreed to embark on major privatisation programs and to downsize the public sector.

### ***C. Indicators of Relative Poverty and Deprivation***

With the simple criterion of GNP per capita (US\$ 890 in 1998), PNG would be classified as a lower middle-income country. But non-monetary indicators present a different picture.

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<sup>7</sup> The Economist Intelligence Unit – PNG Country Profile 2000.

According to the UNDP Human Development Index, PNG's ranking regressed, from 126 in 1996 to 128 in 1997 (out of 154 countries). In addition to income, other indicators comprise life expectancy, adult literacy and school enrolments. PNG has performed badly on a number of other indicators such as infant mortality; most recent estimate is 73 per 1 000 live births, placing it amongst the worst off countries in the world. Life expectancy in 1993 was 54 years. The maternal mortality rate is one of the highest in the world, with a national average of seven deaths per 1 000 live births.

Finally, the prevalence of child malnutrition is very high, estimated at 43% at the national level (World Bank 1999). No progress has been made since the last national health survey, conducted in 1982/1983, when prevalence of stunting was estimated at 43%.

In May 2000, the PNG Department of Agriculture and Livestock published a document entitled "Papua New Guinea National Food Security Policy". The document makes reference to the Universal Declaration of Human Rights of 1948, the International Convention on Economic Social and Cultural Rights of 1966, the World Food Conference (Rome 1974) and, finally the World Food Summit (Rome 1996). The government report sets the goal of achieving food security by 2015, defined as "access to safe and nutritious food in sufficient quantity and quality for all".

The report provides an analysis of causes of insufficient food supply in recent years and on strategies to foster production in the future. However, it does not provide a set of indicators of adequacy of food intake in terms of outcomes (for example, reductions of chronic and seasonal malnutrition rates). The absence of such indicators makes proposed targets difficult to monitor. Moreover, owing to the absence of updated official information on the prevalence of malnutrition: the only known data derive from the National Nutrition Survey carried out in 1982/1983.<sup>8</sup> It is imperative for the PNG government to collect baseline data on the extent of malnutrition. Benchmarks are required for monitoring progress towards the targets set for 2015, in raising food security and reducing widespread chronic malnutrition.

## ***D. Foreign Aid***

Papua New Guinea benefits from a foreign aid program that is generous by international standards. In 1997, Papua New Guinea's estimated net official development assistance was equivalent to 8.7 per cent of gross national product or around US\$78 per person. Other countries with similar GDP per capita receive less aid than PNG does.

By far the most important aid donor for Papua New Guinea is Australia, which provides under the auspices of a formal treaty between the Governments of the two countries. In the Australian financial year 1999-2000, Papua New Guinea was scheduled to receive around A\$330 million in aid, comprising a mixture of programmed activities (A\$264.9 million) and budget support (A\$13.9 million). Australia's aid to Papua New Guinea accounts for over a fifth of Australia's total development cooperation program.

Given the unique historical relationship since colonial rule, Australian aid has been provided to Papua New Guinea in the form of budget support. At the beginning of each month, the budget support payment was deposited into Papua New Guinea's central bank account at the Reserve Bank of Australia. The PNG central bank would then credit the kina equivalent of this grant to the PNG Government's general expenditure account to finance budgeted activities. Following an agreement by the two Governments in 1992, budget support has been progressively replaced by program activities in key sectors. Budget support transfers were completely phased out by June 2000.

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<sup>8</sup> See p.8. The more recent data from 1996 are not used, presented in 1999 by the World Bank are not used.



Sector or program aid is an integrated package of aid comprising goods, technical assistance and local cost funding. The major sectors targeted are education and training, health, infrastructure, renewable resources, law and justice, the private sector, and governance.

A host of other donor agencies such as the EU, AsDB, the Commonwealth, the UN system, ODA and NGOs also assist PNG.

### **E. IFAD Projects in PNG**

IFAD has funded three projects of which one, the NSRDP is about to be closed.

**Table 2.1. IFAD's Projects in PNG**

<b>Project Name</b>	<b>Orig. Loan Amount</b> <i>(SDR million)</i>	<b>Project Type</b>	<b>Loan Effectiveness</b>	<b>Closing</b>
Artisanal Fisheries Project (AFP)	9.1	Fisheries	August 1984	December 1991
South Simbu Rural Development Project (SSRDP)	3.0	Infrastructure & Training	August 1987	December 1995
North Simbu Rural Development Project (NSRDP)	4.4	Infrastructure & Training	September 1994	June 2002



### III. PROJECT INTERVENTIONS IN SIMBU PROVINCE AND BEYOND

#### ***A. Evaluation Methodology for Simbu Province***

The mission in Simbu Province pursued three distinct activities. First, it conducted a three-day exercise with the Provincial Government senior staff, past and current project managers and officers involved in the SSRDP and the NSRDP. Mission members provided a structure with which the PNG officers themselves rated the performance of both projects, overall, and by component. They used nine criteria: (i) relevance; (ii) availability of skilled staff and equipment; (iii) sufficiency of funding during implementation; (iv) timeliness of service delivery; (v) cost-effectiveness; (vi) impact; (vii) addressing equity concerns; (viii) sustainability; and (ix) learning.

The second activity was a survey of women based Community Based Organisations (CBOs) and member households. Wards were randomly selected.<sup>9</sup> Women groups were interviewed, those involved in NSRDP supported credit activities for women, in *Wok Meri* and in church groups. Household questionnaires were administered to members of these groups. Controls groups were used for both types of instruments.

The third distinct activity was an analysis of the present capabilities for participatory planning and implementation process. The organic law has not been implemented as envisaged and provides only a partial framework for this analysis.

#### ***B. Findings for Simbu Province***

The mission used a Project Performance Measurement Matrix to assess the outcomes of the two area development projects implemented in Simbu Province (i.e. SSRDP 1987-94 & NSRDP, 1995 - 2000). The mission conducted this assessment with present and past project personnel (see Annex 1). Five important lessons emerged from this exercise.

**Management Capabilities:** Management systems in the public sector, in national and provincial operations, are not performing in line with expectations. This translates into delayed implementation, low impact and limited sustainability. The issue of inadequate management capabilities needs to be explored at two levels. First, to determine what the actual capabilities are of the project management team that operates within, or as a part of this system. The overall finding is positive. The team found the current project management team in Simbu province to possess a more than adequate capability, as well as a high level of motivation, to continue programme implementation for the benefit of rural poor. The management team is intent on embarking on a process aimed at resolving issues of sustainability and ensuring real participation of the communities.

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<sup>9</sup> A special questionnaire for CBOs that assessed the ownership dimension was used.

Second, four systemic issues need to be analysed.

- First, the government normally implements donor-funded projects through separate project implementation units; an overall consolidated management unit integrated into the provincial administration has not been created. To wit, the managers of such units in their operations will need to be guided by a Protocol. This instrument, signed by the Provincial Administration, would assure the managers that they are expected to consistently emphasise high standards of transparency, accountability and audits to retain the trust of the general public as well as of donors. The mechanisms for resolving potential conflicts that may emerge also need to be defined in advance. With this framework, a concerted national effort can and should take place towards integrating into provincial administrations the dispersed and semi-autonomous implementation units of projects that support the delivery of common public sector services such as roads, education, rural drinking water, and primary health. Such integration measurably would assist in improving the effectiveness of provincial resource allocation.
- Moreover, if such integration occurs in each province, it would help to retain and not disperse the trained and competent project managers and officers. Every time, new project managers are appointed for each project instead of drawing on personnel who have already gained experience. This results in inadequate learning and experience through extended and repeated trial and errors during each project start-up phase. In addition, project managers are frequently changed, an exception being the last three years of the NSRDP.
- Second, the project appraisal reports and formulation reports do not set out and explain the processes that are required to arrive at a step-wise phasing and sequencing of project interventions. Decision rules are not defined for progressive improvement in performance. Schedules of evolving priorities over time are not presented to implementing organisations
- Third, in the project start-up phase, the donors do not provide meaningful training in project accounting, preparation of withdrawal applications, preparation of annual work plan and budget, procurement and other project related tasks.
- Fourth, the long-term technical assistance provided to the projects is of limited use, especially when the government does not provide required counterpart funding. The current project management team, moreover, reports that under the SSRDP and NSRDP, the selected long term technical experts provided limited skill transfer especially in creating participatory systems (see below). On the other hand, the current team rated the short-term technical expertise that provided distinct technical skills to have provided much needed know how and learning.

**Information, Dissemination and Service Delivery Systems:** SSRDP used the government line departments to deliver services such as health, formal education and agriculture extension. The impact and sustainability of such efforts were not in line with expectations. Yet, the strategy of service delivery and dissemination using the line departments continued in NSRDP. Nevertheless, during the course of implementation, NSRDP management shifted to increasingly use health and MCH (birth attendant) voluntary village level based agents. Moreover, very praiseworthy is the shift that has taken place in seeking to use ward extension agents and village formal education agents.

The efforts are laudable. Yet so far they have not generated the required impact. The recurrent funds for DPI technical services for providing continued training and content to ward agents have been less than expected. Incentives for ward agents to perform are further limited. A mechanism has not been put in place whereby communities would provide at least a token compensation to the village agents for the services delivered. Community ownership requires at least such a partial contribution in compensating voluntary agents and giving them due recognition.

**Micro-credit:** The NSRDP design provided a framework for development of groups and delivery of credit to the groups. However, it did not set out a process with which to mobilise and empower groups, develop skills, generate trust (social capital) within groups prior to credit delivery. The group approach to credit delivery failed. Three factors contributed. First, the implementers did not support the traditional groups, in particular the *Wok Meri groups* and church groups. Instead they formed new groups for the purpose of credit delivery. Second, they did not develop and pursue a ladder approach with which to develop trust and bonding within groups, in short social capital. Six steps are involved: (i) formation of new groups or strengthening existing groups; (ii) capacity building for group management and book keeping; (iii) savings mobilisation; (iv) credit delivery within the group using the savings; (v) equity support to performing groups to increase their capital base; and (vi) subsequent linkage to the micro-finance institution to obtain wholesale credit.

The project has shifted focus to provide individuals credit for business activity; in other words, it targets better-off households. The Commerce Division of the Provincial Administration handles the micro-credit operations. Yet, the current arrangements are not sustainable. Individual credit delivery systems require an intensive supervision: this increases transaction costs. The Commerce Division in the long term will not be able to provide micro-finance service. The current institutional framework is a hindrance for such development. The mission suggests that changes are needed in service delivery strategy as well as in the institutional setting.

**Multi-sectoral Area Development Project:** Multi-sectoral Area Development projects are complex. Implementation capacity at the provincial level to implement such complex projects is limited. Projects that seek to address deprivation regardless of domain in PNG need to focus on two core activities, which give minimum stress to the human and financial resource capacity at the provincial level. Two core activities for such interventions are community development activities and creating a community based financial service delivery system. The communities plan, prioritise, implement and supervise the activities themselves.

**Participatory Methodology:** SSRDP used a sectoral/top-down approach to implement the project. Each activity was decided upon and put in place without consulting local communities or intended beneficiaries. The provincial staff rated the sustainability of most project interventions as “low”. Realising the nature of this issue, the NSRDP in the past set out to use a participatory methodology for community development and delivery of micro-finance.

But in practice, the project management team faced an uphill battle. Community leaders and political representatives had since long been used to expect and receive free community services with no strings attached as to required self-help contributions. Moreover, the TA selected could not be of much help in setting out methodology and processes, creating awareness, and knowledge uptake through learning-by-doing.

Expectations were thwarted: the participatory methodology used in the NSRDP remained at a rudimentary level. It was assumed that mere discussion with the communities would bring about necessary participation. This generated high expectations within and across communities. The latter merely prepared shopping or wish lists, which the project could not fulfil.

Positive is that the project management has realised the futility of undertaking such exercises. Efforts are being made to involve the local governance structures at the ward level in designing and implementing community development activities. However, a relevant participatory methodology, which generates community mobilisation at the sub-ward level, integrating community level plans into the ward level plans, will have to be institutionalised. The reformed Organic Law of Provincial and Local Level Governments in PNG mandates such integration.

## **C. *Participatory Processes Revisited***

### **(1) The Design**

The North Simbu Rural Development Project was designed to address the critical institutional constraints to development of PNG with the intention of introducing approaches that: (i) are more responsive to communities' perception of needs and priorities; (ii) involve the communities in decision making and planning; (iii) make communities more responsible for management of their development programmes in order to generate a greater sense of ownership of development interventions; and (iv) build on the traditional values of community participation and utilise the strengths of village institutions.

The strategy was based on developing community awareness and self-reliance and on ensuring that the government support services are more accessible to the communities and are relevant to their needs. The approach taken has been to concentrate on improving the effectiveness of existing government staff, rather than increasing their number, and to introduce systems that increase the extent of contact they have with the community.

The strategy reflects the recent introduction by the Simbu Provincial Government of a system of district management of government services. Instruments to implement the strategy included: (i) steps to ensure that the government administration establishes better contact with the people at the village level and gains better understanding of their development needs and potential; (ii) involving the village communities so that they articulate their needs and priorities and embark on self-help activities, shifting from the patronage and hand-out mentality that has become a feature of government interventions; (iii) establishing within government administration an attitude that emphasises service to the community and in particular promotes an understanding of the needs of the more disadvantaged households; and (iv) establishing a system of effective monitoring to ensure that the government services are provided at the village level and that project activities are focussed on assisting the IFAD's target groups.

### **(2) Constraints in Implementation**

#### **(a) Social Mobilisation Capacity**

The project design envisaged that the existing District Community Development Officers (CDOs) under the overall co-ordination of the Non-formal Education Officer would be responsible for the community mobilisation programme. It was envisaged that a number of CDOs would be recruited to promote participatory approaches. Women groups and other associations would be formed to support communities pursuing self-reliance. A consultancy company was engaged to provide a Community Development Consultant to guide CDOs on approaches to community mobilisation and implementation of relevant activities. But the CDOs and other local staff had no experience in social mobilisation and in preparing and implementing community development plans.

The project made no efforts to upgrade their capability. The project largely depended on expatriate consultants who had limited experience in participatory planning and social mobilisation. As a result, the project did not succeed in developing viable self-help groups. The project shifted focus to the simpler but less effective mode of providing credit and services to individual households.

#### **(b) Community Institution Development**

The time set aside for developing community institutions was not sufficient. The project design document assumed that the community institutions could be built and participation of all stakeholders could be achieved simply by conducting PRAs to assess resources and constraints. It was expected that the communities would then prepare a plan for implementation of activities.

In reality, the project identified the villages for participation in the project and conducted PRAs to identify the needs of the community. These were to finally result in village development plans. The project implementers were confronted with four major issues related to community institution development. First, the communities took little or no interest to ensure that their village was included in the project. Second, the participation from a wide cross-section of the community, including women, was limited. A few leaders who are vocal and powerful manage the community institutions. Though such a situation is unavoidable during the initial stages of a social mobilisation process, safeguards for smooth transition of leadership roles to other members of the community were not been built in. Third, the commitment of the community to undertake activities for the common good and also their ability to assist the resource poor households were not tested prior to external support. Fourth, the role of community institutions has not been carefully thought through.

The role of the community was restricted to identifying problems and solutions. Implementation responsibility was not vested with the community institutions. In the end, the communities found little difference between the line department and the project interventions.

### **(c) Facilitation Capacity**

Donor funded government projects typically view participatory planning as identifying the problems with the community and seeking solutions from the community to these problems. But in most cases, the communities are unable to prioritise their problems and generate solutions without adequate facilitation. As a result, the participatory planning exercise generates a wish list containing interventions that are not well prepared. In the North Simbu Project, the project could not find resources to implement the wish list of the communities. The staff had to abandon the participatory planning process.

Facilitation plays a very important role in identifying the core causes of the problems and assisting the communities to design cost effective solutions. The community needs to be facilitated in identifying solutions to the problems by: (i) undertaking feasibility studies; (ii) identifying low cost options based on costs, benefits and cost effectiveness; and (iii) exploring alternative investment options to achieve larger benefits. The community development staff whose core strength lies in mobilisation cannot provide such facilitation inputs. Facilitation for preparation of a community development plan requires assistance from a multi-disciplinary team with competencies ranging from agriculture, nutrition, horticulture, and livestock to engineering.

### **(d) Technical Capacity to Prepare Village Development Plans**

The project envisaged that the communities would be able to prepare community development plans with the assistance of community development staff. It is based on two assumptions: (i) the communities themselves have answers for all their problems; and (ii) community development officials would be able to undertake all activities from social mobilisation to village development plan preparation. These assumptions are valid but only up to a point.

The project design had not considered the critical role of technical personnel in facilitating the preparation of village development plan. The village development plan focussed on only

infrastructure development, and not on management of natural resources. The line departments implemented these other natural resource-related activities.

### **(e) Planning Parameters**

The project implementation process did not parameters and guidelines. The project did not allocate resources within which village development plans will have to be prepared. This apart, no guidelines were designed pertaining to contributions from the community for different activities and also for funding individual income generating activities.

The absence of planning parameters combined with inadequate facilitation raises the probability for that the community views these interventions as entirely government-led. The end result was high cost investments in village infrastructure with limited attention to cost effectiveness and sustainability. The project experience indicates that the village development plans have not addressed social sector basic needs that are important to women and children. Guidelines and decision rules are vital inputs for preparing village development plans so as to ensure efficient resource allocations given competing requirements and priorities.

The project implementation process did not define budgets and time frame parameters. Financial resources are limited, yet the resources for preparing village development plans were not defined. This apart, no guidelines were designed pertaining to contributions from the community for different activities and also for funding individual income generating activities.

The process for interacting with and supporting communities to set priorities and implement their preferred infrastructure projects was not well defined. First, the project had not set aside financial resources with approximate unit costs for preparing village development plans. Second, guidelines were not provided for obtaining self-help or matching contributions. Third, the process had not been defined for facilitating individual income generating activities.

In the absence of precise guidance as to the nature of the new approach with participation, against the long tradition in PNG with a directive government approach to rural development, it was difficult for the project to mobilise the communities in line with expectations. These uncertainties contributed to high cost investments in village infrastructure with limited attention to cost effectiveness and sustainability. Moreover, village development plans did not address social sector needs such as health and sanitation that are important to women and children.



## **D. Visits to Other Provinces: Common Issues**

The mission visits to the three other provinces (East Sepik, Madang and Eastern Highlands) demonstrated the commonality of the issues that have been described above. In these provinces, the mission focussed on sectoral issues, decentralised governance structures and institutional arrangements and capacity to implement rural development projects. The 1995 Organic Law (with subsequent reforms) was initiated to start the devolution of power to the provinces. But the machinery and the capabilities with which to ensure steady progress in such devolution are not yet in place.

Moreover, across provinces, two issues stand out. First, there is little or no data available with which to demonstrate that progress-monitoring systems have become operational, let alone that data on impact at household and community levels are collected and analysed. Second, even when directors, managers and project staff report that they perceive or rate impact to be high, sustainability of interventions is rarely if ever assured.

Three explanatory factors prevail. First, continuous or assured funding to maintain the activities beyond the date when the project will close is very rare. Second, ownership of the interventions at ward and LLG levels is rare, even in the primary health service sector. Third, the delivery system are high cost, *vide* the case of the UNDP supported micro credit schemes in Eastern Highlands, as well as the NSRDP supported scheme in Simbu. The former lends at a rate of 30%, whilst the *Wok Meri* groups lend at a far lower rate, at 14% on an annual basis.

### **Four dimensions were explored:**

**First, programme management capacity is limited.** The Government's capability to service the rural poor remains limited. The line departments are being restructured and downsized to reduce government expenditure on staff costs. Such downsizing generally starts with closure of offices and staff working in remote locations. This reduces further the access to services of already deprived families in remote locations. Closure of aid posts in the remote locations illustrates the point.

The government compensation structure is better than that of the private sector; in the public sector, qualified staff will not be lost because of inferior material incentives. Yet, the staff retrenchment procedures at the upper management level may be arbitrary: skilled officers are then unnecessarily lost. Moreover, the management information system that is vital for ensuring transparency is rudimentary. Low transparency contributes to limited community ownership of interventions.

**Second, sustainability of service delivery to rural communities is at risk.** Three factors contribute to this situation. First, the delivery cost of institutions involved in providing services to rural communities is high. Staff costs and overhead are high. Law and order problems and difficulty to physically reach rural communities compound problems. Second, the government resource allocation to deliver services to the rural communities has been low and is declining over time. Third, cost efficient community owned models for delivery of such services are yet to emerge. The micro-finance delivery strategy Lik Lik Dinau exemplifies this situation. The latter has operated since 1994: it is still unable to cover its cost of operation from interest earnings despite charging 30% per annum interest on loans.

**Third, community participation remains at its infancy.** Community participation in providing primary health care services is increasing. Reduction in the size of the government makes it all the more urgent to enhance community participation in a wide array of service delivery ranging from primary health, non-formal education, micro-finance to maintenance of access roads. Community participation and community level planning are yet to become the

building blocks of bottom-up planning as enshrined in the reformed Organic Law. Most donor interventions remain sector specific and physical output oriented. The stakeholders have limited exposure to the concept of participatory development.

**Fourth, the efforts in the formal development sector towards building social capital in PNG remain at an “infancy stage”.** Four factors contribute to limited efforts in creating much needed social capital, trust and “bonding” (for definition of social capital, see p.1). First, formal programme interventions in PNG typically have not recognised the untapped resource base provided by the indigenous networks and social systems of rural women despite their diversity in faith, clan and political affiliations. Second, the directive planning processes and top down service delivery have created dependency of the community upon government handouts (the “cargo cult”). Third, the social capital is further eroded when communities do not own the interventions. Fourth, most women groups at the rural community level are not supported with the exception of support inter alia from AusAid and Save the Children funded by the GONZ. Even in these cases, the support remains sector specific without a step-wise process of “graduation” for women to assume leadership roles.

## **IV. DECENTRALISED SERVICE SUPPLY WITH LIMITED PROVISION FOR RURAL ROADS**

### ***A. Legislation, Planning and Budgets***

#### ***(1) Organic Law in 1977***

A system of provincial government for Papua New Guinea came into effect in April 1977.<sup>10 11</sup> A new division of government jurisdiction under the reforms established 20 provinces, 89 districts, 284 local level governments and 5747 ward development committees. In July and October 1997, national and local elections were held and most representatives were elected.

The new Organic Law provides for increased autonomy, devolution of power, resources and responsibilities to provincial and local level governments. It is expected that people in the rural areas through increased participation in decision-making and implementation would obtain better services.

#### ***(2) System of Planning***

The Organic Law has mandated provincial and local level governments to prepare periodic plans. They are to prepare five-year rolling plans for the development of their province and LLGs. For instance, provincial governments visited in Simbu and East Sepik have prepared their five-year rolling plan and defined their development priorities. On the basis of such plans, a bottom up participatory planning process was expected to emerge.

#### ***(3) Budgeting***

The Organic Law has a guaranteed minimum budget that has to be allocated for the provincial and local level governments in the form of minimum unconditional grants, derivative grants, and additional unconditional grants. The National Fiscal Commission approves the derivative grants and conditional grants. Moreover, provincial and local level governments have been empowered to raise their own revenue in the form of taxes (retail sales tax, public entertainment tax, land tax, fees from mobile traders, liquor sales, court fines, etc.). They have the right to borrow for short-term investment and may raise profits from their commercial operations.

The national government supports the provinces through sectoral programme' budgets. Multilateral and bilateral donors support programmes and projects in the provinces.

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<sup>10</sup> The history of decentralisation in PNG is long. Even before independence in 1950's and 1960's administrative deconcentration/decentralisation was in place. The "Kiaps" within the districts enjoyed most of the administrative powers.

<sup>11</sup> After recommendation made by the Constitutional Planning Committee (CPC) to decentralise powers to provincial government and having arrived at political agreement to proceed with decentralisation, (Amendment no. 1, to the National Constitution).

#### **(4) Declining Funding**

The provincial grants aid flow has been nearly doubled from 1995 to 1997, but remained constant or even decreased after 1998. Responsibilities for essential services have devolved to provincial governments, for education, health, fire services, agriculture extension services, village courts and portions of police and regional prison administration. Yet, financial resources are not flowing to provincial government to meet the expenses for decentralised services. In recent years, funding of line departments has also decreased, for example, for livestock services in East Sepik.

Planning carries little weight, first because of absence of systematic criteria. Second, meaningful planning is made difficult, since provincial and local governments face severe financial constraints. In actual terms, case studies suggest that financial resources are decreasing. They are hardly sufficient for meeting administrative costs. In this situation, incremental development is impossible to achieve. It is even very difficult to maintain the existing service levels and present infrastructure.

Grant funding (conditional or unconditional) that provinces receive from the centre is mainly diverted to meeting the administrative operational expenses. Data for four provinces, (Eastern Highlands, East Sepik, Madang and Simbu) for provincial sectoral allocations are telling. Proportions for administrative expenses have increased in the last three years to reach levels ranging from 78% to 85% of the total provincial allocations. (see Appendice A to Chapter IV). Within this category, a high proportion is allocated to meet the expenses of provincial meetings and allowances of the assembly members. Little is left for to satisfy basic development needs. Provincial resource mobilisation is very limited.

In short, provinces find that they have not received from the National Government the grant budget as mandated by the Organic Law.<sup>12</sup> Provincial, district and local level officials complain that the allocated grant amount is not even sufficient for maintaining administrative expenses. The line agencies' allocations also are decreasing.

### **B. *Decentralisation Efforts and its Effects on Community Developments***

#### **(1) Limited Involvement in Planning**

Most planning exercises are in provincial and district level government offices, approved by the various committees and by the provincial assembly. Local level governments are hardly involved in the planning process. They approve expenditure plans and implement according to activities planned. Nor are the communities involved in planning process as expected. Funded activities do not reflect a systematic planning as indicated by the new Organic Law. There is a strong need to change planning culture at provincial levels. The absence of a systematic mechanism to involve communities in planning process thwarts community development efforts.

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<sup>12</sup> According to the Organic Law, a minimum amount is calculated for provinces, on the basis of population, land mass and sea area with an additional consideration for need of equity.

## **(2) Summary of Issues**

Community participation is a key success factor in decentralisation and in promoting local governance. But such systems are not in place. District and LLG governments, NGOs and the private sector need to be induced to fully participate. Provisions and mechanisms that promote an effective participation of communities are missing. Participation that takes place only by "representation" does not serve the purpose.

Seven issues thwart the imperative to ensure better service provision and living standards for the rural population.

- 1) Local communities are hardly involved in the planning process in contrast to the spirit of the Organic Law. Top down rudimentary ad hoc planning still dominates.
- 2) Centralist tendencies prevail at all levels and in most of the departments of the central level government.
- 3) Low level of investment takes place to strengthen capabilities at provincial, district and LLG level authorities (both elected and administrative) for effective delivery of services.
- 4) Budgetary allocations from the national government are low or decreasing; and the resource mobilisation base is not sufficient at provincial and local level governments.
- 5) Electoral development funds that are channelled through MP's run counter to the decentralisation principle and a systematic planning process that is driven by carefully considered local priorities.
- 6) The supporting infrastructure for devolution of power to provincial and sub-provincial levels is not operating in line with expectations. Examples are the National Monitoring Authority, the National Economic and Fiscal Commission, the Provincial Inspectorate, and provincial and district treasuries.
- 7) Decentralisation is not taken as seriously as it should be: local government service delivery is thwarted.

## **C. *Relative Spending on Rural Roads***

### **(1) Overview**

Access to markets and social services is a critical determinant for improved welfare in rural communities. Low-income groups place high priority on investment in rural infrastructure, maintenance of existing roads, construction of new roads, and provision of water supply.<sup>13</sup>

The diversified topography and terrain in PNG together with not well developed and fragmented modes of transportation system (road, water, and air) have adversely affected rural communities. Income levels correlate well with access to transportation. Those with the lowest living standards (consumption quartile), compared to the non-poor strata, travel over three times further to reach the closest road.<sup>14</sup>

Most rural roads in PNG are not well maintained and inaccessible during and after the rainy season. According to the Road Inventory and Road Maintenance study, only 46% of national paved roads and 37% of national unpaved roads were in satisfactory condition. Countrywide, only 27% of the existing road network was estimated to be in good condition in 1995 and the situation is likely to have deteriorated in subsequent years.<sup>15</sup>

Provincial and Local Level Governments are the main providers of rural road infrastructure; but they have limited capabilities to formulate longer-term road rehabilitation and maintenance

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<sup>13</sup> The World Bank, "Papua New Guinea – Poverty and Access to Public Services", October 1999.

<sup>14</sup> *ibid.*

<sup>15</sup> *ibid.*

plans. The funding for rural road projects has never met targets. Donors limit their interventions in road infrastructures to national highway and provincial trunk roads. Cases where local communities have been and or are involved in rehabilitating and maintaining small-scale rural infrastructure are difficult to find.

However, in general, the local Government administrations are highly dependent on the national grants. It is estimated that the Provincial Governments depend for 73% of its total revenue on the national grants and the rest is derived from provincial internal revenues.<sup>16</sup>

The actual disbursements of national grants to provincial governments and LLGs for road infrastructure projects do not meet the targeted amount. The actual cash flow of the national grants to the local government administrations cannot be traced. The Finance Sections at Provincial, District and LLG Administration do not use a proper systematic accounting system with which to monitor cash flow. Cash receipts, vouchers and other financial documents are not systematically kept. However, in the case of the Madang Provincial Administration, actual disbursements represent approximately 60% of the original appropriation (Annex 2, Table 2).<sup>17</sup> In another instance, Ambenob District Administration in Madang Province commented that it has not received the District Support Grant since 1997.

With the scarcity of national grants for infrastructure, the Provincial, District Governments and LLGs are not able to perform in line with their responsibilities specified in the Organic Law. It is often the case that the Provincial and District Government give higher priorities to maintenance for provincial trunk roads and urban town roads and cannot afford to maintain rural roads. As a result, LLGs have to take over the responsibility for provincial feeder roads. LLGs, then, have to concentrate its resources on feeder road projects because this class of roads serves a larger population than access roads. In many LLGs, access roads are excluded in LLG projects and rarely maintained.

Community supported rural road infrastructure to supplement the insufficient Government service delivery is almost non-existent in PNG. When LLGs carry out rural road infrastructure projects, they often hire villagers for labour; but they do seek to “induce” community contributions through the community assuming an “ownership” of the assets created.

In the past, it was reported that villages used to take responsibility of maintenance of each respective access road by carrying out small-scale maintenance work such as bush clearing. However, that custom expired when the Government in the 1970's and 80's expanded its efforts to create rural infrastructure services. Villages are now highly dependent on Government services, even though many villagers are aware that the Government does not have sufficient funds and capabilities to respond to their demand. This shortage of funds for the maintenance of priority infrastructure is made worse with the introduction of the Rural Development Fund.<sup>18</sup>

The Rural Development Fund is based on contributions allocated by MPs. Every MP receives K 1.5 million through its Member of Parliament. Guidelines have been issued for the use of the Fund. However, the Government does not ensure accountability in spending. In many cases, the Fund is used for buying votes. Some funds have been used for purchase of large-scale machinery for road maintenance. Such injection of money for infrastructure would temporarily ease the demand for rural road maintenance. However, in this process, the Government has missed an opportunity to increase its administrative capability for community mobilisation and

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<sup>16</sup> The total indicative revenue estimates appropriation in Madang Provincial Government for the year 2000 is K44 331.5, while the estimates of the total grants revenue and internal revenue are K32 257.8 and K12 073.7 respectively.

<sup>17</sup> Estimated from the amount of the National Grant Warrant Authority against the Original Appropriation of infrastructure grants from January to September in 1998 for Madang Province.

<sup>18</sup> Known also as the Electoral Development Fund.

cost sharing, which would have supplemented the Government's limited service delivery capabilities in rural infrastructure.

## **(2) Donors' Support in Rural Road Infrastructure**

In PNG, donor funding for road infrastructure projects is not in short supply. However, most donors focus on national highways and urban roads. The donor support is mostly centred on physical outputs; it rarely incorporates concepts such as community mobilisation and institutional development.

AusAID is funding projects for upgrading and maintenance of national highway and city roads. Three projects are ongoing: the Highlands Highway Upgrading Project; the National Roads Regravelling and Sealing Project; and the Lae City Roads Upgrading Project with the AusAid project funding of A\$50 million, 66 million and 46 million, respectively. The projects are implemented through private contractors. There are no distinctive activities to develop local capacity in management of rural infrastructure projects except for the Highlands Highway Upgrading Project, which has provided technical capacity building at the level of provincial departments.

The Japanese Government has been providing official loans of Japanese Y8 976 million to PNG for the road sector since 1985. However, these are exclusively directed for the trans-islands highway and national road constructions and rehabilitation.

The Asian Development Bank has recently launched a USD 115 million project of Road Maintenance and Upgrading (Sector) Project. The Project aims to: (i) upgrade the country's road network to an extent that agriculture, mineral, and industrial sectors are served with an adequate network of road links to ports and to markets; and (ii) provide communities with an access to minimal social services, including health, education, and government services to improve rural welfare. The activities of the project include: (i) road upgrading, rehabilitation, and resurfacing subprojects in the Provinces of Eastern Highlands, Enga, Simbu; 'Southern Highlands and Western Highlands within the Highlands region selected in accordance with agreed selection criteria; (ii) maintenance works on the National and Provincial road network in the Provinces under the Project using Road Asset Management System; (iii) detailed engineering design works and construction supervision, and (iv) strengthening project implementation and road maintenance operations through the Highlands Region Maintenance Group (HRMG).

The Project contains provision for maintaining provincial road networks. Access roads would not be the main intervention area in the project. While the project sets no limits on category of roads for upgrading, rehabilitation and resurfacing subprojects, the selection criteria for subprojects require a minimum 12% of economic return.

Developing community ownership and participation is not at the centre of the project concerns. The project design specifies that contractors will be responsible for the works to be undertaken.. The project proposes to involve communities for small-scale maintenance such as vegetation control and drainage clearing through contracts during the six-year implementation period. This arrangement will assist communities by providing temporary cash income. However, the sustainability of such arrangement is uncertain due to the limited funding capabilities of the Government.

## **(3) IFAD's Experience with Rural Roads**

IFAD is the only donor that assists rural road infrastructure through projects. South Simbu Rural Development Project (SSRDP), which closed in December 1995, included a road

improvement and rehabilitation component to increase the reliability of farmers' access to agricultural services and markets. The component was designed to improve the roads between Omkolai-Gumine (14km) and Dirima-Gomgale (13km), implemented by the Provincial Department of Works.

The Interim Evaluation of SSRDP (1991) reported that the 14 km of road between Omkolai and Dirima have been rehabilitated to an acceptable standard. All construction works on the 13 km of road between Dirima and Gomgale were complete.

The on-going IFAD project, North Simbu Rural Development Project (NSRDP) provides funds to upgrade six access road links in six districts. The activities of the road upgrading programme include: (i) reshaping carriageways; (ii) widening carriageways, particularly at sharp bends; (iii) building, repairing and reinforcing culverts and drainage structures; (iv) re-sheeting all sections; and (v) replacing or reconstructing weak or damaged bridges. The work was assigned to the Provincial Department of Works.

Although there was progress in physical output in the rural road components in both projects, the projects failed to mobilise communities. The sustainability of the road after the termination of the projects is uncertain.



## APPENDIX A TO CHAPTER IV

**Table 1**  
**Expenditure Description for SIMBU Province and Sectoral Allocations**  
*(in '000 kina)*

S. N.	Description	Actual		Appropriation			
		1998	%	1999	%	2000	%
1.	Administrative expenses	19126.9	71.97	15767.9	71.64	20609.5	84.84
2.	Health services (Church)	1007.5	3.79	1458.4	6.63	995.9	4.10
3.	Education	1671.0	6.28	1801.2	8.18	1801.2	7.42
4.	Infrastructure Dev. grant	2485.6	9.35	597.5	2.71	597.5	2.47
5.	Local level services grant	2131.2	8.02	2162.7	9.83	65.2	0.26
	<i>Sub-total</i>	<i>26422.2</i>	<i>99.41</i>	<i>21787.7</i>	<i>98.99</i>	<i>24069.3</i>	<i>99.09</i>
6.	Misc.	151.3	0.54	220.4	1.01	220.4	0.91
	<b>Total</b>	<b>26573.5</b>	<b>100.00</b>	<b>22008.1</b>	<b>100.00</b>	<b>48359</b>	<b>100.00</b>

**Table 2**  
**Expenditure Description for East Sepik Provincial Government and Sectoral Allocation of Budget Year 2000**  
*(in '000 kina)*

S. N.	Description	Actual		Appropriation			
		1998	%	1999	%	2000	%
1.	Administrative expenses	21997.2	65.55	19670.6	67.62	25219.7	84.00
2.	Health services (Church)	1537.7	4.58	2212.4	7.60	1300.0	4.33
3.	Education	1800.0	5.36	820.5	2.82	820.5	2.73
4.	Infrastructure Dev. grant	4643.0	13.83	2204.7	7.58	2204.7	7.34
5.	Local level services grant	3413.0	10.17	3943.9	13.56	239.2	0.80
6.	Town urban services	532.0		239.2		239.2	
7.	District support	900.0		1500.0		0	
	<i>Sub-Total</i>	<i>33390.8</i>	<i>99.49</i>	<i>28852.1</i>	<i>99.18</i>	<i>29784.1</i>	<i>99.20</i>
8.	Misc.	170.6	0.51	238.5	0.82	238.5	0.80
	<b>Total</b>	<b>33561.4</b>	<b>100.00</b>	<b>29090.6</b>	<b>100.00</b>	<b>30022.6</b>	<b>100.00</b>

**Table 3**  
**Expenditure Description for Madang Provincial Government and Sectoral Allocations,**  
**Budget Year 2000**  
*(in '000 kina)*

S. N.	Description	Actual		Appropriation			
		1998	%	1999	%	2000	%
1.	Administrative expenses	18335.9	59.22	17953.3	62.40	23524.7	78.90
2.	Health services (Church)	1591.1	5.44	2206.0	7.66	1144.9	3.84
3.	Education	3000.0	9.69	1367.6	4.75	1367.6	4.58
4.	Infrastructure Dev. grant	5644.0	18.23	1963.5	6.83	1963.5	6.58
5.	Local level services grant	1691.0	5.46	3720.4	13.18	326.9	1.10
6.	Town urban services	537.0		326.9		326.9	
7.	District support	900.0		1500.0		1500.0	
	<i>Sub-Total</i>	<i>30262.0</i>	<i>97.74</i>	<i>27280.8</i>	<i>94.82</i>	<i>28327.6</i>	<i>95.00</i>
6.	Misc.	697.4	2.26	1488.3	5.18	1488.3	5.00
	<b>Total</b>	<b>30959.4</b>	<b>100.00</b>	<b>28769.1</b>	<b>100.00</b>	<b>29815.9</b>	<b>100.00</b>

**Table 4**  
**Expenditure Description for**  
**Eastern Highland Provincial Government and Sectoral Allocations**  
*(in '000 kina)*

S. N.	Description	Actual		Appropriation			
		1998	%	1999	%	2000	%
1.	Administrative expenses	26511.5	65.6	22506.4	64.9	28160.9	78.2
2.	Church health services	869.1	2.2	1225.5	3.5	600.0	1.7
3.	Education	4000.0	9.9	3994.2	11.5	3994.2	11.0
4.	Infrastructure	3909.9	9.7	1670.2	4.8	1670.2	4.6
5.	LLG Grant	2079.0	5.1	1670.2	4.8		
6.	Town urban services	411.3	1.0	243.3	0.7	243.3	0.7
7.	District support G.	1200.0	3.0	2000.0	5.8		
8.	Derivation grant (equity)	1391.2	3.5	1382.6	4.0	1382.6	3.8
	<b>Total</b>	<b>40372.0</b>	<b>100.0</b>	<b>34692.4</b>	<b>100.0</b>	<b>36051.</b>	<b>100.0</b>

## **V. MICRO-FINANCE IN PAPUA NEW GUINEA**

### ***A. Introduction***

An analysis for PNG of micro-finance, the evolution of financial services, and the comparative advantage of the semiformal institutions is called for. But for this a detailed analysis is required not least of the formal sector institutions. For this reason, this Chapter should be read in conjunction with Annex 4; the latter analyses the formal financial infrastructure in PNG more fully. Our analysis points to the limited ability of formal financial institutions to provide financial services to the rural clientele. This Chapter analyses semi- and informal services in rural PNG to distil best practices. Efforts have been made in this report to validate three hypotheses that confront policy makers in most developing countries. They are:

- 1) Formal and semi-formal financial institutions are unable to provide cost effective and sustainable financial service delivery;
- 2) Institution led retailing of credit to individual households is not a cost effective service delivery mode, especially in distant areas with low population density); and
- 3) Traditional financial service models that are able to provide sustainable service delivery in rural areas do already exist in PNG.

In the final analysis, a strategy is provided for developing financial services in the rural areas of PNG is properly based on the experience of formal, semi-formal and informal institutions.

### ***B. Challenges Facing Micro-finance in PNG***

Micro-finance refers to small savings, credit and insurance services extended to socially and economically disadvantaged segments of society. In the PNG context, “small holders”, “rural artisans” and “subsistence farmers” broadly comprise the range of micro-finance customers. Provision of thrift, credit and other financial services in very small amounts to the resource poor households in rural, semi urban or urban areas enable them to raise their income levels and improve living standards.

PNG has a rural population of 4.5 million. About 95% live below the poverty line. It is estimated that of these rural households, about one percent only has access to credit from the formal sector. Moreover, the segment of the rural population above the poverty line, but not rich enough to be of interest to the FFIs, has insufficient access to the formal financial intermediary services, including savings services.

Compared with the size of the country and the immensity of the need, the micro-finance sector in PNG is woefully underdeveloped. The viability of micro-finance in the formal sector has been undermined by:

1. mixing credit with subsidies;
2. limits on lending rates, which do not cover operating costs and risks;
3. inappropriate regulation which discourages innovation or expansion;
4. a simplistic reliance on collateral-based rather than joint liability lending (social collateral);
5. the use of complex procedures which raise transaction costs for the institution and the borrower; and
6. political interference in the process of loan appraisal and approval;

Widespread use of subsidies starts a vicious circle. The subsidies attract the rural elite to capture the existing services for the poor. In the process, loan repayments decline, which

undermines financial sustainability. Worse, incorrect beliefs are perpetuated that the 'poor' are not creditworthy, all this limit service delivery to the genuinely poor.

Credit on reasonable terms to the poor can bring about a significant reduction in poverty. With this hypothesis, micro credit assumes significance in the PNG context. With globalisation and liberalisation of the economy, opportunities for the unskilled and the semi-literate are not increasing fast enough, as compared to the rest of the economy. This is leading to an imbalanced growth in the economy, thus increasing the gap between the "haves and have-nots".

The demand for savings services is even higher than that for credit. Studies of rural households show that the poor, particularly women, are looking for ways to save small amounts whenever they can and also to protect existing financial assets. The irregularity of cash flow and the small amounts available for savings at any one point in time, deter them from using formal channels such as banks.

The mainstream financial institutions are flush with funds and have access to enormous amounts of low cost savings deposits. Both formal and semi-formal financial institutions in PNG have been unsuccessful in providing financial service to the rural households. Several factors contribute to the inability of formal and semi-formal financial institutions to service the rural households and their subsequent withdrawal.

First, the products and procedures of the FFIs are client unfriendly. The products and procedures of these institutions have been designed keeping the large borrowers in mind. With a majority of the customers being semi-literate, and a majority of them needing consumption loans, the requirement of documentation and collateral have been the major barriers for access by the rural households.

Second, the transaction costs are high for both the borrower and the institutions. The rigid systems and procedures of the FFIs result in much time delay for the borrowers and demotivate them to take further loans. The transaction costs, in terms of the number of trips to be made, the documents to be furnished etc., increase the cost of borrowing and saving. Borrowers find it less attractive to access financial services from formal institutions.

Third, the overhead costs of FFIs are high resulting in inability of even the specialised micro-finance institutions to cover costs and deliver financial service on a sustainable basis. There is no difference between the salary structure of staff engaged in micro-finance and the staff in commercial banking structures. The wage structure of the formal sector is high compared to other competing economies. Relatively high wages, combined with low levels of productivity, have led to high costs in PNG's formal financial sector. Training of staff and skill development has not been given sufficient priority.

Fourth, the credit delivery methodology adopted by the formal and semi-formal financial institutions is not suitable for areas with sparse population and limited infrastructure. They retail credit to individuals. In such a mode, focus needs to be on large borrowers. Small borrowers are often overlooked because of high costs of credit delivery and supervision.

Fifth, the law and order problems have a pervasive and negative impact on PNG's social and economic development in general and financial sector development in particular. It is responsible for substantial increase in the business costs due to increased cost of security, insurance and wage. It restricts hours of business. Due to this problem, most formal and semi-formal financial institutions are town-bound and do not venture into rural areas.

Sixth, the efforts in the formal development sector towards building social capital in PNG remain at an "infancy stage". Four factors contribute to limited efforts in creating much needed social capital, trust and "bonding". They are: (i) formal programme interventions in PNG typically have not recognised the untapped resource base provided by the indigenous networks and social systems of rural women despite their diversity in faith, clan and political affiliations;

(ii) directive planning processes and top down service delivery have created dependency of the community upon government handouts (the “cargo cult”); (iii) the social capital is further eroded when communities are not owning the interventions; and (iv) most women groups at the rural community level are not supported; exceptions are activities undertaken *inter alia* by AusAid and Save the Children funded by the GONZ. Even in these cases, the support remains sector specific without facilitating a step-wise process of graduation for women to assume leadership roles.

### **C. Semi-Formal Institutions**

#### **(1) Lik Lik Dinau Abitore Trust**

The micro credit and savings project implemented by Lik Lik Danau Abitore Trust (LLDAT) began operations in 1994 in Goroka, Eastern Highland Province. The project is based on the Grameen Bank model and provides credit to poor, mainly rural women. LLDAT’s goal is to improve the living standards of disadvantaged women through credit-financed small business.

The government provided initial funding through its Department of Village Service and Provincial Affairs (K 100 000) and through a grant of the peace foundation (K46 000). UNDP contributed towards technical support through the UN Volunteer scheme. AusAid, in 1996, provided funding of K195 650 for expansion of branch network. AusAID was granted observer status on the LLDAT board.

Serious funding problems emerged in 1997 when the government gradually withdrew its financial support. The PNGBC submitted a proposal to take-over financial control and operational responsibility for the Trust through a registered company. The Board of LLDAT rejected the proposal; it feared that the domination of the Trust by a commercial bank could negatively impact implementation of its poverty alleviation strategy.

In 1997, an AusAID review of the project stressed the need for urgent organisational strengthening measures, a significant reduction in the level of arrears and an increase in productivity in order to achieve long-term sustainability. Despite these recommendations, LLDAT kept expanding its branch network without consolidating its operation. Serious accounting and management problems become evident at the end of 1998. Several changes occurred at the top management level. The financial position of LLDAT deteriorated.

A loan of K 150 000 in 1998 from VFL helped to bridge temporarily the liquidity problems. But in November 1998, liquidity problems forced LLDAT to place a moratorium on loan disbursements. The operating costs are still being met by grants given by AusAid (A\$ 60 000) and the national government (K 50 000). AusAid has approved a further grant funding of K 200 000 subject to a substantial improvement in performance with a plan to achieve operational sustainability within three years. In April 1999, the board was reconstituted under a new Chairman. In November 1999, a General Manager was recruited. LLDAT is again facing liquidity problems. In October 2001, reportedly it was considering closing its lending operations, with foreseen negative impact on clients’ confidence.

LLDAT uses the Grameen methodology of credit delivery. Eight principal features characterise the approach used:

- 1) Group-based lending. Groups of five self-chosen beneficiaries are formed for borrowing purpose. Six groups constitute a Village Centre;
- 2) Meeting for credit and savings operations are held weekly at which attendance of all group members is compulsory;
- 3) Group members undergo comprehensive training before receiving loans;

- 4) Groups are responsible for the approval, disbursement and recovery of the loans under the guidance and supervision of the field staff;
- 5) The upper limit of the loan is K 350 for the first cycle, K 700 for the second, K 800 for the third, and K 1 000 for a fourth cycle loan.;
- 6) Loan disbursed follow the 2+2+1 system. Only two members receive loans in the first instance. Two more members receive the loan after the first two borrowers repay the loan promptly for six weeks. The Chairman is the last to obtain a loan;
- 7) Borrowers usually have to split up the loan amount for two purposes: first to finance the main business project, which should produce profit after some months (e.g., chicken raising), and second, to finance an activity which should produce an immediate profit to repayment of the loan directly from the start(e.g., betel nut selling); and
- 8) The loan is repaid in 50 equal instalments at a flat interest rate of 35% p.a.

The quality of the LLDAT portfolio is constantly deteriorating with more than 50% of the portfolio at risk. After six years of operations, LLDAT covers less than 30% of its operating and risk costs. Staff productivity is relatively low with 135 active borrowers per field officer; this may be compared to similar institutions that achieve levels of at least 300- 400 outstanding loans per field officer.

LLDAT has been unsuccessful in building up a sizeable group of customer with requisite performance record reflected in successive graduation to higher loan amounts. It still has to concentrate its resources on the most expensive 1<sup>st</sup> cycle borrowers. Start-up costs (awareness raising, group formation, monitoring of business progression, etc) and risk costs of these borrowers are much higher than those of borrowers with required the performance record. Average loan amounts are higher and default rates lower amongst experienced borrowers.

LLDAT operates in 142 Village centres; 64 in Goroka, 36 in Kainantu and 42 in Asaro. Total staff strength is 17 with 11 field workers. Total membership of LLDAT is 2704 and the number of active borrowers is 1 495. Each field office on an average services 245 members and 135 borrowers. LLDAT offers a standard one-year loan and a variety of savings funds, both voluntary and compulsory. It is estimated that the wilful default rate is as high as 30%. Additionally, the ongoing temporary ceasing of new loans can severely affect client confidence in the institution with negative impact in using the element of peer pressure for risk control. Once group members perceive that the institution does not guarantee continuous finance, incentives to repay loans decline. LLDAT offers three types of compulsory saving funds and a voluntary savings fund. The funds collected are kept with the commercial bank. The savings products are: (i) group fund; (ii) mutual aid fund; (iii) default fund; and (iv) voluntary savings fund.

According to the last financial statement audited in 1998, 27% of the total savings are mobilised voluntarily. The compulsory savings (K 90 000) is about one-half of the total outstanding loans (K 212 300).

A management information system (MIS) is virtually non-existent. There are no up-to-date and accurate details of the portfolio pertaining to outstanding balance, repayment performance and portfolio health. The management functions cannot be discharged effectively without reliable information. Five main problems confront LLDAT. They are: (i) insufficient capacity of the existing governance structure to effectively steer the institution towards sustainability; (ii) deteriorating loan portfolio accompanied by a decreasing client's confidence in LLDAT as a stable provider of micro-finance services; (iii) inadequate target group definition, which is dominated by a poverty alleviation approach and resultant inability of the institution to develop a critical mass of clients for sustainable operations; (iv) inadequate management information system; and (v) high cost service delivery.

## **(2) North Simbu Rural Development Project**

A credit scheme was developed within the framework of the North Simbu Rural Development Project (NSRDP). In March 1998, the project received seed capital of K 30 500 from the Department of Home Affairs to cover operational and administrative costs. A seed capital of K 72 000 from IFAD helped to start credit operations in two districts. Austrian Volunteer Service provides Technical Assistance. The Department of Commerce provided equipment and office space. NSRDP design did not set out an adequate framework for developing groups and delivering credit. It did not set out a process with which to mobilise and empower groups, develop skills, trust or social capital within groups prior to credit delivery. The group approach to credit delivery failed. Three factors contributed. First, the implementers did not support the traditional groups, the *Wok Meri* groups and church groups, but instead new groups were formed for the purpose of credit delivery. Second, a ladder approach to develop social capital consisting of six important steps was not followed: (i) forming new groups or strengthening existing groups; (ii) capacity building for group management and book keeping; (iii) savings mobilisation; (iv) credit delivery within the group using the savings; (v) equity support to performing groups to increase their capital base; and (vi) subsequent linkage to the micro-finance institution to obtain wholesale credit.

The project has shifted to provide individual credit for business activity; in other words, it targets better-off households. The Commerce Division of the Provincial Administration handles micro-credit operations. The current arrangements are not sustainable. Individual credit delivery system requires an intensive supervision: this increases transaction costs. The Commerce Division in the long term will not be able to provide micro-finance service. The current institutional framework is a hindrance for such development.

The target group is underprivileged women. Borrowers are screened through visits to the client house and through inquiries with the local leaders. Loans are given without collateral. But mortgage of the assets acquired from the loan amount is required. Loans are disbursed to women who have savings equivalent to one instalment. The interest rate is 20% per annum on a flat basis. Higher interest of 30% is charged to customers with higher income.<sup>19</sup> A penalty of 5% of the outstanding amount is charged for late payment. The loan ceiling for the first cycle loan is set at K 700.

The maximum amount for the follow-up loan is K 2 000. Two types of repayment terms are provided. First, a repayment period of 12 months is provided with 12 instalments. Second, the loan is repayable in 10 instalments over one year with repayment holiday of two months. The project until September 2000 had disbursed K 114 950. The cumulative repayment rate is 88%.<sup>20</sup> Tangible assets are seized in case of default. Savings is mobilised but no interest is paid. Savings are deposited with PNGBC and not used for credit operation.

### ***D. Informal Financial Service Delivery***

The paucity of data, information and literature makes it very difficult to understand the informal financial service delivery. Yet, the interviews conducted by the mission in four provinces give evidence of systematic and efficient informal financial service models in PNG.

#### **(1) Informal Savings**

Two characteristics of informal savings behaviour stand out. First, informal savings in PNG primarily occur in the form of coins and currency notes. The women in PNG generally do not

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<sup>19</sup> Households with a member having formal employment.

<sup>20</sup> As per information provided by the project.

save in jewellery or gold. Second, the other most common arrangement is “savings groups”. They are set up for different purposes and are found in both urban and rural sectors. In the rural sector, such groups involve members of a given tribe, village, clan or sub-clan. They contribute savings regularly or irregularly to collect money for a given purpose such as payment of church fees, investment in a vehicle or build some form of common facility. Generally savings are handed over to a leader who keeps the money with him until the need to use the fund arises. When small savings groups are set up for specific purposes, it is not uncommon for members to work as a group to earn money for contributions. Often people work on farms to earn money for such groups. The savings groups evolved from traditional arrangements, which have been operating for a long time in the rural communities under which groups of people collected various goods to make relatively large payment.

The other savings arrangement in the informal sector is through the rotating savings and credit association (ROSCAs), known as “*Sandes*” in Pidgin. “*Sandes*” are found all over PNG and is common among schoolteachers and relatively low-income groups such as plantation workers. They are not so common in high-income groups. The salient features of the *Sandes* groups are:

- 1) Groups are often small, the most common size being four or five;
- 2) Almost always the contribution interval is two weeks;
- 3) Members are known to one another;
- 4) Every member contributes a fixed sum in each turn;
- 5) Recipients are selected through consensus rather than lottery or other methods; and
- 6) Size of the group is intentionally kept low in order to facilitate quick transactions and to avoid default.

“*Sandes*” are more widespread among low-income households than within other socio-economic groups. This suggests that these people are eager to save, despite low incomes; on the other hand, the formal sector schemes do not cater to the need of this clientele.

Another important informal savings arrangement is the *Wok Meri* groups. These groups, known as “mothers”, originated in the early 1960s as an effort by women to improve their low or deteriorating economic status. The women form informal groups consisting of two to thirty five members to save money, which is earned from selling vegetable, coffee, or occasionally, their labour. Their activities consist of two distinct phases – a savings phase and an investment phase. After a group has collected money for about five to nine years, they end the savings phase of their activity with a large ceremony.

The *Wok Meri* organisational unit is based on kinship. Each *Wok Meri* group engages in savings under the leadership of one or two “big women”. The “big woman” plays a key role in the group. She organises a new group, establishes and maintains ties with “big women” from other groups, arranges meetings and ceremonies and leads the ritual. The “big women” also encourage their group members to save more money. They offer to save more than other members do.

Each *Wok Meri* group promote at least one new group (known as daughters) and encourages members of that group to save money by giving them small loans. Since there is a ban on withdrawing money already deposited in the *Wok Meri* accounts, the daughters must quickly save money to repay their mothers. *Wok Meri* groups have a savings system that is similar to banking. Each woman deposits her money into an account and a record is kept in her small notebook. Her money is kept in her own cloth bundle or mesh bag. All the members’ bundles of money are stored together in the leader’s house. Money is deposited at the meetings in the evening of a market day. Savings meetings are brief affairs and provide a chance for relaxed conversation among members. It is not known how many such groups exist in PNG. They are reported to be most prevalent in Eastern Highlands and Simbu Provinces.



## **(2) Informal Credit**

A multiplicity of informal credit arrangements exists in PNG. One such important arrangement is the credit extended by wantoks. These loans do not generally carry interest. People rely on credit from wantoks for many different purposes, including business. The leaders in rural as well as urban sectors have made use of the tradition of combining resources of clan members to obtain credit for starting income generating activities. The business leaders in different parts of the country have been able to finance considerable investments through such credits, mobilised sometimes from a large number of clansmen. Often, these loans are made interest free and open-ended with no clear-cut repayment obligations. However, the lender expects repayment in some form in the future.

The *Wok Meri* groups also operate in the informal credit market in addition to their savings functions. These groups have inter-group credit transactions. Loans provided by the lender *Wok Meri* is apportioned into small loans among the members of the group receiving loans, depending upon each member's willingness to accept debts and their ability to repay. Each member takes on the responsibility to repay each of her small loans when the lender *Wok Meri* 'washes hands'. These debts are individualised but not personalised.

The *Wok Meri* uses a more complex system of savings and credit than the PNG version of ROSCA. It involves a fairly longer commitment of the members. The savings phase alone ranges from five to nine years. Thus, the involvement of women in such groups indicates clearly their determination to save money over a long period. The ritual aspects of *Wok Meri* also call for greater commitment and dedication from the members.

There are indications that some *Wok Meris* after completing their savings phase tend to prefer the less complicated short-term involvement in ROSCAs. In addition, some of the groups have started giving out individual loans and charge interest on loans. The *Wok Meris* interviewed by the mission are already in this mode of credit delivery among themselves.



## **VI. SURVEY OF WOMEN COMMUNITY BASED ORGANISATIONS IN FOUR PROVINCES: STRENGTHS AND WEAKNESSES**

### ***A. Introduction***

Until the 70s, development practitioners regarded norms and institutions of traditional societies to represent a hindrance to development. But knowledge has evolved. Analysts have realised that local organisations, clubs, and associations not least for deprived communities represent a foundation with which to find co-operative solutions to cope with scarcity of natural resources and technology.<sup>21</sup>

Co-operative behaviour at community levels reflects trust and shared values and translates into social capital.<sup>22</sup> Social norms and customs enable people to co-operate even in the absence of formal contracts and enforcement. Such institutions represent a point of departure to improve the well being of communities. With this perspective, it becomes important to analyse the capabilities of community level organisations so as to learn their strengths and weaknesses.

The CPE mission undertook with this perspective in October 2001 a survey of women community-based organisations (CBOs) in the provinces of Simbu, East Sepik, Eastern Highlands and Madang of Papua New Guinea. This chapter presents the results of this survey.

### ***B. The Survey, CBO Taxonomy and Distribution***

#### ***(1) Sample and Definition***

The mission conducted interviews of CBO leaders and members in four provinces (see Map 1): Simbu (31 CBOs), East Sepik (36), Eastern Highlands (21) and Madang (24).<sup>23</sup>

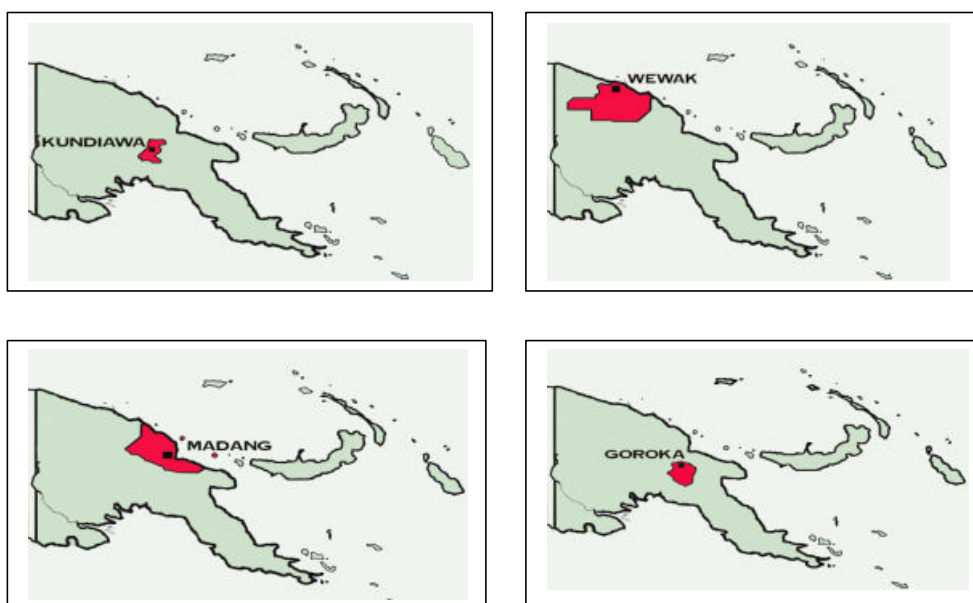
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<sup>21</sup> Narayan, D. (1997), *Voices of the Poor. Poverty and Social Capital in Tanzania*, The World Bank, Washington DC.

<sup>22</sup> Social capital can be defined as the relationships, social norms and institutions that enable people to act in a community. Social capital unlike human capital, “*isn’t what you know but who you know*”, Woolcock and Narayan (2000).

<sup>23</sup> In Simbu and East Sepik a total number of 310 households were sampled in the area covered by corresponding CBOs.

**Map 6.1. Papua New Guinea, Provinces of Simbu, E-Sepik, Eastern Highlands and Madang**



In clockwise order the Provinces of Simbu (headquarter Kundiawa), East Sepik (headquarter Wewak), the Eastern Highlands (headquarter Goroka) and Madang (headquarter Madang).

### **C. Five Categories of CBOs**

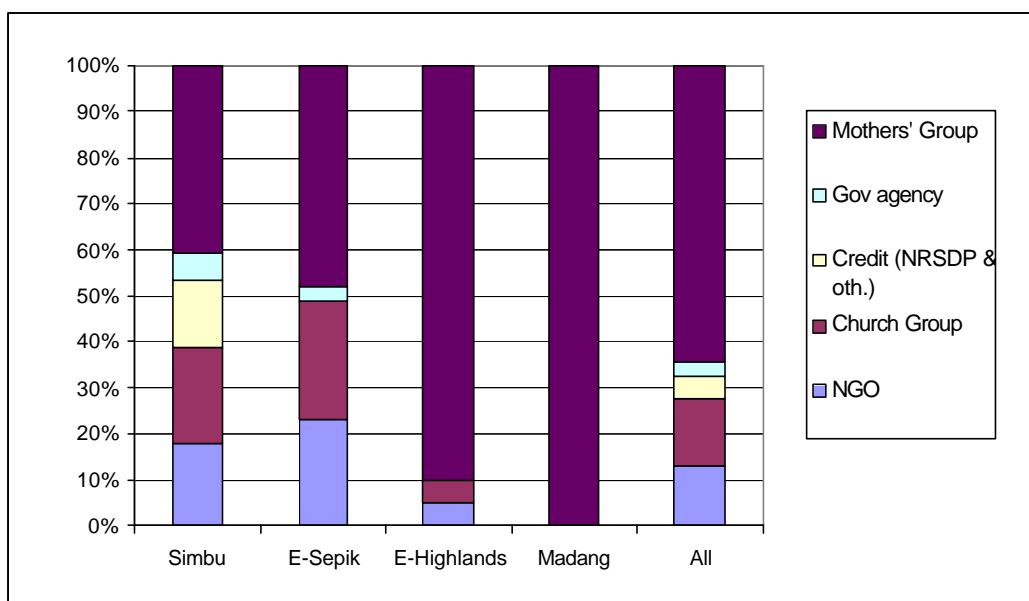
Six types of CBOs were interviewed: (i) *Wok Meris* (autonomous Mother's Groups); (ii) religious groups (mostly autonomous); (iii) CBOs created by a Government agency; (iv) CBOs fostered by credit programs (in our case associated with IFAD-sponsored NRSDP); and (v) CBOs created by a NGO.

In Simbu and East Sepik, the single largest category of CBOs visited belonged to the traditional Mothers' Groups, about 40% and 50%, respectively. Cases of community organisations initiated by Government agencies were found only in Simbu and East Sepik. In Simbu, about 15% of credit groups received support from the NRSDP. In both provinces, in Simbu and East-Sepik, about 20% of the CBOs interviewed belonged to the NGO category. Church groups, created by religious organisations represented 21% and 26% of CBOs in Simbu and East Sepik, respectively and 5% in the Eastern Highlands.<sup>24</sup> In Eastern Highlands and Madang provinces, Mothers' Groups dominate and represent 65% of the total sample (Graph 1, column 5).

External agencies commonly sponsor CBOs. External organisations sponsor CBOs to an extent of 79% in Simbu, in East Sepik 48%, and in Eastern Highlands 48%. In Madang, external support was not found.

<sup>24</sup> The mission collected data about the first and second dominant church in each community. Overall the first dominant churches were: Catholic (37%), Lutheran (37%), Seventh Day Adventist (10%), others (16%); second dominant churches: Catholic (17%), Lutheran (16%), Seventh Day Adventist (18%), others (48%).

**Graph 6.1. Distribution of CBOs by Initiating Organisation**



## **D. Main Features of CBOs**

### **(1) Age of CBOs**

The age of CBOs represents a clear indication of its sustainability. Three age classes of community organisations were recorded: 0-2 years, 2 – 10 and more than 10 years. CBOs are distributed almost equally across these three categories (Table 1). Exceptions occur for Madang and the Eastern Highlands: in Madang, almost half (46%) of Mothers' Groups were more than 10 years old. In contrast, in the Eastern Highlands, more than half of the CBOs (52%) had been created in two years preceding the time of interview (October 2000).

### **(2) Group Size: Women's Groups Are Smaller and Have Higher Proportion of Active Members**

Group size, defined as number of members, exhibited wide variations, both within and across provinces. In Madang and in the Eastern Highlands, unassisted Mother's Groups represent the predominant type of community organisations: membership typically ranges from 15 to as many as 200 persons. In Madang and Eastern Highlands, relatively small groups dominate. Groups with less than 50 members represent 79% and 85% of the surveyed CBOs, respectively (Table 1).<sup>25</sup> But the frequency of larger sized groups is pronounced in Simbu and East Sepik: in areas where NGOs and governmental agencies had initiated community projects, new beneficiary groups had been promoted. The latter could have more than 1 000 members. This explains why more than a third, 36% and 45% of groups in Simbu and East Sepik, respectively had more than 50 members.

In all provinces, when the active members are considered, the category of “25 persons or less” dominates. In Simbu and East Sepik, relatively few members are active in the community development projects. Instead, in Madang and Eastern Highlands, the number of members was a more realistic indicator of effective participation.

<sup>25</sup> The latter figures have been obtained by summing up the first two rows for group size.

**Table 6.1. Age and Size of CBOs by Province (%)**

	<b>Simbu</b>	<b>East Sepik</b>	<b>Madang</b>	<b>Eastern Highlands</b>	<b>Overall</b>
<u>Age of the Group</u>					
More than 10 years	36	35	46	14	34
2-10 years	36	42	21	33	34
0 – 2 years	28	23	33	52	32
<u>Group Size</u>					
25 or less members	44	35	29	71	44
26-50 members	19	19	50	14	25
More than 50 members	36	45	21	14	31
<u>Active members</u>					
25 or less	75	52	62	71	65
26-50	17	16	25	19	19
More than 50	8	32	13	10	16

### **(3) The Leaders**

Quality of leadership is an important factor affecting the growth and strengthening of CBOs. A OE survey in 2000 in two districts of Nepal suggested that when group leaders achieve higher levels of schooling this is associated with better performing CBOs.<sup>26</sup>

The mission recorded the age and years of schooling of up to three leaders in each CBO. Their average age ranged from 33 in the Eastern Highlands to 38 in Simbu. Leaders had limited education: their median years of schooling were 5 in Simbu and Eastern Highlands and 7 in East Sepik and Madang. In East Sepik and Madang, only 5% and 6%, respectively of group leaders were illiterate, whilst this category represented one third (33% and 34% respectively) in Simbu and Eastern Highlands. Overall, more than one fifth (21%) of leaders had studies for at least 10 years; percentages were higher in Madang and E-Highlands (17% and 22%) than in East Sepik and Simbu (13% and 16%).

Group leaders represent the main clans in the area; they usually belonged to three distinct clans so that none could dominate the group. Most group leaders (72%) were farmers, housewives and “village women”, 19% were administrators of local CBOs or local government officers, 6% were teachers and community health agents, while the remainder (13%) were running local business, or wage labourers.

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<sup>26</sup> IFAD-OE COWTAG Report 2001, forthcoming.

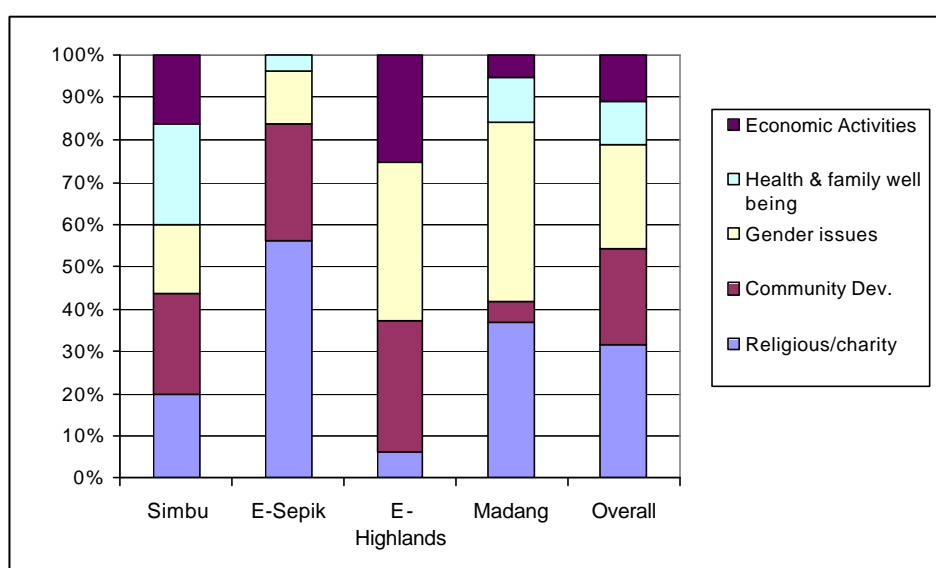
## **E. Group Objective, Regulation, Duties of Members and Funding Sources**

### **(1) Group Purpose: Mothers' and Religious Groups Shared Concern for Health and Gender Issues**

Overall, CBOs purposes reflect concern for the need of women's emancipation, health and community development. One third of the CBOs (31%) were created for the purpose of worship and charity (Graph 2, column 5). But a second priority, in order of frequency, was gender-related issues, such as women's sensitisation and empowerment (25%). Third, came community development (23%) followed by economic activities (11%) and health and family well being (10%).<sup>27</sup>

In Eastern Highlands and Madang, where most CBOs belonged to the unassisted Mothers' Groups, a high proportion do address gender issues such as women's emancipation. Yet, some were also involved in economic activities and improving community and household well-being. In Madang, without initial external support, women had mobilised themselves to directly raise standards in community health and sanitation.

**Graph 6.2. The Declared Initial Purpose of CBOs**



<sup>27</sup> As groups grew, they would normally increase the number of objectives: in fact overall 68% of CBOs would be multi-purpose. Nonetheless, the initial purpose is an interesting indicator of the sensitivity, awareness and “character” of each group.

## **(2) Executive Committee, Registration and Bylaws: Few CBOs Had Legal Status**

The procedure to design leaders is an essential pre-requisite for participation and involvement of members, particularly for the resource poor. Across provinces, the norm is that leaders are appointed through elections. Not less than 81% of surveyed CBOs have an Executive Committee that is elected by members. Only in a minority of quite small community organisations, often with five to ten members did elections not take place.

The legal registration of CBOs is an important step prior to full involvement in economic activities, and in ownership and sale of property. Groups need a well-defined legal status to settle dispute and enhance transparency of operations. The majority of groups (54% overall) were registered or affiliated with a public authority, or with an organisation recognised by the latter. The highest proportion was found in Simbu (75%) partly due to requirements for IFAD-supported areas. The lowest frequency (25%) was found for Madang province, as Mothers' Groups receive no assistance and have little incentive to be formally recognised.

The high frequency of groups without a legal status or any by-laws is a cause for concern. Overall, more than three fourth (76%) of CBOs had no legal status; percentages ranged from almost two thirds, in Simbu and East Sepik, to about 80% and 90% for Madang and the Eastern Highlands, respectively. Without doubt, this is a priority area for institutional strengthening, in order to ensure the protection of CBOs' rights.

## **(3) Duties of Group Members**

Member's duties reflect the degree of organisational complexity, the type of participation expected and, indirectly, the resources available to CBOs. Attendance in meetings overall was high (71%). Attendance is particularly high for the Mothers' Groups. In Madang and Eastern Highlands provinces, close to all members attend meetings, or 96% and 90% respectively (Table 2).

In the majority of CBOs (65%), members pay a fee; the only exception was the case of Madang where only one third of community organisation charged their members with annual fees. Finally, most groups, comprising those originally raised for religious functions by unassisted mother's groups, had mandatory savings requirements, for group or individual accounts. Savings were mobilised for charity purposes (religious groups), rotating loans and other initiatives of collective interests as envisaged in the groups' main purpose(s).



**Table 6.2. Duties of Members**

	Simbu	East-Sepik	Madang	Eastern Highlands	Overall
Attending group meetings	64	48	96	90	71
Paying membership fee	64	71	33	95	65
Saving					
• into a group account <sup>a</sup>	44	42	67	71	54
• into an individual account	28	0	4	29	15

a. Individual and group account were not necessarily mutually-exclusive options

#### **(4) Men's Participation in Meetings**

All the surveyed community organisations were women's groups, yet in most cases (74% of all interviewed CBOs), men were allowed to participate in meetings. In general men's participation was not seen as a problem, except that, in almost one third of cases in Madang and Eastern Highlands, reportedly men tried to dominate group meetings. Women commonly stated that men were welcome to join, but they would need to share the values of the women members.

#### **(5) Limited Range and Amount of Funding Sources**

Data were available only for few CBOs (28 cases) regarding funding. For most groups (71%), total funds per member were lower than 25 Kina.<sup>28</sup> Exceptional cases (11%) in which funds per members surpassed 150 Kina were observed in the case of very small groups receiving assistance for community development from external agencies.

The sources of funding were confined to savings (89% of cases) and share capital (36%); only 14% of CBOs earned income from a group activity, whilst 7% had access to credit. The latter cases represented groups benefiting from external interventions.

### **F. Perceived Trends in Access to Education, Production Inputs and Services at the Community Level**

#### **(1) Evidence of Reduced Access to Human Capital**

Spending on education in rural areas is diminishing. The Government of Papua New Guinea, in 1995 engaged in a Structural Adjustment Program to reduce external debt. Spending on education, both general and technical, was curtailed with adverse effects for outreach and attendance. The survey household data showed that children exhibited lower rates of school attendance than their parents in Simbu and East Sepik did. This is consistent with findings from the CBO survey. Large proportions of leaders interviewed in Simbu (43%) and East Sepik (63%) reported that children's access to formal education was decreasing. In contrast, in Madang and the Eastern Highlands, the majority of group leaders reported that access to schooling had improved.

<sup>28</sup> Approximately US\$ 8 in May 2001.

A second measure of human capital, access to non-formal education for adults, shows more uniform results across provinces. Overall, the majority of group leaders (52%) stated that adults were less likely to attend non-formal classes owing to dwindling public funding.

Finally, the majority of group leaders (overall, 55%) stated that access to agricultural technical knowledge had been decreasing, owing to reduced government funding of extension activities. Clearly, with reduced or malfunctioning extension activities, perspectives of diffusing technological innovations, improved varieties or better practices to improve soil conservation are limited.

**Table 6.3. Trends in Access to Human Capital According to Group Leaders**

Measures of Human Capital	Simbu	East-Sepik	Madang	Eastern Highlands	Overall
<i><b>Formal education for children</b></i>					
Decreasing	43	63	0	5	32
Constant	29	17	21	57	29
Increasing	29	20	79	38	39
<i><b>Non-formal education for adults</b></i>					
Decreasing	60	56	54	29	52
Constant	34	27	33	52	35
Increasing	6	17	13	19	13
<i><b>Access to technical information on farming</b></i>					
Decreasing	54	77	46	33	55
Constant	46	20	46	57	41
Increasing	0	3	8	10	5

## **(2) Constraints in the Availability of Production Factors: Increasing Land Conflicts and Declining Access to Fertilisers**

Households in Simbu and East Sepik revealed that farmers were exposed to decreasing trends in production and yields of their major staple crops. Land is becoming scarcer because of population growth. In the absence of technology and soil fertility maintenance, trends in productivity are stagnating. In the four provinces, interviews with CBO representatives showed that access to land was perceived as decreasing by 25% of leaders, as constant by 61% and as increasing by 14 %. Where population pressure is high, it is to be expected that conflicts over land may be increasing. This holds true: 58% of leaders found conflicts to be increasing, 29% to be constant and 13% decreasing.

Population dynamics and scarcity of land explain lower agricultural production per household and rising conflicts, whilst reduced funding for government extension services explain reduced access to inputs of improved seed, and fertilisers. Overall, 38% of leaders reported decreasing access to improved inputs, 46% constant and 15% increasing. Rates of reported decreasing trends were particularly high in Simbu and East Sepik (51% and 43%, respectively). The difficulties in buying fertilisers combined with shortened fallow explain reduced yields.

Reductions in governmental subsidies to agricultural inputs are justified by well-known arguments of static efficiency in resources allocation. Without subsidies, small farmers in the short term are likely to face reduced food security. In the longer term, and in the absence of other distortions, farmers may shift to less fertiliser-intensive crops. However, adjustments require time and required investments in improved market access and farm extension are not forthcoming.

This report does not question either the legitimacy nor the validity of policies that reduce agriculture input subsidies. It simply highlights the necessity of taking countervailing measures to alleviate short-term negative shocks on farmers' food security. Government resources and outreach in rural areas are being curtailed: compensating interventions could be channelled through assisting CBOs. Low cost external facilitation combined with the use of volunteers at village levels can create pools of knowledge and reinforcement for local diffusion. There are interesting lessons learned from other countries hard hit by Structural Adjustment Programs. One example is Tanzania; community organisations and traditional groups have been important informal agencies to mobilise resources and partly compensate for discontinued flow of funds for the public sector.<sup>29</sup>

### **(3) Decreasing Trends in Availability of Complementary Services**

Consistent with the trends presented above, group leaders stated that access to external credit and community development funds had been decreasing in the previous three years. Overall 50% of group leaders perceived access to credit and community development funds as more difficult, 44% as constant, and 6% as easier to obtain. In the four provinces, access to veterinary services had decreased for 39% of interviewees, remained constant for 59% and increased for 2%.

**Table 6.4. Trends in Access to Credit and Veterinary Services**

<b>Services</b>	<b>Simbu (%)</b>	<b>East-Sepik (%)</b>	<b>Madang (%)</b>	<b>Eastern Highlands (%)</b>	<b>Overall (%)</b>
<i><b>Access to external credit/funds</b></i>					
Decreasing	63	47	46	38	50
Constant	29	43	50	62	44
Increasing	9	10	4	0	6
<i><b>Access to veterinary services</b></i>					
Decreasing	46	68	0	43	39
Constant	54	27	100	52	59
Increasing	0	5	0	5	2

<sup>29</sup> Narayan, D. (1997).

## **G. CBOs and Children's Nutrition and Growth**

### **(1) Commitment on Nutrition and Child Growth but Little Adoption of Growth Monitoring**

Traditional community organisations such as Mothers' Groups grow spontaneously: (i) for religious purposes (such as common worship); (ii) to offer remedies in the face of scarce resources (such as land, forest, food and also health); and (iii) as a response of women's desire for emancipation. Community organisations created from external agencies may also concentrate on religious issues (particularly when promoters are missionaries). But, more often, external sponsors focus on specific economic activities (for example micro-credit) or health intervention (such as safe water). But in addition, our survey pursued the question if CBOs, either traditional or assisted from outside, target child growth and health.

The findings are remarkable. Not less than 53% of all CBOs had child growth as one of the objectives of group activities (Table 5). The comparison of these results with the distribution of initial purpose of community organisation (Graph 2) suggests that most of these CBOs initially did not target children's well being. Instead, this goal was, often implicitly, added as activities expanded. In the four provinces, not less than 40% of CBOs had decided to seek to improve nutrition and growth of children, reflecting members' priorities. In the other cases, missionaries, community health workers, government agencies or other donors had introduced these goals.

Group leaders' awareness of, and commitment to, nutrition and children's growth are essential. Yet, without sufficient backstopping from qualified personnel and without regular growth monitoring combined with nutrition education for children under five years of age, activities become diffuse, or not effective. The symptoms of malnutrition, especially in its chronic form (stunting), are not easy to detect. Untrained parents may realise that children are "too thin", yet few are capable to detect when they are "too short" for their age. Only in the presence of regular growth monitoring can all mother members, not only leaders (often the better educated), become aware of the need to take provisions to improve the well being of new generations. Evidence from Nepal has shown that training in child health and regular growth monitoring, *ceteris paribus*, carries a significant and positive effect on children's growth (height-for-age).<sup>30</sup>

Only one fifth (22%) of groups have been able to provide information on child growth and nutrition to their members. Rates were higher in Simbu (33%), where a relatively high proportion of groups had received assistance from external entities and NGOs. The pattern was similar also in the Eastern Highlands, where almost all the CBOs were traditional mothers' organisations.

The overall percentage of groups that had organised, at some point in time, child growth monitoring was low at 18%. Again, differences can be observed between provinces: cases of groups adopting growth monitoring were marginal, except in Madang where almost six CBOs out of ten had experienced at least one session. But across the four provinces, no CBO had been performing growth monitoring of children on a regular basis. Given the high prevalence of stunting in rural PNG and given the evidence of the benefits of child growth monitoring, the introduction of such activities on a regular basis would represent a priority for future programs that are directed at improving food and nutrition security.

**Table 6.5. CBOs and Children's Nutrition and Growth**

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<sup>30</sup> IFAD-OE COWTAG 2001.

	Simbu (%)	East-Sepik (%)	Madang (%)	Eastern Highlands (%)	Overall (%)
Groups having child growth and nutrition as an objective	58	32	50	76	53
Groups where such objective is decided by members themselves	42	26	33	67	40
Groups providing information on child growth and nutrition to their members	33	6	8	43	22
Groups that have organised child growth monitoring at some stage	17	4	57	3	18
Groups that continued monitoring child growth	0	0	0	0	0

## **(2) Assessing Capabilities of CBOs: Traditional Mothers' and Religious Groups Are Not Outperformed by Assisted Groups**

The survey explored in depth the capabilities of CBOs. The survey pursued eight dimensions of capabilities for local organisations: (i) need assessment, (ii) organisation, (iii) quality of leadership, (iv) training, (v) resource mobilisation, (vi) management, (vii) sanctions and regulations and, finally, (viii) monitoring and evaluation for re-orientation of actions.<sup>31</sup>

The survey team administered questionnaires to CBO leaders. A set of questions invited the group leaders to reflect on and assess capabilities in these eight dimensions of organisational effectiveness. Based on commonly agreed criteria for rating and according to group leaders' responses, interviewers graded CBOs with a discrete 5-grade ranking system. For each dimension, CBO would thus receive ranks from 1 (lowest degree of capability) to 5 (highest degree of capabilities).<sup>32</sup> Simultaneously, the ranking obtained would reflect the degree of autonomy of the CBO vis-à-vis external agents in performing its functions.

The analysis generates a comparison by CBO type, for: (i) church-related groups; (ii) Mothers' Groups; and (iii) others, a residual category comprising CBOs created by NGOs, Government Agencies and IFAD-sponsored NSRDP.<sup>33</sup> The average scores for the eight dimensions of organisational effectiveness are presented as well as a composite indicator (Table 6).

The first finding is the remarkable similarity in the composite indicator for capabilities across the three categories of CBOs: for church groups a value of 2.65, for Mothers' Groups 2.66 and for others 2.67. Second, scores for church and Mother Groups were roughly similar across the eight dimensions, with an exception for sanctions and regulations. For the latter dimension, the average score was higher for church groups, probably explained by the sanctions and rewards embedded in the respective religious doctrines.

<sup>31</sup> A matrix summarising Shrimpton's approach is reported in Appendix A to this paper. For reference, see: Shrimpton R. (1995), "Community Participation in Food and Nutrition Programs: An Analysis of Recent Government Experiences", Pinstrup-Andersen, et al. (1995). P. Pinstrup-Andersen, D. Pelletier, H. Alderman (eds.), *Child Growth and Nutrition in Developing Countries. Priorities for Action*", Cornell University Press, 1995. Our survey broadened the original design to cover all types of interventions, not just in community health. Moreover, the dimension of sanctions and regulations was introduced.

<sup>32</sup> A system with odd number of grades was chosen following Shrimpton's original model. As a matter of fact, observations were not clustered on the central grade (3).

<sup>33</sup> Categories (i) and (ii) clearly represent CBOs that received little or no external assistance.

Third, church and Mothers' Groups had higher averages for need assessment, resource mobilisation and monitoring and evaluation of results. Church and Mothers' Groups are better prepared to understand needs and scarcity of resources at the community level; they also are more active and flexible in resource mobilisation (through fees or savings), even though resources collected did not necessarily exceed those in other CBOs. Finally, the former are also keener on evaluating the effectiveness and modify their activities accordingly.

Fourth, on the other hand, "other CBOs" seemed to outperform church and Mothers' Groups in terms of training and sanctions and regulation. External agencies had (at least quantitatively) more resources and personnel to devote to the training of communities. Moreover, such CBOs had been created for specific economic purposes (such as credit groups or production co-operatives); this means that a more detailed set of regulations and by-laws is available to them. Evidence from a similar investigation in Nepal has shown that groups created through external intervention, would receive a higher score for regulation and training than Mothers' Groups, but not necessarily higher, and in some cases lower, for resource mobilisation and need assessment.<sup>34</sup> These findings from different cross-country comparisons suggest that "common positive traits" dominate in the case of the autonomous or non-supported Mothers' Groups.

**Table 6.6. Indices of CBO Capabilities**

<b>Capability Dimension</b>	<b>Church (average)</b>	<b>Mothers (average)</b>	<b>Others (average)</b>
1. Need Assessment	2.62	2.78	2.20
2. Organisation	3.46	3.41	3.67
3. Leadership	3.23	3.37	3.13
4. Training	1.69	1.73	2.14
5. Resource Mobilisation	2.46	2.44	2.07
6. Management	2.54	2.71	2.57
7. Sanctions & Regulations	2.46	1.92	3.13
8. Assessment: evaluation/monitoring:	2.77	2.95	2.33
<b>OVERALL AVERAGE</b>	<b>2.65</b>	<b>2.66</b>	<b>2.67</b>

<sup>34</sup> IFAD-OE COWTAG 2001.

## APPENDIX A TO CHAPTER VI

**Table A.1. A process indicator matrix to assess institutional changes in food security and nutrition interventions**

<b>Indicator</b>	<b>None/Zero</b>	<b>Low</b>	<b>Mean/Fair</b>	<b>Good</b>	<b>Superior</b>
<b>1. Need Assessment</b>	None: activities determined externally and imposed	Outsiders assess; no CBO involvement	Outsiders assess; interests of CBOs are considered	Community assesses; outsiders help in analysis and action choice	Community assesses and analyses action and sets priorities
<b>2. Organisation</b>	Management structure imposed and created externally	Imposed but some activities internalised by the community	Imposed but the community became active in management	The community uses already established community organisations	The community is involved and control management
<b>3. Leadership</b>	Leadership by external organisation and/or local elite; no election by members	Organisational support is independent of community structure (leaders elected but influenced by local élites)	Organisational support operating under leadership of independent agents	Community taking initiatives together with external agents (leaders elected by democratic voting)	Organisational support fully represents variety of community interests and controls external agents
<b>4. Training</b>	Community organisation with workers & receive no training	Training of community organisation workers determined externally and imposed	Community organisation proposes but support decided externally	Short local preservice training plus regular in-service training provided by outsiders	Short local preservice training plus regular in-service training provided by supportive local supervisors/trainers
<b>5. Resource Mobilisation</b>	No resource contribution by community. No fees for services. Externally financed.	Village agents externally paid. Fees for services; but community has no control over money collected	Community undertakes fund raising and self-help activity; fees paid, but no community control over expenditure. Agents are voluntary.	Occasional community fund-raising; fees; community controls allocations of money. Agents voluntary.	Community mobilises funds from internal and external sources. Controls allocation of money, pays village agents.
<b>6. Management</b>	Induced by external support. No clear objectives	Group manages but is advised externally. Process-oriented objectives, no	Group responsible and monitors. No targeting. More	Impact oriented. Group responsible and monitors. Interventions targeted to at-	Impact oriented. Group is responsible and monitors. Interventions targeted to

		targeting (curative, not preventive)	curative than preventive.	risk groups. More curative than preventive.	at-risk groups
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**Table A.1 (continued)**

<b>Indicator</b>	<b>None/Zero</b>	<b>Low</b>	<b>Mean/Fair</b>	<b>Good</b>	<b>Superior</b>
<b>7. Sanctions &amp; Regulations</b>	No bylaws. No sanction system.	Externally imposed bylaws/sanction system.	Group set its own bylaws/sanction system.	Group set its own bylaws & sanction system recognised by decentralised local bodies. Sanctions/penalties meted out to those that do not respect rules (free riders)	A group set its own bylaws & sanctions within existing formal/legal regulatory systems and is recognised by decentralised local bodies. Sanctions/penalties meted out to those that do not respect rules (free riders)
<b>8. Assessment: evaluation/monitoring: Orientation of actions</b>	No information system used locally. Nobody aware of problem dimension or program progress	Information sent to outsiders, who are aware of problem dimension and program progress, but no feedback to community	Village agent uses information for daily activities; and is aware of problem dimension & program progress	Community receives information necessary for decision-making from village agent. Community sub-committee aware of problems, program progress & benefits.	<b>Community sub-committee disseminates information so that entire community is aware of problems, plans, &amp; program progress &amp; benefits.</b>



## **VII. PROFILE OF RESOURCE POOR HOUSEHOLDS IN SIMBU AND EAST SEPIK PROVINCES: RESOURCES, LIVING STANDARDS AND CONSTRAINTS**

### ***A. Introduction***

The survey team in October 2000 interviewed 310 households, 142 in Simbu and 168 in East Sepik.<sup>35</sup> On average, five households were randomly selected in the area of the chosen CBOs; all of these had been active for at least one year.<sup>36</sup> The survey team used a wealth ranking with community or CBO leaders to identify resource poor households. The local definitions for deprivation were used in this selection. A further criterion was that each of the sampled households would contain children at an age of up to five years. In the second step, households with mothers with children aged less than five years were listed. Finally, with this list, the team selected randomly households or mothers for interviewing and their childrens' nutritional status was recorded.

For the purpose of this survey, CBOs that receive support from an external organisation are labelled as "targeted" intervention; in contrast, "non-targeted" households means that they do not receive any external support. In Simbu, targeted areas comprise, inter alia, the communities where IFAD-sponsored NSRDP has been intervening. In East Sepik IFAD has not supported any intervention. Instead, an international NGO, Save the Children is operating, funded by the Government of New Zealand.

This chapter reviews household characteristics and constraints, productive assets (land and livestock), human capital (access to schooling), seasonal food security, availability of credit outside the wantok system. Evidence is pursued that attest to a scarcity of time for mothers for childcare, minimal provision of training (both in income generating activities and in health), very low access to information on child growth and maternal health and unsafe sources of water. The latter factors are reflected in high proportion of children experiencing diarrhoea, fever and cough in the two weeks preceding the interviews (an indirect measure of exposure to diseases). Mothers, although capable of recognising symptoms of several diseases, under-estimate the prevalence of chronic malnutrition (stunting).

### ***B. Household Demographics***

#### ***(1) Household Size***

The average household size comprised 4.9 members in Simbu and 5.6 in East Sepik. The number of children per household (defined as household members below 15 years) was 2.0 in Simbu and 2.8 in East Sepik. This rate is lower than that for total fertility for PNG (estimated at 4.8 births per woman in the 1990-95 period). This can be expected, since the survey targeted households with children under five, which means that younger women are sampled. Men headed most households. Yet, the percentage of female-headed households was higher for Simbu province (20%) than for East Sepik (5%), given the higher rate of out-migration of men from the hills to lowlands in search of better job opportunities (Table 1).<sup>37</sup>

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<sup>35</sup> Households belonged to 172 clans, as reported in Appendix A.

<sup>36</sup> In turn, CBOs had been selected through geographical stratification.

<sup>37</sup> The clan membership of households is presented in the Annexes.

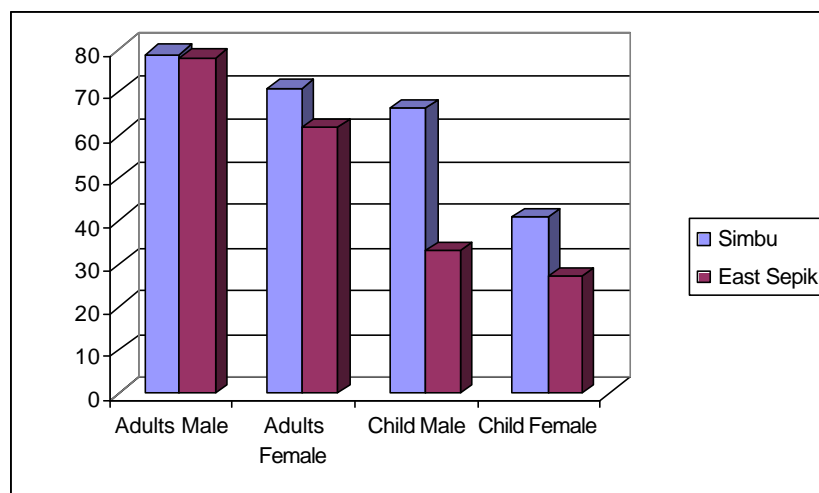
**Table 7.1. Demographic Characteristics of Households in Simbu and East Sepik**

Characteristics	Simbu	East Sepik	Overall
<i>Household size (No.)</i>			
Average (males and females)	4.9	5.6	5.2
Male and females less than 15 years	2.04	2.75	2.43
<i>Head of household (% HHS)</i>			
Male	80	95	88
Female	20	5	12

## (2) **Declining Literacy for Younger Generations**

Literacy rates were higher in Simbu than in East Sepik. A gender disparity is apparent in access to education: in both provinces; males had higher literacy rates than females (Graph 1). This would hold for many developing countries. But when inter-generational differences are considered, the results are quite surprising: children are less likely to be literate than their parents are. National statistics, combined with anecdotal evidence gathered during fieldwork, suggest that such a drop in literacy rates may be due to reduced resources for education in rural areas, following structural adjustment programs.

**Graph 7.1. Adult and Child (5-15) Literacy Rates**



### (3) **Economic Activity**

Farming is the dominant economic activity for most household members. For example, 88% of adults in Simbu and 94% in East Sepik were primarily employed in farming. In Simbu, 75% of surveyed households were subsistence farmers whilst 13% cultivated cash crops such as coffee and copra. In East Sepik, 68% were subsistence farmers, 19% were involved in fishing activities and 7% cultivated cash crops. Easier access to fish proteins may be one of the explanatory factors for better nutrition status in East Sepik (see below).

## **C. Farm Location, Assets, Production and Food Security**

### (1) **Seasonal Barriers to Road Access**

Transportation infrastructure is a critical factor for economic growth of rural areas. Vicinity of homesteads to roads improves the access to markets by reducing transportation costs of inputs and produce. Moreover, access to health services is facilitated.

The secondary and tertiary road network is insufficient. In Simbu, the vast majority (59%) of households had access to an all-weather road in less than fifteen minutes; households in targeted areas were clearly disadvantaged (Table 2). In East Sepik, the corresponding overall percentage was lower (44%); differences between targeted and non-targeted areas were not significant. But almost three of ten households in both provinces needed more than one hour to reach a road. Moreover, in the rainy season a pick-up truck could not access half of the villages. On average, each second household experience difficulties in selling or buying goods in the rainy season, and having easy access to health services.

**Table 7.2. Access to Roads Reported by Respondent Mothers in Simbu and East Sepik**

	<b>Simbu</b>			<b>East Sepik</b>		
	Targeted	Not targeted	All	Targeted	Not targeted	All
Travel time to nearest all-weather road (% HHs)						
• Up to 15 minutes	47	66	59	42	47	44
• 16-30 minutes	11	5	7	14	11	13
• 31-60 minutes	7	8	7	14	15	15
• 60 +	35	21	27	30	27	28
Village access by pickup truck in rainy season (% HH)	48	51	50	61	37	48

### (2) **Poor Quality of Housing Material and Increasing Land Scarcity**

To assess the quality of housing, the survey considered two types of dwellings: those with permanent and those with temporary roofing. In Simbu, slightly more than one fourth (26%) of all households had a permanent type of roofing material. In East Sepik, more than 90% of all households used an improved type of roofing (Table 3).

The vast majority have access to land, i.e. 88% and 86% in Simbu and East Sepik, respectively. Almost one fourth of the households in Simbu (23%) and more than one third in East Sepik

(36%) were experiencing problems in cultivating because of steep soil surface and erosion. Almost the same proportion of households (25% Simbu, 31% East Sepik) were unable to cultivate as many home gardens as they wished, owing to increasing land scarcity. As a further piece of evidence, respondents almost unanimously (95% in Simbu and 87% in East Sepik) reported declining harvest of the main three crops in the previous three years (Table 4). These data, combined with direct observations, are consistent in suggesting rising population pressure on land and declining yields, due to over-cultivation, short fallow, and exploitation of marginal steeper soils combined with insufficient use of manure and fertilisers.<sup>38</sup>

**Table 7.3. Household Type and Land Ownership**

Asset and resource attributes	Simbu			East Sepik		
	Targeted HHs	Not targeted HHs	All HHs	Targeted HHs	Not targeted HHs	All HHs
Roofing material (% HHs)						
• Permanent	23	28	26	8	5	7
• Temporary	77	72	74	92	95	93
Households						
• able to cultivate (%)	80	93	88	87	86	86
• experiencing problems in access to land (%)	34	15	23	40	33	36
• unable to make desired number of gardens (%)	33	21	25	31	31	31

### **(3) Declining Production and Sales of Major Crops**

Most households were engaged in semi-subsistence farming and 90% of the households report declining sales. In Simbu, crops that dominated were sweet potato (kau kau), vegetables (green beans, leafy vegetables, tomatoes, cabbage, etc) and traditional root crops (yam, taro and cassava). Likewise, in East Sepik important crops were root crops, banana and sweet potato. The data confirm the almost uniformly reported declining production of the major crops. Most households were able to sell crops, but respondents reported that sales had declined in the previous three years (Table 4).

<sup>38</sup> Such mechanisms were early unveiled by Malthus and Ricardo and in the classic book by Ruthenberger (1971); Ruthenberger, H. (1971), *Farming Systems in the Tropics*, Oxford University Press, Oxford UK.

**Table 7.4. Food Production and Adequacy of Production to Feed Household Members in Simbu and East Sepik**

Production Indicator	Simbu			East Sepik		
	Targeted HHs	Not targeted HHs	All HHs	Targeted HHs	Not targeted HHs	All HHs
Production trends of most important crop (past 3 yrs)						
• Same or bigger harvest	9	2	5	9	15	13
• Smaller harvest	91	98	95	91	85	87
Household able to sell some of the most important crop (% HHs)	79	83	81	83	92	88
Trends in sale of important crops in past 3 years						
• Same or smaller quantity	90	95	93	89	91	90
• Larger quantity	10	5	7	11	9	10

#### **(4) Livestock**

Pigs and poultry birds were the predominant livestock raised in the surveyed households. Households were more likely to own pigs and poultry in Simbu than in East Sepik. This stems from: (i) more access to animal feed in the hills; and (ii) the presence of IFAD-sponsored NSRDP in Simbu, that seeks to increase farm productive assets through credit delivery. The latter factor is well reflected in the relatively high percentage in Simbu of households with more than ten poultry birds (47%). But a higher frequency of livestock ownership in Simbu cannot be directly related to better nutrition status of children. Too many other factors enter.

**Table 7.5. Livestock Ownership in Simbu and East Sepik**

Asset and resource attributes	Simbu			East Sepik		
	Targeted HHs	Not targeted HHs	All HHs	Targeted HHs	Not targeted HHs	All HHs
No. of pigs owned (% HHs)						
• None	27	24	25	67	8	38
• 1 to 2	38	43	41	33	92	62
• 3 to 5	21	26	24	0	0	0
• More than 5	14	7	10	0	0	0
No. of poultry birds owned (% HHs)						
• None	0	0	0	8	3	6
• 1 to 2	38	24	30	26	38	31
• 3 to 5	15	29	23	30	19	17
• 6-10	0	23	13	18	22	20
• More than 10	47	24	34	18	18	26

## **(5) Sources of Food and Limited Nutrition Security**

Less than half of households in Simbu (44%) and slightly more than one-half in East Sepik (53%) reported gathering sufficient food from gardens and other cultivated land for more than 9 months a year. To supplement own agricultural production, households could: (i) catch fish; (ii) feed on hunted game; (iii) harvest wild plants, such as sago palms; (iv) exchange food within the wantok system; or (v) buy it with cash earned from wage labour, receipts from sales of livestock, agricultural products or handicrafts and remittances from out-migrating family members.<sup>39</sup>

Hunting and fishing activities as a source of food were more limited in Simbu than in East Sepik. More households in East Sepik reported monetary income to be available for more than 9 months (Table 6).

Most households reported food adequacy all year round in both provinces (76% in Simbu and 85% in East Sepik). Such results contrast with high estimated stunting rates for children (46% in Simbu, 30% in East Sepik).<sup>40</sup> There are at least two ways for explaining this: first, mothers' perceptions seemed predominantly based on food quantity, neglecting the importance of quality of nutrition (and particularly proteins and micronutrients). Second, food intake provides only a partial explanation for stunting: additional dimensions are considered below, i.e. access to health services, quality of care, and of drinking water are two further important elements. As will be shown, households were facing severe constraints in both of these dimensions.

**Table 7.6. Food Sources**

<b>Food sources</b>	<b>Simbu</b> All HHs	<b>East Sepik</b> All HHs
Own land, gardens and other plots (% HHs)		
• More than 9 months	44	53
• 4-9 months	28	25
• Up to 3 months	15	14
• None	13	8
Hunting, fishing, harvesting sago (% HHs)		
• More than 9 months	1	35
• 4-9 months	1	10
• Up to 3 months	9	31
• None	89	24
Transfer payments/receipts (% HHs)		
• More than 9 months	4	19
• 4-9 months	2	1
• Up to 3 months	25	15
• None	69	64
HHs having adequate food to feed family all year round (% HHs)	76	85

<sup>39</sup> The wantok system is a complex web of reciprocity obligations based mostly on ethnic identity. See De Renzio, P. (2000): 'Bigmen and the Wantoks: Social Capital and Group Behaviour in Papua New Guinea', QEH Working Paper Series, Queen Elizabeth House, University of Oxford. Also available at: <http://netec.mimas.ac.uk/WoPEc/data/Papers/gehgehwsQEHWPS27.html>

<sup>40</sup> Similarly, perceptions of mothers, showed that retarded linear growth was largely underestimated (see further sections of the present paper).

## **D. Credit Scarcity, Women's Income and Constrained Time Availability**

### **(1) Little Borrowing Outside the Wantok System**

Financial services are not available to respond to needs. Only one third of respondent households in both provinces managed to save in 1999 (Table 7). According to respondents, most savings remained in cash form with women and other household members. The use of credit, both formal and informal (but excluding the wantok reciprocity system), was minimal. On average, one household out of eight in Simbu and almost none in East Sepik had had access to credit. In Simbu, households in areas covered by IFAD projects displayed no difference in access to credit with non-targeted households. Reportedly, a higher proportion of households reported repaying credit in Simbu (82%) than in East Sepik (40%). Targeted households were more likely to repay in Simbu, but not in East Sepik; this is understandable since credit outreach was a service available in Simbu but not in East Sepik.

The wantok system in part compensated for the insufficiency of formal credit services. Households help each other in the event of "need" without relying on external agents. The existence of the wantok system also formed a social bond amongst members for multiple purposes including social activities. Limited collateral and an effective credit system contribute to a limited uptake of formal credit.

**Table 7.7. Saving, Borrowing and Loan Repayment in Simbu and East Sepik**

Saving, borrowing and repayment indicator	Simbu			East Sepik		
	Targeted HHs N=56	Non-targeted HHs N=86	All HHs N=142	Targeted HHs N=77	Non-targeted HHs N=91	All HHs N=168
HHs saving in 1999 (% HHs)	32	33	32	48	19	32
HHs borrowing in 1999 (% HHs)	12	12	12	3	2	1
HHs able to repay their loan from 1999 (% HHs)	100	71	82	33	50	40

Borrowing includes formal and informal credit markets with the exception of traditional *wantok* system.

### **(2) Mothers' Income and Spending Priorities**

Most women (80% in Simbu and 63% in East Sepik) themselves generated income the use of which they could control, at least in part. Their dominant sources were sales of: (i) vegetables; (ii) pigs and poultry birds; and (iii) cash crops such as cocoa, copra and coffee.<sup>41</sup> Among the targeted households in East Sepik, 21% sold handicrafts and pottery. The survey team ranked women's first four priorities in spending of their own income. In Simbu, the highest number of preferences was assigned to: clothes (88 votes), healthcare (79), school fees (53), and transportation (51). In East Sepik, sanitation and health care followed food and clothing: basic needs, including food (112 votes), clothes (89), sanitation (52) and healthcare (47)).<sup>42</sup>

<sup>41</sup> As will be shown, selling vegetables was a typical female activity in Simbu and East Sepik, whereas adult men and women commonly sell cash crops with a slight predominance of men.

<sup>42</sup> It is important to note that each respondent could express more than one choice.

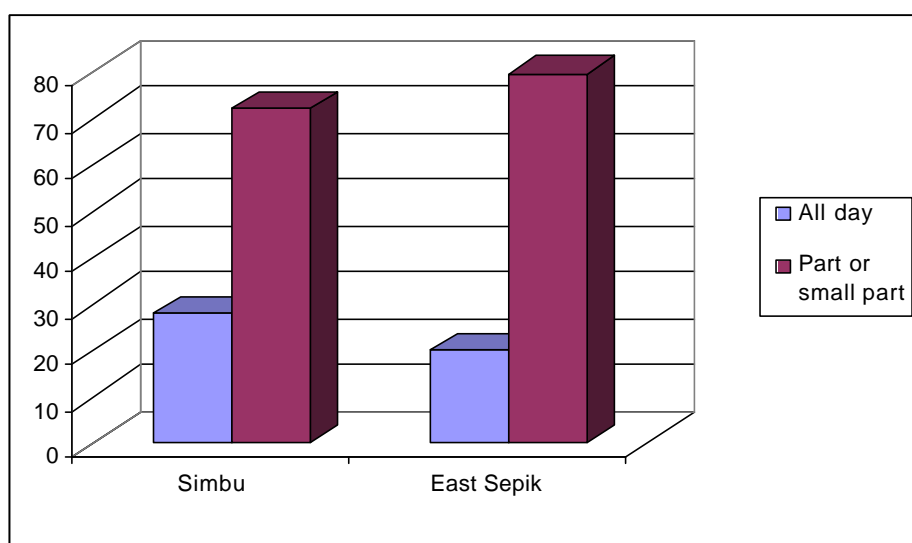
Very few respondents indicated investment in income-generating activities, bride price, and community concerns as priorities.<sup>43</sup> Mothers use their own income in purchasing food or primary goods.

### (3) **Severe Constraints for Mothers in Availability of Time for Childcare**

The time available to mothers to breast feed infants and ensure proper frequency of well prepared meals directly impacts nutrition status. When mothers have to cope with a heavy workload, other household members often take care of their children. But, as it has been observed, in this case, the quality of care is likely to suffer. Children may be fed for an insufficient number of times and, in case of diseases, remedies may be taken with substantial delay.

In addition to household chores, mothers are engaged in gardens (ploughing, sowing, weeding, harvesting, marketing of garden produce), fuel wood and water collection and in attending livestock. Most mothers are normally available for childcare for a part (or small part) of the day, even in non-peak seasons. This was particularly true for East Sepik where, on average, 82% of mothers were available for part of the day (Graph 2).<sup>44</sup>

**Graph 7.2. Time Availability for Childcare throughout the Year**



<sup>43</sup> In several South Asian countries empirical studies have shown that bride price are one of the priorities for household income in rural areas. Perhaps the result is linked to the family-cycle and the young age of children.

<sup>44</sup> Analogous results were observed in Nepal; IFAD COWTAG 2000.



## **E. Absence of Training Activities and Scarce Provision of Health Information for Mothers**

### **(1) Limited or No Training Available**

Improving mother's knowledge and skills is essential. First, raised productivity through intensified production efforts requires investment and skills in managing farm operations. Second, training on nutrition, health and child growth monitoring increases mother's capability to take action and contributes to improved physical well being.

Only 9% of all respondents in the two provinces received some form of training during the last three years. They were primarily from Simbu. Moreover, the mission did not record any follow-up training or "training of trainers" activities. The four training activities reported with relative higher frequencies were literacy (26 cases), general health (20), nutrition (14) and child health (13).<sup>45</sup>

Several agencies, including government agencies, NRDP, CBOs and church groups were delivering what little training was made available. Respondents rated most of the training received to be of "medium or good quality". Three-fourths of training was suitable for participants' needs; moreover, 80% of respondents stated that training sessions were organised at the convenient location, time and season.

Of genuine concern is the low proportion of mothers who had received training, combined with diminishing literacy amongst the younger generations. This pattern indicates very limited emphasis on schooling in generating "human capital". This trend starkly limits prospects for improved living standards at the household and community level, let alone improving the nutritional status of infants. Intergenerational effects negative interactions compound further this bleak picture.

### **(2) Information on Child Growth and Maternal Health**

Quality of childcare and mother's health are important predictors of children's well being. Mothers need support from trained professionals on a continuous basis. But, overall, only one third of interviewed mothers were able to consult qualified medical personnel in order to obtain information on child growth (36%), while another third (32%) had to rely on their husbands, 10% relied on Merisin Meri or Community Health Workers or relatives, whilst 15% reported having no source of information (Graph 3).

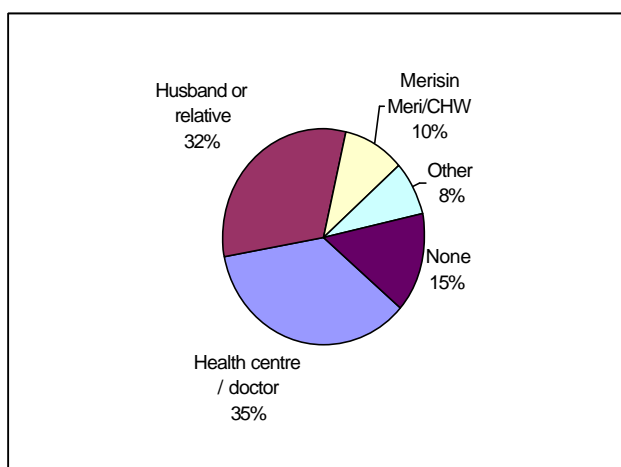
Findings on access to maternal health raise even more concern. Less than one fourth of mothers (23%) had accessed health centres or medical doctors for consultation on maternal health. One fifth had consulted their husband or a relative. Almost half (46%) had had received no information.

The distance from health posts is perhaps one of the main factors explaining why only a minority of mothers could consult with qualified specialists. Moreover, Merisin Meri, CHW and church communities so far have not been endowed with adequate human and financial resources to compensate for the scarcity of public health infrastructure.

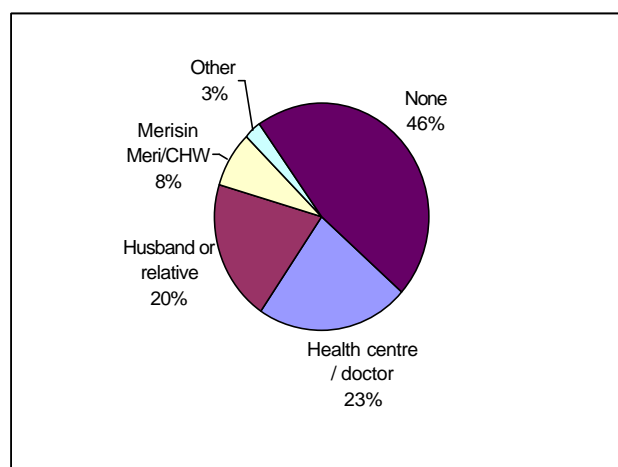
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<sup>45</sup> Some respondents reported more than one training activity.

**Graph 7.3a**  
**Mothers' Information Sources**  
**on Child Growth**



**Graph 7.3b**  
**Mothers' Information Sources**  
**on Maternal Health**



## **F. Gender Roles and Social Capital**

### **(1) Gender Role in Household Decision-making**

Empowered women take better decisions. There is much support for the notion that more educated and empowered women have healthier children. When adult women have more freedom to decide on the expenditure of household income and when they keep more control of cash from small-scale cash generating activities, household nutrition status is better, *ceteris paribus*, higher.<sup>46</sup>

Mothers were asked about the gender roles governing various areas of decision-making at household level. These included control over finance and expenditure, children's education, health and nutrition, joining women's group, having more babies, selling vegetables, selling cash crops (coffee/cocoa/copra), and selling pigs/poultry/sheep/goat. Discussion with mothers confirmed and supported the supposition that men had become increasingly sensitive to women's contribution, recognising far better their preferences. Most decisions were reported to reflect "joint agreements" between married adults (Table 8).

In general, decisions seemed more likely to be taken jointly in East Sepik rather than in Simbu. In East Sepik, traditional division of roles appears as less rigid. Nonetheless, it is possible to distinguish: (i) a set of activities where men exert a slightly higher control, such as in finance and household expenditure (and perhaps children's education); (ii) a set of activities where spouses were on a more equal relationships, such as children's health and the desired number of children and, finally, (iii) a set of traditional women's tasks, namely joining women's groups and selling vegetables, and poultry birds.

Evidence from many countries suggest that men wish to be fully involved in the marketing when important cash crops emerge, even where women previously retained "control". In PNG, there is similar evidence. Women were in charge of rearing free ranging "bush pigs". Increasing

<sup>46</sup> See, for example, Hanne Nielsen (2000) and Pitt M.M, S.R. Khandker and D. Millimet (1999). Even within its limited purposes, the present study has also shown that women's income is directed towards consumption of primary goods.

monetisation of traditional village economies has led to an increasing demand of pigs for market sales. With intensified practices in pig rearing, men have assumed control in production and marketing. A case study from PNG suggests that the frequency of slaughter of bush pigs for household consumption has declined. Consumption of animal protein cannot but have declined.

47

**Table 7.8. Gender Role in Household Decision-making in Simbu and East Sepik**

Decisions (% HHs responding)	Simbu			East Sepik		
	Male	Female	Joint	Male	Female	Joint
Control of finances and household expenditure (n=310)	18	12	70	15	6	79
Selling coffee/cocoa/copra (n=196)	25	9	66	7	20	73
Children's education (n=264)	10	6	84	7	5	88
Children's health (n=265)	6	11	84	1	18	80
Having more babies (n=228)	6	3	91	7	6	88
Joining women's group (n=192)	14	30	56	7	24	69
Selling vegetables (n=225)	5	55	40	1	49	50
Selling pigs (n=119)	4	19	77	5	0	95
Selling poultry birds (n=88)	7	14	79	3	2	95

## **(2) Membership in Women's Groups**

Community level institutions provide mutual support; they build trust. They may up to a point help to overcome "market failures". This study has analysed women's participation in community organisations.<sup>48</sup>

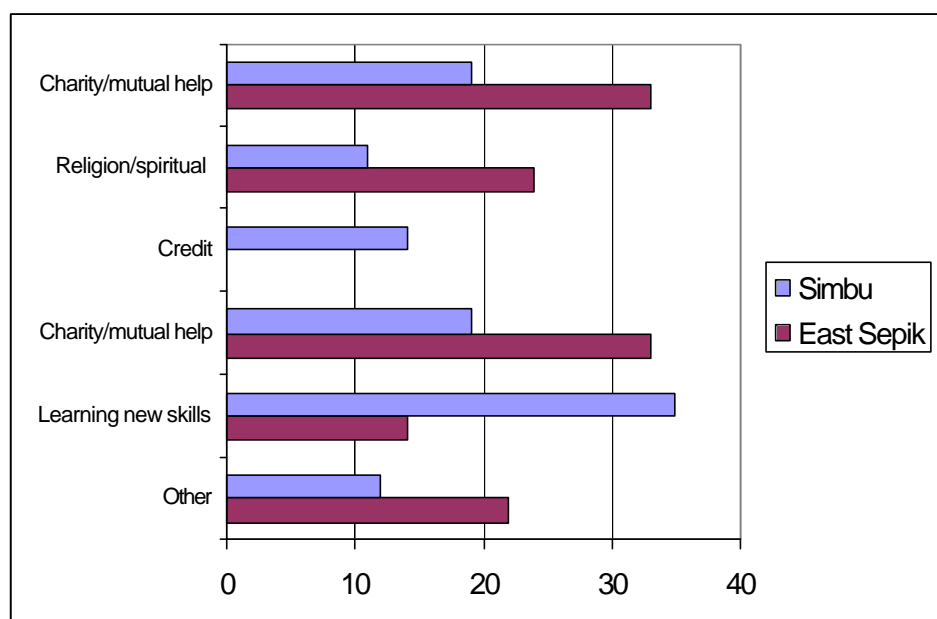
Women typically belong only to one group. In East Sepik, less than 10% belonged to more than one group; this proportion was even lower in Simbu (4%). Members referred to several types of benefits arising from their affiliation: first mutual help, followed by skill development training and fund raising for charity purposes. Skill development was limited to cooking, sewing and some handicraft skills. Most mothers had joined the CBO by obtaining information from other women who were already members. Few had received information directly from external programme facilitators.

The purpose for which mothers joined the group varied for the two provinces. The emphasis on income generating activities in Simbu reflects at least in part households' higher degree integration with the market economy. For example, in Simbu, proportionately more mothers joined women's groups to learn new skills and have access to credit, including cooking, sewing and income-generating activities (IGA) compared to their counterparts in East Sepik (Graph 4). Other reasons for group formation included charity, spiritual, helping each other and community concerns.

### **Graph 7.4. Purpose for Joining Women's Groups**

<sup>47</sup> Minnegal, M. and; P. D. Dwyer (1997): "Women, pigs, God and evolution: Social and economic change among Kubo people of Papua New Guinea", Oceania, Vol.68, 1, pp 47-60.

<sup>48</sup> Here the analysis is confined to groups spontaneously created by women, excluding community organisations established by external agents, such as IFAD, the government of PNG or NGOs.



## **G. Health, Sanitation and Perceptions on Household Nutrition**

### **(1) Unprotected Water Sources**

Improving water quality is one of the main challenges to improve living standards of remoter villages. Households are often unable to boil water and neutralise water-borne infectious agents. Diarrhoea, often an outcome of drinking non-potable water, has been found as significantly correlated with prevalence of wasting (i.e. when children are “too thin” for their height) and stunting (i.e. children “too short” for their age). The mission did not directly seek to test for the quality of water, but explored community members’ perceptions as to the quality of water sources.

The majority of households in Simbu and East Sepik collect water from unprotected sources, such as a dug well, a pond or a brook. They represented 53% of interviewed households in Simbu and even 77% in East Sepik. Moreover, only one third of households in Simbu owned a covered latrine, while 71% did in East Sepik.

When asked about their perceived quality of water, respondents split almost equally between those who regarded water quality as good and those who either did not know or considered it as poor. Perhaps, the consequences of unprotected sources are better shown by the relatively high percentage of children (20%) experiencing diarrhoea in the two weeks preceding the interview, as shown below.

### **(2) Mothers’ Health Indicators**

Mother’s health affects their availability for, and the quality of, care they give to children. During pregnancy, mothers’ health and nutrition can have a significant impact on foetal growth of the foetus.<sup>49</sup> In Simbu, 14% of mothers reported experiencing problems with diarrhoea (the

<sup>49</sup> Naidu A.N., Rao N.P. (1994): “Body mass index: a measure of the nutritional status in Indian populations”, *Eur J Clin Nutr* Nov; 48 Suppl 3:S131-40.

corresponding percentage for Simbu was 9%), probably due to water contamination combined with low standards of hygiene (Table 9).

A small proportion of mothers had been taking vitamin supplements during pregnancy: 35% in Simbu and 19% in East Sepik: this is a far too low proportion given the demonstrated importance of micronutrients for a normal intra-uterine growth of children. Coverage of iron supplementation during pregnancy was better: 68% in Simbu and 64% in East Sepik.

**Table 7.9. Mothers' Diarrhoea and Supplements**

	<b>Simbu (%)</b>	<b>East Sepik (%)</b>
Mothers experiencing diarrhoea in previous 2 weeks	14	9
Mothers who took vitamins during pregnancy	35	19
Mothers who took iron supplements	68	64

### **(3) Children's Health Matter of Concern**

Interviewed mothers recollected a high prevalence of malaria episodes: in Simbu, almost one third (32%) of households had a member suffering from malaria in the past two years (Table 10). In East Sepik, almost three fourths (72%) in East Sepik Province reported such cases, owing to the lower altitude. Clearly, such a high prevalence raises concern for improving health conditions of rural households. The percentages of children experiencing diarrhoea in the two weeks preceding the interviews were also very high: 20% and 22% in Simbu and East Sepik, respectively. As observed earlier, this can be explained, at least up to a point by the frequent use of unprotected sources of water.

Almost one child out of three in Simbu and East Sepik had suffered from cough or fever in the fortnight before the interview. These findings show the precarious health conditions of children and highlight important explanatory factors of retarded growth.

**Table 7.10. Episodes of Diseases**

	<b>Simbu</b>	<b>East Sepik</b>
A HH member had malaria in past two years (% HHs)	32	72
Children experiencing diarrhoea in previous 2 weeks (% children)	20	22
Children having cough or fever in past 2 weeks (% children)	34	29

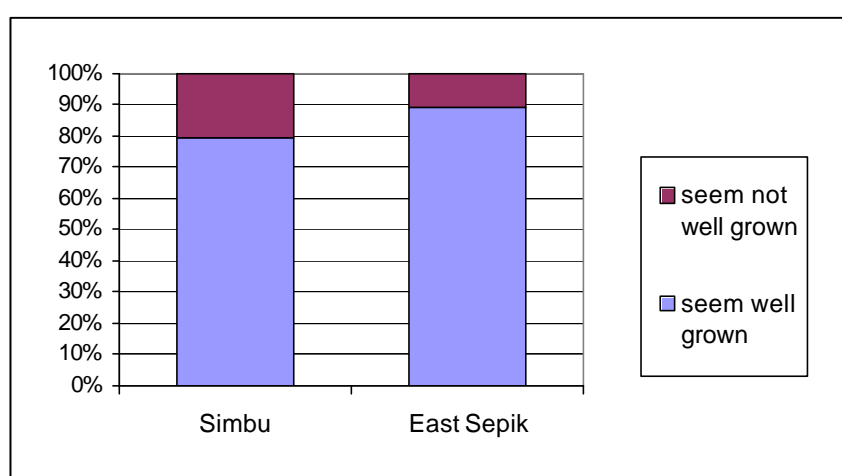
### **(4) Mothers Underestimate Extent of Stunting**

The mission investigated mothers' perceptions of children's linear growth as an indicator of the awareness of existing deficiency in nutrition security. Most mothers believed that the majority of their children below five were experiencing a "normal" linear growth pattern. In Simbu, 79% of children were perceived as well grown for their age (or "non-stunted"). This rate ascended to 89% in the province of East Sepik (Graph 5).

But mothers clearly underestimated the prevalence of chronic malnutrition: the mission based on its objective measurements through anthropometry recorded average stunting rates, as high as 46% and 30% in Simbu and East Sepik, respectively. Large deviations between perceptions and statistical evidence are explained by the limited exposure to training on child health child growth and by the absence of regular growth monitoring and related nutrition education.

Unless duly provided with information on children's growth through training and regular screening of their offspring, mothers are likely to underestimate stunting prevalence. Slow linear body growth (velocity) is more complicated to detect as opposed, for example, to an "excessively thin" body.

**Graph 7.5. Children Perceived by Mothers as Well grown  
(% of Children)**



## APPENDIX A TO CHAPTER VII

### List of Tribes/Clans in Simbu and East Sepik Represented in the Household Survey

Simbu			East Sepik		
Andweku	Gweden	Pulguma	Afanium	Kanai	Saike
Arogam	Keluwaab	Sambekan	Admapo	Kijaru	Sambarak
Awawgaka	Kocaribi	Sikangam	Anjapa	Koki	San
Bai	Kolaberi	Sipaigap	Apunyose	Kola	Saksak
Band	Kombri	Spegome	Asahnoko	Komor	Sipmanwi
Bari Nul	Komku	Suamogam	Asanokor	Kumorwa	Sirsrihu
Bulgari	Korako	Supa Gam	Avanespa	Kurakr	Tanget
Bulagesi	Krumvgi	Tapiagam	Bangali	Kurakru	Tianoruk
Busrot	Kuale	Tarie	Black Co	Kwaru	Tipmanam
Buwakamba	Kuligane	Tembuka	Bluemoon	Londorno	Umunboul
Denglagu	Kulkawe	Waifo	Bowi	Makakim	Ura
Dikangam	Kuma Nag	Wainegau	Cavngeev	Manoigo	Valabaki
Dinobal	Kumga	Waipo	Chambai	Mario	Wage
Dokbun	Kumga Ge	Wauga Ge	Daijenok	Max 2	Wai
Duagauma	Kup	Wembape	Dangun	Mithiami	Waijakim
Dugvi	Lovabo	Wipekana	Daura	Mingarem	Wama
Tduma	Lufaifo	Yaifo	Dindikum	Muruk	Wamase
Enavkane	Marama G	Yenduka	Gawiguat	Nagusime	Wanjika
Endugla	Moromege		Gawi	Nambak	Wara
Enuglkar	Moreguma		Giniko	Nambu	Weliguan
Epimanda	Nauro Nu		Grager	Niamioku	Wewar
Gelogoma	Nawabiag		Graken	Nidumn	Why
Gelwabil	Nuwaubia		Gungu	Ningarum	Witemein
Genekuui	Nipkua		Hambumin	Nogusime	Wusawa
Geneku	Ntatambu		Hoponoko	Petem	Yaegu
Giglkane	Nuglai G		Hunabak	Pifin	Yakum
Golongil	Nukuura		Huraicua	Pol	Yelom
Gomia	Nuniyau		Ilishbru	Posugo	Yepm
Gomia Ar	Okane		Jakei	Sagotin	Yokum
Guiden	Onakar		Jau	Saigu	
Gukne	Onomo		Kamangko		
Gunakane	Peralku				





## VIII. NUTRITIONAL STATUS AND ITS DETERMINANTS: SURVEY FINDINGS SIMBU AND EAST SEPIK PROVINCES

### A. Introduction: Anthropometric Indicators

Informed analysts and practitioners now agree in considering prevalence of chronic malnutrition as a readily acceptable indicator for endemic poverty. This indicator reflects the deprivation that is linked to limited entitlements especially for women. The anthropometric measurements generally satisfy necessary requirements for relevant indicators. The latter should be: (i) valid, able to describe the extent of poverty as differentials between the physical, intellectual, social and cultural status and position of individuals and groups and the needed resources; (ii) objective, not biased by interviewers or interviewees; (iii) reliable, reproducible and repeatable; and (iv) feasible, i.e. applicable at low cost.<sup>50</sup>

Anthropometric indicators are targeted for measuring children up to five years, since body growth profile can be compared across racial groups at that age. Genetic differences begin to dominate growth patterns only at an age beyond five years. Moreover, a number of confounding factors (e.g. schooling) would complicate the picture if measurements were taken at older age. Children are defined as stunted, wasted, or underweight when values of such ratios are two standard deviations below the median of a reference population.<sup>51</sup>

A synopsis of the major indicators is provided in Table 8.1. Stunting (or height-for-age) signifies a slowing of linear skeletal growth (for a given age of the child): the metabolism does not provide enough energy to build up the structure of the body. It usually is defined as chronic malnutrition, reflecting prolonged exposure to inferior nutritional standards. Wasting (or weight-for-height), indicates a “deficit” in tissue and fat mass with reference to the amount expected in a child of the same height; this may result either from failure to gain weight, or from actual loss of weight.<sup>52</sup> Wasting is also referred to as “acute malnutrition”; it differs from chronic malnutrition. Wasting usually reflects temporary food deficiency and can fluctuate, with weight, through the seasons. “Underweight” (or weight-for-age) means a body mass of the child below the expected benchmark for that age. It represents a composite indicator. Compared to stunting, it incorporates a seasonality dimension.

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<sup>50</sup> Gross, R. and W. Schultink: “Stunting, a Key Indicator for Absolute Poverty in the Community”, in Shetty P. (editor) *Festschrift 80<sup>th</sup> birthday John Waterlow*, Smith-Gordon, London, UK (in press).

<sup>51</sup> The expressions stunting, wasting, underweight rates, refer to the percentage of children that have been found to be stunted, wasted or underweight, out of all the measured children. A child is defined as stunted when the Z score is below a critical level, the same for wasting and underweight. Z-scores are defined as  $(Y^{s,a} - H^{s,a}) / \sigma^{s,a}$ , where  $Y^{s,a}$  is the height of a child of sex s and age a,  $H^{s,a}$  is the median height in the reference population for a child of sex s and age a, and  $\sigma^{s,a}$  is the standard deviation in the reference population.. Genetic factors seem to play a little role for children 0-5 years old.

<sup>52</sup> It is commonly accepted that interviewers should measure children’s length (i.e. children lying down) if the children are less than two years old, otherwise height should be measured. If age cannot be determined, length should be measured if the child is less than 85 cm. Ref. U.N. Department of technical Co-operation for Development and Statistical Office: “*National Household Survey. Capability Programme*”, Annex I Summary Procedures, New York, 1998.

**Table 8.1. Child Anthropometric Indicators**

Indicator	Definition	Indicator of
Stunting	$\frac{\text{Height}}{\text{Age}}$ Below a critical level	Chronic malnutrition: extended exposure to malnutrition and health stress.
Underweight	$\frac{\text{Weight}}{\text{Age}}$ Below a critical level	Low growth of body mass.
Wasting	$\frac{\text{Weight}}{\text{Height}}$ Below a critical level	Acute malnutrition: actual insufficient energy intake (fluctuates seasonally).
Body Mass Index (BMI)	$\frac{\text{Weight}}{(\text{Squared Height})}$	Acute malnutrition (Used mostly for adults and sometimes for children).
Mid-Arm Circumference, Head Circumference	Self explanatory	Proxy of, respectively, weight and height (For children 6 to 60 months).

The body mass index (BMI) is commonly used for adults, often in relation with mothers' diet. The mid-arm circumference and head circumference are two indirect measures of mass and growth; they have attracted less attention in the literature, since establishing standards is a less clear process.

## **B. Survey Data Confirm High Malnutrition Prevalence in PNG**

To our knowledge, in PNG the latest official estimates of stunting prevalence (for children 0 to 5 years of age) at the national level derive from 1996 (National Demographic and Health Survey). These data, analysed by the World Bank in 1999, showed that stunting rate was as high as 43% at national level. Stunting prevalence varied regionally and the highest value (56%) was observed for the Highlands. Stunting was also negatively correlated with household consumption levels, but even in the richest quartile, the rate was as high as 34% (more than one third of the children). The previous national survey, conducted in 1982-1983 for rural areas, yielded an estimated stunting rate of 43%.<sup>53</sup> The comparison suggests that rural deprivation has not improved in the 1982 - 96 period.

Among other research efforts, two studies of child malnutrition in PNG are particularly interesting. The first undertaken in the Southern part of Simbu Province in the Highlands, analysed women working in cardamom plantations and the nutritional status of their children.<sup>54</sup> Evidence suggested that improved female education (particularly learning Pidgin English) and provision of health care would have been more effective in enhancing children's nutritional status compared to raised income. The second study, with data from the 1982/83 national survey, found that children from villages with high consumption of tinned fish, fresh fish or meat were likely to be taller than children from villages with high yam consumption (a diet

<sup>53</sup> WHO Global Database on Child Growth and Malnutrition, available online at [http://www.who.int/nutgrowthdb/p-child\\_pdf/index.html](http://www.who.int/nutgrowthdb/p-child_pdf/index.html)

<sup>54</sup> Groos, A. (1995), *Child Nutritional Status in Relation to Mother's Wage Employment. Empirical Studies at Karimui, Papua New Guinea*, PhD Dissertation, Technische Universität, München, Germany.

poorer in proteins).<sup>55</sup> Better education of mothers and having a father with skilled occupation also showed positive effects on growth.

Our IFAD-OE survey, conducted in October 2000, pursued in depth in two of the four provinces visited, the impact of CBOs on the nutritional status of member households. The survey team undertook this study in the Simbu and East Sepik provinces. The study set out to answer the question if a positive statistical association can be found between community based organisations (CBOs) that are effectively managed and nutritional status of member households. Factors were analysed that explain variations in nutrition status between households. The survey was not designed to collect a representative sample of all rural households in the two provinces. In these two provinces, the mission selected three districts: the first within half an hour walking distance from the major market centre, the second at approximately one hour and the third at about two hours. In Simbu, the mission randomly selected 31 CBOs and in East Sepik 36. Within each CBO, an average of four to five households were randomly selected and interviewed. In total 310 households were surveyed. Anthropometric measurements were collected from children (0 to 5) and their mothers.

The results from our selected communities are reported below. Stunting rates were higher for the Highlands (Simbu), 46%, relative to lower-altitude areas (East Sepik), 30% (Table 8.2). By contrast, the estimated prevalence of wasting and underweight was higher in the Lowlands: in East Sepik, wasted and underweight rates were 20% and 23%, respectively, while in Simbu they were 4% and 12%. These geographical patterns are consistent with findings published in the 1998 UNDP PNG Human Development Report.

As noted earlier, there is a clear contrast between mother's perceptions of children's growth and actual anthropometric indicators. Evidence suggests that mothers can detect symptoms of acute and seasonal malnutrition (when children seem "too thin"). But observing extent of growth retardation, of stunting is difficult. Most parents in the absence of information and exposure to data for their own children generated from growth monitoring would not "see or fathom" that their children are stunted. The household data show that mothers believed that 79% of children in Simbu and 89% in East Sepik were "well grown". In reality, far fewer children had achieved a satisfactory nutritional status (see Chapter VII Household Survey Findings).

**Table 8.2. Child Malnutrition in IFAD-OE Survey Areas**

<b>Percentage of Children (0 to 5)</b>	<b>Simbu</b>	<b>East Sepik</b>
Stunted	46	30
Wasted	4	20
Underweight	12	23

Source: IFAD-OE Survey, October 2000

Data collected in East Sepik can be disaggregated by ecological zone (Plateau, Coast and River). Results show that the nutritional status in the plateau south of the coast and north of the Sepik river is inferior to that for the river zone (Table 8.3). The indicators for the plateau households sampled show that nutritional status, stunting and underweight are 35% and 39%, respectively. This compares with 12% and 7%, respectively for the river zone. The nutritional status of households in the coastal area is slightly better than that for the plateau. The pattern appears broadly consistent with the findings reported in Mueller (2000), that chronic malnutrition in villages consuming fish and meat (either fresh or tinned) is likely to be better. When diets are

<sup>55</sup> Müller, I. (2000), *Application and Validation of New Approaches in Spatial Analysis as Tools in Communicable Diseases Control, Health Systems and Environmental Epidemiology in Tropical Countries*, PhD Dissertation, Philosophisch-Naturalwissenschaftlichen Fakultät der Universität Basel, Switzerland.

richer in proteins, growth patterns become more normal.

**Table 8.3. Malnutrition in East Sepik by Ecological Area**

<b>Percentage of Children (0 to 5)</b>	<b>Plateau</b>	<b>Coast</b>	<b>River</b>
Stunted	35	29	12
Wasted	-	15	6
Underweight	39	25	7

The survey team also measured weight and height of mothers and derived estimates of BMI. The BMI indice in nature is equivalent to "underweight" as measured for children under five. Underweight in East Sepik is higher than that for Simbu. Measurements of BMI can be considered as largely independent of genetic factors.

Measurements of BMI for children's and mothers are consistent (Table 8.4). As expected, the proportion of mothers with weight below 45 Kg and BMI below 18.5 for East Sepik exceeded that of Simbu (respectively 18% and 8% against 5% and 1%). Both mothers and children in the Highlands (Simbu) were shorter but stockier than in East Sepik.

In the case of mothers, when merely height and not BMI is considered, the effect of genetic factors cannot be excluded. For this reason, it does not surprise us that the proportion of mothers with height below the conventional threshold of 145 cm is higher in Simbu than in East Sepik.<sup>56</sup>

An inter-generational effect of stunting cannot be ruled out. Studies have shown that shorter children may not catch up with regular growth pattern and, as adults, they are likely to experience miscarriages and their children have low birth weight.<sup>57</sup>

**Table 8.4. Deviations for Mothers from Anthropometric Norms (%)**

<b>Measurement</b>	<b>Simbu</b>	<b>East-Sepik</b>
Height < 145 cm	13	7
Weight < 45 Kg	5	18
BMI < 18.5	1	8

<sup>56</sup> We have considered standard cut off points for height, weight and BMI (Table A.3).

<sup>57</sup> Naidu AN, Rao NP. (1994): "Body mass index: a measure of the nutritional status in Indian populations", *Eur J Clin Nutr* Nov; 48 Suppl 3:S131-40.

## **C. Factors Explaining Child Nutrition Status: Preliminary Results**

### **(1) Scope and Methodology**

The study set out to design and test a statistical model with which to highlight factors explaining the final nutritional outcome of children. Former attempts have been made to construct such models.<sup>58</sup> Results are consistent across studies and environments. A set of generic factors explains well variations in nutritional status. These studies confirm that nutritional status as measured for children is better, the more: (i) mothers are literate and empowered; (ii) mothers are provided with food and/or incremental income, the use of which they control; (iii) safe drinking water is available; (iv) mothers have sufficient time to care for children; and (vi) health service outreach is available.

Still to our knowledge, no peer-reviewed study has attempted to investigate the impact of children growth monitoring and capability building at the community level.<sup>59</sup> Moreover, the present seeks to answer additional questions. First, is there evidence of any impact of IFAD interventions in terms of reduced child malnutrition? Second, does empirical evidence show any effect of training on nutrition on the nutritional status of children?

A control had to be used so as to guard against incorrect or biased results because of so-called “endogeneity” of variables. For example, there might be some variables that affect the likelihood of participation in an IFAD project; in such a case, this may have an impact on the final nutrition outcome<sup>60</sup>

### **(2) Primary Needs Are Essentials in Areas Without External Support**

The sample comprised members of CBOs, that had received external funding, from the IFAD-sponsored NSRDP in Simbu, and from other NGOs and state agencies. The nutritional status of children (represented by z-score for height-for-age ratio) for households that did not receive such assistance was more strongly (and positively) affected by land scarcity, saving opportunities, the number of months of food security, and the quality of house. Female children were more likely to be stunted than male children. In the case of weight-for-height and weight-

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<sup>58</sup> For example, Gragnolati, M. (1999): “Children’s Growth and Poverty in Rural Guatemala”, The World Bank Research Policy Paper, Washington DC; Haddad, L., C.Pena, C.Nishida, A.Quisumbing, A.Slack (1996): “Food Security and Nutrition Implications of Intrahousehold Bias: A Review of Literature”, IFPRI – FCND Discussion Paper No 19, Washington DC; Kumar Range, S.K., R.Naved, S.Bhattarai (1997): “Child Care Practices Associated with Positive and Negative Nutritional Outcomes for Children in Bangladesh: A Descriptive Analysis”, IFPRI – FCND Discussion Paper No 24, Washington DC; Smith, L.C., L.Haddad (1999): “Explaining Child Malnutrition in Developing Countries: A Cross Country Analysis”, IFPRI – Discussion Paper no.60, Washington D.C; Ruel, M.T. C.E.Levin, M.Armor-Klemes, D.Maxwell, S.S.Morris (1999): “Good Care Practices Can Mitigate the Negative Effects of Poverty and Low Maternal Schooling on Children’s Nutritional Status: Evidence from Accra”, IFPRI – Discussion Paper No.62, Washington D.C.

<sup>59</sup> The IFAD-OE COWTAG study, conducted in Nepal, showed, *inter alia*, that training in child growth monitoring significantly improved child nutrition status. This is reflected in the second hypothesis.

<sup>60</sup> Following Heckman (1979), we have adopted standard procedures to correct for possible sample selection biases; Heckman, J., 1979, ‘Sample Selection Bias as a Specification Error’, *Econometrica*, 47, 1979, pp.153-161.

for-age ratios, access to secure water sources was an additional significant variable. This supports descriptive findings from our household survey: unsafe non-potable water increases the risk of water-borne diseases that immediately and negatively impact body mass. These results also suggest directly and strongly the areas in which future programmes need to intervene.

### **(3) Other Main Findings**

#### **(a) IFAD Targeted More Deprived Households but Apparently Did Not Improve Nutritional Status of Children**

The IFAD project can be praised for its performance in targeting. The testing for selection bias by the use of Heckman's procedure highlights those factors raise the probability of participating in an IFAD project. This analysis is required to correct for any biases that may effect final results (final z-scores).<sup>61</sup> The analysis suggests that IFAD targeted households with lower health status.<sup>62</sup>

Yet, notwithstanding this performance in targeting, the data do not support the hypothesis that NSRDP had a significant impact in reducing the prevalence of any of the three indicators, whether stunting, wasting or underweight (Table 8.5). On the other hand, land ownership, income sources controlled by mothers and self-sufficiency from own food production were found to be significant factors in reducing stunting.

These results are in line with those from other studies. These results are worthy of reflection; they suggest the direction in which solutions with which to reduce chronic malnutrition can be found.

#### **(b) In Simbu Training on Nutrition Did not Reduce Malnutrition**

In Simbu, mothers were more likely to receive training on nutrition, inter alia, when the CBO leaders were better educated and where prevalence of malaria and acute respiratory infection was increasing. But results suggest that such training did not have a significant impact on child malnutrition. This is in contrast with results of the IFAD (OE study (2001) in two districts in Nepal. In the latter study, training on nutrition contributed to reduce prevalence of chronic malnutrition. Mothers and parents in the Nepal study were highly motivated to receive nutrition education since it was given simultaneously with, or in the context of regular child growth monitoring.

The context for training was different in Simbu in PNG. This is an important difference. Without regular monitoring of childrens' growth and nutritional status, it is difficult to diffuse knowledge and awareness among beneficiaries.

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<sup>61</sup> These results pertain to the Simbu sub-sample, as NSRDP was active only in that province.

<sup>62</sup> According to the staff appraisal report, NSRDP was targeting, inter alia, (i) very small holdings; (ii) those without coffee as cash income; (iii) those in more remote areas.

**(c) More capable CBOs are associated with lower stunting prevalence**

The PNG data confirm our principal hypothesis for this study that when CBOs are more capable then they are effective in reducing malnutrition among member households (Table 8.6). More capable CBOs reflected by a higher maturity index serve as a conduit for mutual empowerment, reducing gender inequality and permitting more independence for women in intra household decision-making.

The prevalence of stunted children among member households of those CBOs with higher capabilities (measured by the composite maturity index) is lower.<sup>63</sup> This significant result is not obtained for the underweight indicator is used. This result suggests that the maturity of the community has a positive impact in the long run, as we eliminate seasonal fluctuations. In the final analysis, this result confirms the fundamental importance for rural livelihoods of the presence of women CBOs, not least the autonomous Mothers Groups, the *Wok Meris*.

**Table 8.5. Summary of Heckman Model on the Effects of IFAD Intervention in Simbu.**  
( $\beta_7$ : Coefficient of the probability that the CBO receives intervention)

	Stunting	Underweight
PNG: the IFAD intervention	5.27 (1.33)	25.82 (0.67)
Coefficients are positive but not significant.		

<sup>63</sup> The result is significant at the 10% significance level.

**Table 8.6. Explanatory variables of malnutrition and their significance**  
**(Entire sample: Simbu and East Sepik)**  
 Effects of Training on Child Nutrition  
 (Two-step Model on the Effects of Training on Child Nutrition)

2 <sup>nd</sup> Step:		
<b>Dependent Variable:</b>	<b>STUNTING (height / age)</b>	<b>UNDERWEIGHT (weight / age)</b>
Y <sub>2</sub> (Sex of a child: male =0, Female =10)	-4.15 (-2.10)* negative and significant (females more likely to be stunted)	-14.61 (-1.13) negative, not significant
B <sub>5</sub> (Whether household owns a land: Yes=1, No=0)	2.39 (1.72) † Positive and significant (More land reduces risk of stunting)	9.78 (0.98) Positive, not significant
B <sub>9</sub> (Whether a mother has own income source: Yes=1, No=0)	2.11 (1.77) † ok sign Positive and significant (income controlled by mother reduces risk of stunting)	0.67 (0.14) Positive, not significant
L <sub>7</sub> (short-term food security /1 if the food earn last 7 day is sufficient to feed well all the family members and 0 otherwise)	4.51 (2.13)* Positive and significant (short term food security reduces risk of stunting)	4.59 (0.63) Positive, not significant
H <sub>2</sub> 1 if any household member was diagnosed with malaria in past two years, 0 otherwise.	-3.59 (-1.94) † Negative and significant (presence of malaria increases risk of stunting)	-7.26 (-0.91) Negative, not significant

\*\*, \*, and + indicate statistically significant parameter estimates at p=0.01, p=0.05 and p=0.10 respectively.



## IX. CASE FOR RAISING ANIMAL PROTEIN SUPPLY IN PNG THROUGH SUPPORT FOR SMALL STOCK PRODUCTION

### A. Introduction: Hypothesis and Main Points

There are several good reasons to explore possibilities for enhancing small stock production in PNG. The most important is that protein – and not the least animal protein is missing in the typical, rural diet. This deficiency impairs the nutritional status of children under five together with that of lactating and pregnant women. These two groups, in particular, would benefit much from supplements of animal proteins. Animal protein is superior to that of plant proteins in terms of nutrient value (higher digestibility and better amino acid composition).<sup>64 65</sup>

Small stock can contribute to protein supply through the animals' own production of meat, milk and eggs for the household or through sale of these products, making money available for purchase of food. Additional reasons for keeping small stock are: (i) many parts of PNG has a rich cover of vegetation much of which can be fed to animals; (ii) not the least small stock can play an important role in deprived households' process of asset creation; (iii) traditionally women rather than men control the use and sale of these animals, hence acquisition of these animals may contribute to empowering women; (iv) in traditional PNG society, especially pigs have played a prominent role; and (v) there is now evidence of a clear trend for increased broiler production among smallholders with day-old-chicken bought from commercial companies.<sup>66</sup>

Yet, small stock ownership does not necessarily generate a significant improvement in the consumption of animal protein. A recent survey (Muntwiler and Shelton, 2000) in the Eastern Highlands found that although 83% of the families included in the survey owned one or two animals, animal protein – in small amounts – were only included in the diet six times a month.<sup>67</sup>

NARI's research program recognises the problem of low animal protein consumption. Across all agro-ecological zones, its programme puts a priority on the expansion of smallholder animal production, in particular chicken production, large and small scale. Rural households increasingly are adopting rabbit production promoted by NGOs.<sup>68</sup>

The hypothesis to be tested is that:

*There is sufficient evidence to prove the feasibility of small stock schemes to improve the supply of animal protein especially for women and children.*

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<sup>64</sup> See <http://www.healthy.net/library/books/haas/amino/essential.asp> for an explanation.

<sup>65</sup> More information on this subject is available at FAO website: (<http://www.fao.org/inpho/vlibrary/t0207e/t0207e05.htm>)

<sup>66</sup> NARI staff (Dr. A.R. Quartermain, livestock Scientist) and the commercial companies in Goroka, personal communication, October 2000. According to the same source, in addition to traditional pig raising, rabbit breeding, though at its infancy can be a promising opportunity.

<sup>67</sup> M. Muntwiler and R.M. Shelton (2000) Nutrition and Protein Intake in Rural Families in the Eastern Highlands Province. Paper presented to the PNG Food and Nutrition 2000 Conference.

<sup>68</sup> Draft document on NARI Livestock Priorities 2000-2005.

The analysis demonstrates three critical points:

1. Women and children from poor households have a diet that contains insufficient protein;
2. Available local feed resources permit the use of small stock; these animals in turn add to the protein supply of pregnant and lactating women and children; and
3. A small stock development strategy would help improve the nutritional status of women's and children in PNG; and
4. IFAD has relevant experience and lessons learned from other countries.

If it is true that women's and children's diet is scarce in animal proteins and if sufficient feed can be cheaply collected from local plants, then small livestock development may be economically viable and provide: (i) food of animal origin for human consumption; and (ii) cash to purchase food for households.<sup>69</sup>

## **B. Characteristics of the Local Diet**

Low quality diet is among the immediate causes for child malnutrition and mortality in PNG. The reason is that many of the food items tend to be bulky and low in protein, making it difficult for small children to obtain enough nourishment. Protein is one important nutrient that tends to be eaten in insufficient quantities by women and children from poor households. Several studies (Gibson, 2000, Muntwiler and Shelton, 2000 and Muller, 2000) refer to shortcomings in the local diet.<sup>70</sup> Muller (2000) found that the cultivation of all major cash crops and sales of fish and food crops were correlated with better child growth. Contradictory evidence has been provided by Gross (1995); this analysis demonstrates that the availability of cash from women's labour per se was not a significant explanatory variable of better child nutrition performance, since increased monetary income may be offset by reduced available time for childcare.<sup>71</sup> Moreover, Gross found that increased female education (particularly knowledge of Pidgin, the lingua franca in most of PNG) was a significant predictor of better nutritional outcomes.

It is interesting at this point to briefly cite evidence from studies conducted in other countries. We consider research conducted in Bangladesh: Nielsen (2000), Pitt et al. (1999) and Alam (1997).<sup>72</sup> Nielsen finds that increased poultry production (through credit targeted to women) has

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<sup>69</sup> Following Sen's approach, we maintain that malnutrition in its various forms and a plentiful supply of food, can co-exist. It is crucial that the malnourished be endowed with the means to access the right combination of food items. For a full reference, A. Sen (1982) *Poverty and Famines. An Essay on Entitlement and Deprivation*. Oxford University Press.

<sup>70</sup> J. Gibson (2000). *Nutritional status of PNG's Population and its Determinants*. Paper presented to the PNG Food and Nutrition 2000 Conference. M. Muntwiler and R.M. Shelton (2000) *Nutrition and Protein Intake in Rural Families in the Eastern Highlands Province*. Paper presented to the PNG Food and Nutrition 2000 Conference. I. Muller (2000). *Application and Validation of New Approaches in Spatial Analysis as tools in Communicable Disease Control, Health Systems and Environmental Epidemiology in Tropical Countries*. Inaugural-Dissertation. University of Basle, Switzerland.

<sup>71</sup> Groos, Anita (1995), *Child Nutritional Status in Relation to Mother's Wage Employment. Empirical Studies at Karimui, PNG*; PhD Dissertation, Technische Universität, München, Germany.

<sup>72</sup> Hanne Nielsen (2000) "Food Nutrient Intake among Females in Rural Bangladesh. How Does a Poultry Project Benefit Women and Girls?"; Master Thesis in Human Nutrition, The Royal Veterinary and Agricultural University, Copenhagen, Denmark. Pitt M.M, S.R. Khandker and D. Millimet (1999): "Credit Programs for the Poor and the Health Status of Children in Rural Bangladesh", Mimeo, Department of Economics, Brown University, Providence (RI), USA. Alam J. (1997): "Impact of smallholder livestock development project in some selected areas of rural

a positive and significant impact on women and girls' nutritional level (measured by BMI), thanks to an increased protein intake (fish consumption). The results of the econometric analysis by Pitt et. al. are even more striking: credit to women has positive and statistically significant impact on arm circumference and reduced prevalence of stunting (height-for-age of boy and girl children). Credit to men is found to have no significant impact on the same variables. Finally Alam shows that small livestock programs targeted to disadvantaged women, ensuring empowerment of women in the study areas and increasing their participation in decision making were effective in improving food intake of beneficiary households (See table in Appendix B).

### **(1) Animal Versus Plant Protein**

In contrast to vegetarian food – and especially bulky food like cassava, sweet potato, taro and bananas - foods of animal origin have high energy densities and provide low bulk diets.<sup>73</sup> This difference between food of plant and animal origin is particularly significant for small children. Provided enough food of animal origin is available for them to complement their plant food, this will enable them to obtain the necessary nutrients. Benefits to children of this nature have been reported from many countries. Recently, they have been summarised in a report published by the International Livestock Research Institute (Tanka et al., 2000).<sup>74</sup> The report refers to studies from a diverse set of conditions in several countries, i.e. from Nicaragua, the Dominican Republic, Kenya, Jamaica, South Korea, Colombia, Mexico, Indonesia, Sudan, Malaysia and PNG to prove the benefits, which children derive. The conclusion is that some animal protein is very useful for maintaining a good nutritional status of young children in practically all circumstances.

Foods of animal origin also provide high quality protein and micronutrients for pregnant and breastfeeding women.

### **C. Examples with Local Feed Resources**

In PNG, locally available feed resources such as cassava, sweet potato, banana and taro provide considerable opportunities for poultry and pig production. Other vegetation like tree leaves can be used for goat and rabbit feeding. All feeds can be used for aquaculture one way or another, i.e. either as fish feed or as compost to fertilise the ponds. These possibilities for animal production provide opportunities for adding quality protein to the human diet in two ways: (i) through home consumption; and (ii) through regular sales, the income from which can be used to buy high quality food for the household. A further justification is that there is a clear and growing interest in broiler production, and a tradition of pig keeping. Rabbit production is being taken up and there is also interest in aquaculture. However, the tendency in present day initiatives is to base any intensification of production on imported, commercial feed. Decision makers ignore an abundance of locally available feed resources and the existing available knowledge about their characteristics as feeds and how they should be handled and fed to the animals.

In PNG, 85% of the people live in the countryside and from an equity perspective provision of healthy food to this large, rural population – not the least the children – needs to be part of a

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Bangladesh”, *Livestock for Rural Development*; Volume 9 No 3.  
<http://www.cipav.org.co/lrrd/lrrd9/3/bang932.htm>

<sup>73</sup> Appendix A provides information on protein content and quality.

<sup>74</sup> Tanka F.K., Jabbar M.A. and Shapiro B.I. (2000). Gender roles and child nutrition in livestock production systems in developing countries: A critical review. Socio-economics and Policy Research Working Paper 27. ILRI (International Livestock Research Institute), Nairobi, Kenya.

nutrition strategy. Food containing animal protein can be produced in PNG or imported. Animal feed can also be imported. Today much ready-made feed is brought in, especially for commercial or semi-commercial poultry production.

The question is, whether – from a technical and biological perspectives – it is necessary to import complete feeds and whether it would not be more appropriate to import factors that are in limited supply such as protein, and minerals (when found limiting)?

However, except for minerals, the mission's visits to commercial stores provided no evidence of imports that would complement the locally available feed resources used by the many small subsistence farmers. Examples would be high protein supplements that would supplement the low protein, but energy rich feeds such as roots of cassava, sweet potato, taro or bananas that the subsistence farmers grow. The danger is that imported energy feeds like maize and other cereal components of the commercial feed replace locally available energy feeds.

It is in this context that it becomes important to understand the potential of local feed resources. Added reasons are that lack of roads and credit facilities will make it difficult for all farmers to buy large quantities of feed. For them it will be useful to know the critical items to buy of feed, which will have a catalytic effect on the utilisation of the feed grown on their farms.

Farmers in PNG in their traditional production systems grow crops like sweet potato, banana and taro. By understanding the nutritional characteristics of these feeds, it is possible to define sound strategies with regard to the type of feed that may be required to be bought from the market. However, the mission found practically no information about local feed resources in the offices of DAL and Primary Industry Extension Workers, although such information can be found in books and manuals available free of cost from FAO and which now also in several cases can be accessed on the Internet.<sup>75</sup>

On balance, it must be mentioned that there are reports from PNG of research on local feed resources. Examples are work reported by Ochetim (1993) for pigs and by NARI (2000) for poultry. However, Ochetim's work is a description of the traditional system with no comparisons to commercial feeds.<sup>76</sup> NARI's report on poultry contains several references to work undertaken in the late 1970s and early 1980s. It is on this background that the examples used below are drawn from results that are reported in the literature and readily available.<sup>77</sup>

The following sections set out to provide some examples of animal performance, when local feed resources like cassava, sweet potato, banana and taro are used. The review is not exhaustive as that would take far too much space. But information is available in the references. The intention is to provide illustrations and any reader with a greater interest in the subject is referred to the references.

Most of the trial results presented below relate to pigs, while one table is available for poultry and one for rabbits respectively.

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<sup>75</sup> <http://www.fao.org/livestock/agap/frg/afris/index.htm> and <http://www.fao.org/livestock/agap/frg/pub.htm>

<sup>76</sup> For an anthropological study of traditional production and consumption systems, see the classic Rappaport, R. (1968) *Pigs for the Ancestors* Yale University Press. A more recent qualitative account of dynamics in traditional systems and the impact of more frequent monetised exchanges is provided in Minnegal, M. and ; P. D. Dwyer (1997): "Women, Pigs, God and Evolution: Social and Economic Change among Kubo People of PNG", *Oceania*, Vol.68, 1, pp 47-60.

<sup>77</sup> Sources: A.R. Quartermain (ed.) (2000) Proceedings of the NARI Poultry Workshop, March 2000. Abelsamie, R.E. (1981) Cassava as a livestock feed?. Harvest 7: 172-175 (Harvest was a PNG journal, but I could not get hold of it). Bakau, B.J.K (1985). Free choice feeding of poultry, a method of feeding suggested for village backyard and semi-commercial poultry production. Harvest, 13: 6-9.

## (1) Cassava

Feed containing cassava requires supplementation with protein, minerals and vitamins to match nutrient standards of commercial, grain-based feed. In feeding trials with pigs, where these supplements have been added, it has been shown that cassava prepared in various ways can replace the cereal component of the diet, in this case maize (Table 9.1).

**Table 9.1**  
**Performance of Growing/Finishing Pigs Fed Different Forms of Cassava**

<b>Treatment</b>	<b>% Cassava in the diet</b>	<b>Live weight (kg)</b>	<b>Average daily gain in grams</b>
Maize control diet	0	20-54	680
Fresh chopped cassava	51	Same	630
Chopped cassava root silage	50	Same	650
Fresh chopped cassava	61	18-98	750
Chopped cassava root silage	60	Same	770
Cassava root and foliage silage	53	Same	640

Source: Buitrago et al. (1978) as quoted p. 127 in FAO (1997). FAO Animal Production and Health Paper no. 132: Feeding Pigs in the Tropics.

The results reported demonstrate the benefits of feed from cassava (Table 9.1). Cassava fed in different forms: fresh chopped, as root silage or in a mixture of root and foliage can produce daily gains in pigs that are comparable to the results that are obtained when maize is used.

In feed to broilers cassava meal has replaced all the maize (Table 9.2). The results below refer to a 56 days' feeding trial with broilers.

**Table 9.2**  
**Performance of Broilers Fed Diets Containing Varying Levels of Maize Replaced with Cassava**

	Diets				
	Substitution level of maize with cassava %				
	0	25	50	75	100
No. birds	28	28	28	28	28
Average initial weight, g	37.2	37.1	37.2	37.1	37.1
Average final weight, kg	1.86	1.87	1.85	1.70	1.50

Source: S. Ochetim and A.M.P. Chimwano (1988). The Feeding Value of Cassava Meal for Broiler Chicken. East African Agricultural and Forestry Journal.

The result of this trial shows no negative effect on final weight of broilers by replacing 50% of the maize with cassava meal. There is a fall in final weight from 1.85 to 1.7 kg at 75% cassava meal and a further drop to a final weight of 1.50 kg at 100% cassava meal. However, this may or may not be significant, subject to factors such as prices of the cassava and maize at the time of feeding, road conditions, and labour and cash availability. The maize and cassava meal on a dry matter basis constituted 56% of the feed. Other ingredients – typically those that may need to be imported in present day PNG - were soybean meal, sunflower meal, blood meal, bone meal, minerals, salt and the amino acids Lysine and Methionine.

## (2) Sweet Potato

The data below are the results of a feeding trial with pigs in which a protein supplement was added to either maize or raw sweet potatoes (Table 9.3).

**Table 9.3**  
**Raw Sweet Potato Roots (% Dry Matter) as an Energy Source for Pigs**

	Proportion of maize/raw sweet potatoes on a dry matter basis			
	88.2/0.0	46.8/42.4	22.4/69.5	8.5/84.3
Dry matter feed intake, kg/day	2.29	2.05	1.91	1.92
Average daily gain, grams	740	650	580	570
Kg dry matter/one kg live weight gain	3.16	3.23	3.31	3.37

Source: Marrero (1975) as quoted p. 133 in FAO (1997). FAO Animal Production and Health Paper no. 132: Feeding Pigs in the Tropics.

The trials undertaken demonstrate that the daily gain in live weight of the pigs declines with increasing proportion of raw sweet potato in the diet. Yet it is true that the pigs' performance in biological terms is satisfactory even at the highest level of intake of sweet potato. At the highest level of sweet potato intake, the pigs grow more than 0.5 kg/day, bringing it to a live weight of 100 kg within 200 days. In PNG as well as in other countries it is known that also the use of vines may reduce the need to purchase protein.

In many traditional systems it is common to cook the feed for pigs before it is fed. That the sweet potato roots can be fed raw is of interest from an environmental as well as a gender perspective, since typically women collect fuel and do the cooking.

### (3) Taro

The FAO publication *Animal Production and Health Paper no. 132: Feeding Pigs in the Tropics* reports (p. 136) good growth in pigs fed cooked taro. However, taro produces a considerable quantity of residues such as leaves, stems and unwanted planting combs.

In a feeding trial, pigs consumed silage made of taro residues. Weight gains were analysed and compared with a commercial pig feed (Table 9.4).<sup>78</sup>

**Table 9.4**  
**Pigs Fed Increasing Levels of Taro Silage over a 12-Week Period**

	Diet Level of replacement of commercial feed by taro silage (%)			
	Commercial feed	33	67	100
Number of pigs	6	6	6	6
Final weight, kg	88	81	70	58
Daily gain, g	810	730	600	455
Commercial feed eaten, kg	211	141	70	0

Source: S. Ochetim and S.L. Solomona, University of the South Pacific, Western Samoa – personal communication.

In this trial, there is a considerable reduction in the rate of daily gain from 810 grams, when the pig is on a complete commercial diet to 455 grams, when the pigs are fed only the taro silage. Yet, as an illustration it should be noted that a rate of daily gain of 455 grams over one year (365 days) will allow a pig to gain 166 kg, which is considerably above the rate of gain – more likely to be between 100 – 200 grams – of most pigs in the villages today.

One very important point in comparison to trials with cassava, sweet potato and bananas is that in this trial no protein supplement was added. The average protein content of the silage was analysed to be 8% of the dry matter. The explanation for this is to be found in a high protein content of the leaves as well as the tubers – according to standard tables with FAO, but this protein “self-sufficiency” in taro makes it an interesting crop for further experimentation as an animal feed.<sup>79</sup>

<sup>78</sup> On a fresh weight basis 25% reject bananas, papaws and breadfruits were added to the silage.

<sup>79</sup> <http://www.fao.org/livestock/agap/frg/afri/Data/527.htm>

#### **(4) Banana**

In line with positive results with cassava, sweet potato and taro, bananas – green or ripe – have been fed to pigs with good results (FAO, 1997).

#### **(5) Protein for Poultry and Pigs**

Feed items such as roots, tubers and fruits, widely used by farmers in PNG in their traditional systems of production, are low in protein. However, the example with taro showed that feed can be prepared from the residues of this plant that contain 8 – 9% protein on a dry matter basis. In recent years, research on the use of cassava leaves and duckweed as sources of protein has presented promising results.<sup>80</sup> However, the protein supply area is an area where more efforts are needed to arrive at practical solutions for farmers. This is an area of obvious importance for future rural development efforts in PNG.

#### **(6) Feed for Rabbits**

NGOs promote rabbits in PNG. Ready-made concentrate for rabbits is found in the stores of commercial companies. However, a range of local feed resources can be used to feed rabbits (Table 9.5). The control diet consisted of concentrate and guinea grass.

**Table 9.5**  
**Live Weight and Daily Gain of Growing Rabbits fed Bananas, Sweet Potato Tubers, Cassava Roots, Supplemented with a Mixture of Tree Leaves, and compared with a Control Group fed Concentrate and Grass**

<b>Live weight, grams</b>	<b>Control</b>	<b>Bananas</b>	<b>Sweet Potato Tubers</b>	<b>Cassava Roots</b>
Initial	432	418	441	428
Final	1094	705	1040	876
Daily gain	10.0	7.42	9.99	7.46

Source: Nguyen Quang Suc et al. (2000). Feeding Systems for Tropical Rabbit Production Emphasising Roots and Bananas. <http://www.bigpond.com.kh/users/uta/sarpro/suctuber.htm>

### **D. A summary of Lessons Learned from Some IFAD Projects**

The question that is explored below is how small stock can be used in support of nutrition improvement of small children, and lactating and pregnant women. From a feed resource perspective, it has been shown in the preceding sections that there are real possibilities for animal production on the basis of local feed resources.

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<sup>80</sup> One site where recent research from Vietnam-Sweden research collaboration project on local feed resources is reported is at <http://www.bigpond.com.kh/users/uta/sarpro/index.htm>



The present sections sets out to summarise relevant livestock experiences from IFAD sponsored projects in Bhutan, Nepal, Zambia, Bangladesh and Vietnam. Some salient points of these lessons are:

Equity in ownership is promoted through: (i) savings groups; (ii) micro-credit to women; and (iii) use of indigenous breeds of animals. Given the limited success with micro-credit this may be less obvious in PNG, but it is seen in countries such as Nepal, Bangladesh and Vietnam. However, with money available for investments from savings groups and micro-credit, people following their own preferences are prone to invest in such animals rather than exotic breeds. Risk is reduced: indigenous animals are less susceptible to diseases than exotic ones. In sharp contrast, the Government Livestock Departments and the projects as designed have tended to promote exotic animals and their crossbreeds.<sup>81</sup>

- 1) The investments can be made more secure through preventive vaccinations, which require veterinary health workers and behind them institutional capabilities to ensure their training, organisation of their work and provision of critical inputs like vaccines and medicines. Presently, such institutional capabilities are limited in PNG; practically none of the people interviewed by the mission at household or CBO level reported any contact with a regular veterinary service.
- 2) Many projects, sponsored by IFAD - and other donors - have had components to improve government livestock breeding farms but with inadequate attention paid; whether a breed deserves to be called improved depends on the context in which it is to be used. Genetic potential for high levels of meat, milk and egg production can only be expressed after preventive vaccination, veterinary services, adequate management and sufficient feed are in place.
- 3) However, in the context of addressing malnutrition and a poor household's asset creation perspective, exotic breeds are not so important. Much progress can be achieved through formation of savings groups, micro-credit and organisation of preventive veterinary work combined with investment in whatever local animals there are in the nearby market.
- 4) Promoting utilisation of local feed resources is very often neglected. The current mission found this to be the case in PNG. However, the recently established NARI strategy in PNG has it as one of its important objectives to work on improvement of the traditional feeding systems. Any future IFAD projects should link up with such work and support it. Some of the research students could be livestock or other project staff, whose studies would be defined in such a way that they would serve both the Project's as well as the University's requirements. A look at the references used in the section on local feed resources will show the reader that the Internet, judiciously used, can now be an important source of information.

## ***E. Preconditions for Success***

One important pre-condition for success will be to avoid imposing a blueprint model of production on the farmers. Success will be more likely, once farmers current production systems provide the point of departure with a view to overcome constraints with them.

IFAD's experience shows that this may best be done by creating linkages with the CBOs that are involved in savings' mobilisation and micro-credit and to increase their capabilities through training.

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<sup>81</sup> Exotic cattle and Boer goats in Zambia in 1996 (North Western Province), Exotic cattle in Bhutan (A.I.), Pig breeding stations in Vietnam (2000). By contrast, micro-credit in Bangladesh (Grameen) in initial loans were overwhelmingly in local cattle.

Small stock may increase protein consumption by children and women directly, as well as indirectly. Either way, frequent and steady daily income will make a better contribution than a lumpy one at infrequent intervals.

Egg production, milk from goats and aquaculture provide opportunities for daily production, consumption and sale or both, whereas production of broilers and pigs for slaughter fall into the lumpier category.

The present Chapter has provided documentation of sources of knowledge that future projects can benefit from. Nevertheless, the need will remain to support research and learning under the particular on-farm conditions, where the technologies will have to be applied. Such research may comprise:

- 1) Studies of the comparative performance of commercially imported (chicken), crossbreeds and indigenous (breeds existing in the villages) animals under semi-scavenging conditions, considering feeding, management, survival, health and gender aspects – not the least the labour involved - and also the optimum stock density of different breeds, or breed combination, to know the flock sizes.
- 2) Studies of the prevalence and control of main diseases under semi-scavenging condition including production losses due to diseases.
- 3) Studies of the available scavenger feed resource base and its utilisation in a sustainable semi-scavenging system under the PNG socio-economic conditions.
- 4) Determination of the socio-economic impact of semi-scavenging systems through deriving real net monetary benefits taking into account the actual interest rate of credit, or bartering terms, obtained by farmers for different enterprises.

## **F. Conclusion**

This chapter has provided evidence to support the conclusion that village based small stock schemes can benefit women and children. Crops like sweet potato, cassava, taro and banana, typically grown by rural households in PNG, can be used for a higher level of animal production than those seen today. Technically and biologically it will therefore be possible to overcome the protein shortage of the human diet. The largest constraint rests in the limited institutional capabilities to support such a transformation.

IFAD has relevant experience in its lessons learned from other countries that can contribute to a small stock development strategy that will help improve the nutritional status of women's and children's diet in PNG.

### **G. Recommendations:**

With high levels of chronic malnutrition in rural areas reflecting animal protein deficiency, a priority in PNG is to create institutional capabilities for improving animal protein supply. This priority holds true for all donors, multi as well as bilateral ones. The following points should be considered at the stage of design:

1. NARI's small stock research should be reviewed and links created to it, if it is found relevant. The assumption is that if the present NARI research programme is implemented, there will be useful information on local feed resources to incorporate in future rural development projects. It would also mean that resource persons would become available at NARI for on-farm testing and training.
2. Outreach capacity must be created in a project. One aspect of this is to have sufficient staff – or farmer extension workers – who can reach out to the households with information. This recommendation relates to the larger issue of institutional mechanisms for extension and service deliveries.
3. It has been shown in the present chapter that although knowledge exists about the typical feed resources in PNG, the DAL staff do not own this knowledge. Capability must therefore be built into a future project to impart such knowledge in the extension workers. In practical terms, this means creation of linkages to NARI's small stock research programme and the information available in FAO's literature on tropical feeds. The Internet is a useful tool for accessing this type of information.



## APPENDIX A TO CHAPTER IX

**TABLE A.1 Amino Acid Scores of Some Proteins and their Net Protein Utilisation by Children 3 - 7 Years of Age**

Protein	Amino acid score	Net protein utilisation		
		at 2 - 3%	At 4 - 5%	at 6 - 7%
		of dietary	Of dietary	of dietary
		Energy	energy	energy
Whole egg	1.00	0.87		
Human milk	1.00	0.95	0.85	0.95
Cow's milk	0.95	0.81	0.79	0.81
Soy bean	0.74			
Milk	0.78	0.76	0.75	
Flour			0.54	
Toasted grits	0.72	0.80	0.67	
Sesame	0.50			0.54
Groundnut	0.65			0.57
Cottonseed	0.81			0.41

Source: UN University (1980), "Nutrition Evaluation of Protein Foods".

**TABLE A.2 Protein Quality**

	Examples of High-, Intermediate-, and Low-Quality Proteins
High Quality	
	Cow's milk
	Chicken Egg
	Human milk
	Beef muscle
	Fish
Intermediate Quality	
	Soy flour
	Sunflower seed
	Rice
	Potato
	Oats
Low Quality	
	Peas
	Cornmeal
	White flour
	Cassava
	Gelatin

Source: Alfred E. Harper, and Norman N. Yoshimura (1993): "Amino Acid Balance And Use In The Body", Nutrition, Vol. 9, No. 5, September/October

## APPENDIX B TO CHAPTER IX

**Table B.1: Intake of Food by Beneficiary Households Before and After Membership**

<i>Beneficiary type</i>	<i>Eggs (No./week)</i>	<i>Chicken (No./year)</i>	<i>Fish (Times/month)</i>	<i>Meat (Times/month)</i>	<i>Milk (Litre/month)</i>	<i>Vegetables (Time/week)</i>	<i>Grain (kg/week)</i>
<b>All households</b>							
Before	1.78	2.13	9.98	0.87	0.802	12.06	12.08
After	4.61	5.05	12.0	1.88	2.59	12.2	14.3
<b>Chick Rearer</b>							
Before	2.10	1.35	6.56	1.18	0.33	11.73	13.32
After	5.06	7.0	13.7	3.02	3.34	10.5	16.9
<b>Feed Seller</b>							
Before	2.23	2.70	7.40	1.15	0.50	10.80	11.34
After	5.03	5.03	8.63	2.50	1.96	11.6	13.6
<b>Key Rearer</b>							
Before	1.66	2.08	10.49	0.87	0.78	12.2	12.08
After	4.38	4.89	12.0	1.66	2.67	12.3	14.3
<b>Mini Hatcheries</b>							
Before	2.25	2.75	4.75	0.75	1.13	12.25	11.32
After	6.00	8.37	9.00	3.38	4.25	13.5	13.5
<b>Model Rearer</b>							
Before	2.40	2.60	7.05	1.28	1.33	12.58	12.01
After	6.73	5.88	10.3	2.80	3.05	13.4	13.8
<b>Poultry Worker</b>							
Before	1.98	2.54	10.84	1.43	0.48	11.27	11.65
After	4.99	4.41	12.8	2.04	1.58	12.1	13.9

Source: Alam (1997).

## **X. CONCLUSION AND THE WAY AHEAD**

### ***A. Vicious Circles***

The rural population studied in PNG is faced with a breakdown in the delivery of essential social and economic services. The impact is serious: children face prospects of receiving less schooling and health outreach compared to the previous generation. Road and market access is not improving in line with expectations. In the absence of markets, there is little possibility for households to pay for essential inputs such as improved seeds and fertiliser with which to intensify production. Fertile land is becoming scarcer in line with increasing population density. Declining soil fertility is associated with lower productivity of land and labour. Especially women work longer hours to maintain previous levels of production.

Vicious circles operate. The maintenance of livelihood standards is at stake. Higher labour loads at declining productivity in the face of common food insecurity, are coupled with declining services for large segments of the rural population. The break down of services is worrisome given already high levels of chronic malnutrition. In the final analysis, low or deteriorating living standards fuel conflict, strife and more violence.

### ***B. Limited Support for Effective Decentralisation to Local Bodies***

The limited or declining funding for essential services that reach rural communities reflect a break down in the Government's policy on decentralisation and devolution of control to authorities in the provinces. The provisions of the New Organic Law are not being implemented.

The UNDP with its UNDAF is seeking to create preconditions in the area of governance with which to create enabling preconditions for a more effective policy. Progress in PNG is essential in enabling and empowering local government structures. A powerful enabling environment for the community-based development set out below is needed for lasting sustainable impact (see below, the 'Four-Pronged Approach' suggested by this mission).

### ***C. Simbu Province – NSRDP***

This project with the support of AusAid is the first to experiment with community participation efforts even though these remained at a rudimentary level. It has also started a micro-credit scheme directed at individuals, where recovery rates are quite high. There is sufficient accumulated knowledge at the project level on the lessons learned during project implementation. The project management understands the sustainability issues that relate to their interventions. The project management capacity is exemplary. The management team has the capacity to continue programme implementation for the benefit of rural poor with support for resolving the issues of sustainability and for ensuring real participation of the communities.

## **D. Emerging Longer Term Solutions**

A strategy can be conceptualised reflecting our own learning from this study. The unused potential of rural women and their informal and formal organisations can and should be mobilised. The *Wok Meris*, the Mothers' Groups studied in Simbu and East Sepik do not receive targeted support: their unused potential amply confirms this point.

Our study has shown that at given food security status, the more conducive are the structures that promote equality in intra household decision making for women, the more women have an independent source of income, and the better is the outreach of health services, the more we expect growth monitoring to contribute to reduced prevalence of chronic malnutrition. Support for building up the capabilities of women CBOs and providing them relevant knowledge stands out as a particularly effective strategy in accelerating reductions in chronic malnutrition.

Community-based organisations have capabilities for becoming focal points for broad participatory-based development to reduce deprivation or chronic malnutrition. In a first phase, women CBOs are to be supported. In a second phase, once such a platform with associated activities are in operation, all household members would be supported, men, youth as well as women and their infants (see Phase 2 below).

Three types of women CBOs operate at different levels of evolution in PNG. The *wok meris* at the higher end of the spectrum represent cohesive groups with requisite social capital to undertake community development activities. The credit groups of NSRDP represent the middle category; these groups have demonstrated their ability to repay the loans; their level of group cohesion is advancing. The church groups are at the lower end of the spectrum. They are mobilised but have few if any objectives beyond charity and assistance in times of distress. These three types of CBOs would be the building blocks of any broad participatory-based development.

The *Wok Meri* groups in Simbu Province were created without external or Government support.

- One group in Gumine district created in 1993 with the objective of raising standards of living in the community and focus on improved nutritional outcomes: 30 households are members; in the vicinity are two more groups, in total about 100 members.
- The group provides multiple services including improving local gardens.
- The group has its own revolving fund with K 4000.
- The group lends to members K 300 – 400 to be repaid over 3 to 4 months, at an annual interest rate of 14% and with 90% - 100% credit recovery rates.
- *Wok Meri* groups are registered under the Department of Home Affairs and Youth in the provincial capital but receive little or no formal support.



## **E. Suggested Framework for Strengthening Community Capabilities**

### **(1) A `Four-Pronged Approach`**

The mission suggests a `Four-Pronged Approach`:

- 1) Focus on sub-ward level women organisations: Creating raised capabilities of community level women organisations: support with which to raise capabilities of *Wok Meris*, similar organisations, and women church groups.
- 2) Providing a component with which to raise awareness and knowledge of women organisations about causes of chronic malnutrition and household and community level solutions in reducing malnutrition.
- 3) Micro-finance: Provision of small equity funding for creating and strengthening community (self-administered) revolving funds to raise individual household food and nutrition security.
- 4) Community development fund (CDF): Providing funds for micro projects at community level for improving infrastructure with self-help to go hand in hand with gradual improvement of capabilities – an important incentive mechanism.

A supporting national strategy for communication, awareness and knowledge generation is well justified. Normally of value is to use radio to diffuse relevant knowledge about causes to chronic malnutrition, growth promotion and associated solutions. Female village level volunteers are supported to become “focal points” for radio listening groups.

Moreover, training infrastructure: units need to be set up for curriculum and content development with which to train female volunteers. A training of trainers’ approach is required. Relevant approaches need to be defined for training of trainers so as to widen outreach and programme impact.

Finally, roles and responsibilities need to be defined so that capabilities for analysis, progress monitoring and continuous evaluation to accompany programme development.

### **(2) Normative Steps and Sequencing of Interventions in Rural Development Projects in PNG**

Much testing has taken place in the use participatory methodologies. Initially, processes were explored on how to make mutual benefit groups cohesive and sustainable. In the current phase, attention has shifted to explore processes and strengths and weaknesses in building viable village level institutions. Experience to date suggests that the participatory processes that promote empowerment and equity through self-help activity are yet to be fully understood. The importance of a proper phasing and sequencing of activities is not sufficiently emphasised. Four steps normally need to be considered for driving success in the use of participatory planning exercises at community levels. These steps are:

- Community institution building that includes capacity building of the communities for collective action and testing resolve of the communities to work together for common good.
- Facilitation of the community to identify core causes for their problems and search for feasible and low cost solutions.

- Establishing budgetary allocations for within which communities need to set priorities.

Establishing a step-wise graduation process with explicit benchmarks for performance. This would include provision of a smaller budget initially and increasing the budget in the subsequent years based on performance. A detailed methodology to be adopted for participatory planning is provided in Annex 6.

### **Phase 1: Community Mobilisation and Social Capital Development**

- The Community Based Organisations of women at the sub-ward level would be the basic building blocks at the community level.
- These CBOs need to be restructured and revitalised through capacity building. Initial capacity building efforts need to be focussed on group management and savings and credit activities.
- Nutrition education is fundamental. The collection of body measurements for children under five represent a useful instrument with which to *inform, educate and empower communities to seek and take action on their own to raise their standards of living*. When parents realise - for the first time - that a son or daughter is malnourished, it is easier for them to understand the importance of a community development project, involving health and nutrition in addition to mere food production. In addition, when linear growth of children is regularly monitored, parents observe the progress. More important, once they have been made to understand causes to malnutrition, they can be expected to take action, individual or at the level of the community, with which to improve their nutrition security.
- The revitalised CBOs can be used to deliver micro-financial services to the community. It is easy to assess the performance of CBOs under micro-finance activity. The performance of micro-finance activity is directly linked to group cohesion and management. Performance review and linking support to achieving performance benchmarks would weed out groups formed only with the intention of obtaining project support.
- A ladder approach permits a structured process to be followed in developing the capabilities of the CBOs: the absence of a “ladder” is a confounding factor in PNG as elsewhere. The necessary progression in formal support for CBOs has been thwarted. Six important steps need to be followed: (i.) forming new groups or strengthening existing groups; (ii) capacity building for group management and book keeping; (iii) savings mobilisation; (iv) credit delivery within the group using the savings; (v) equity support to performing groups to increase their capital base; and (vi) subsequent linkage to the micro-finance institution to obtain wholesale credit.
- In wards with active CBOs, efforts to mobilise the entire community to undertake community development activities need to be initiated.

## **Phase 2: Community Development Fund**

**(This facility would come on stage in a second phase)**

### **1. Community Institution Building**

- Community homogeneity in PNG is an important factor that would drive community development efforts.
- The grassroots level administrative areas in PNG are similar to clan habitation.
- Traditional leadership and the village magistrate can be effective tools to promote community development: the process needs to be driven by elected leaders.
- In wards where the CBOs have attained minimum capabilities, the feasibility of initiating pilot efforts directed at supporting unemployed youth with skill training combined with microfinance should be initiated.
- Strengthening the ward development committee (WDC) by incorporating traditional leadership, village magistrate and leaders from the CBOs would be the first step. The WDC needs to receive formal recognition; to this end it needs assistance with which to articulate its own objectives, and prepare byelaws, transparent operating and financial procedures and system of sanctions.

### **2. Participatory Planning and Implementation**

- The planning process reflects a participatory planning process; i.e. planners' biases become minimal.
- The participatory process generates trust, which in turn encourages local resource mobilisation. Communities mobilise external resources only to compliment its own resources.
- Communities become empowered as they analyse problems, formulate solutions, and monitor the execution of planned activities.
- The planning process is detailed below.
- Core steps of the participatory planning and implementation process comprise:
  - (i) **Building trust with external agents.** The communities need to be informed about the actual budget on which they can rely upon to undertake community development activities and also roles and responsibility of each stakeholder with clearly defined performance standards.
  - (ii) **Funds to flow directly to the community.** Communities to have their own bank account and be able to control spending; they would undertake implementation themselves assisted by the external technical agents as called for. Roles and responsibilities of both the facilitator and the recipient CBO need to be defined and agreed to between the parties in the form of an enforceable contract.
  - (iii) **Problem analysis, setting priorities and planning.** Communities conduct their own need assessments. Problems are analysed and prioritised. Communities would identify possible development actions to address the problems. The planning process needs to stress the requirements of the resource poor households. Moreover, the planning process would provide answers to the questions: what can be done now; and who will do what. The emphasis should be to define what the communities can do themselves, what they can do with little assistance, and what they can do assisted by the allocated budget.
  - (iv) **Communities to form committees for distinct different needs.** Communities to identify village volunteers for training in identified areas with suitable arrangements for

sustainable operations. Line agencies and project administration only to facilitate implementation, organise training and monitor the progress.

- (v) **Monitoring Outcomes:** Communities need to monitor progress on wider issues such as attitudes, and motivation conducive to “progress” or social change within the communities on health, hygiene, education, equity issues, women’s status and nutritional status. This can be easily done by community level monitoring of stunting rates of children less than five years of age including the position of women and equity issues.

### **Phase 3: Wider Institutional Framework and Context for Accelerated Effort**

A sustainable and accelerated growth in service provision at community level requires that the communities’ priorities become integrated in development plans and reflected in budgets at provincial, district, Local Level Governance and ward levels. Political will is required. Moreover, advance planning, structured training and efforts in building capabilities are needed.

Finally, processes need to be established under the Organic Law that permit flow of funds and control of funds at ward level. Communities need support and facilitation so as to raise their capabilities in articulating their needs and generating plans that can be integrated into the formal budgeting processes. Providers of facilitation services need to be identified. Their capacity needs to be strengthened to implement development interventions in participatory mode.

### **(3) The Role of Donors**

Donors need to build on experience and knowledge available within the country for replication. The successful experiences to be considered are:

- Women organisations: The design of this intervention would draw upon available knowledge especially of the *Wok Meri* groups, supplemented by the Mission’s final report.
- Knowledge with which to raise awareness and knowledge about causes and solutions for effectively reducing malnutrition and initiate community level monitoring: The design of this intervention would draw on related international experience and lessons learned *inter alia* from Save the Children Fund in East Sepik and UNICEF.
- Community based micro-finance provisions: Introducing cost-effective small equity funds at community levels for creating, and strengthening existing community (self-administered) revolving funds.
- Community development fund (CDF): AusAid, for instance, has begun to providing funds to women organisations for micro projects; these efforts can be built upon to bring them down for self management by community organisations at community levels, already demonstrating successful track record in operating revolving funds.<sup>82</sup>

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<sup>82</sup> K 500 000 provided to 24 CBOs and NGOs in Kundiawa in Simbu Province as quoted in The Nation Newspaper dated October 25, 2000.

## ***F. Criteria for Decentralisation***

Finally, the selected characteristics of decentralisation, such as subsidiarity, accountability, participation, ownership, expectations, strategic vision and sustainability have to be made operational. The fundamental spirit of decentralisation should be maintained. Mechanisms need to be put in place to permit efforts to begin at the level of communities. Efforts are needed in the name of social justice and an emerging impact should be seen also in terms of reduced frequency of conflicts and violence.

Such efforts should be undertaken even though the building up of capabilities and reform of structures necessarily will take place over a longer term.

- 1) Steps have to be taken to minimise the vast gap between what the Organic Law has proposed and the real practice. For that, a high level commitment for decentralisation is needed. The higher the level of representation the more should be the commitment to translate true spirit of decentralisation into practice.
- 2) A community development fund has to be established at local or district levels to support and realise community initiatives. The fund should provide for credit for micro-finance, seed grants for small-scale infrastructure, human resource development and skills training. Simple criteria's have to be developed to operate and manage the fund. A management board with active participation/representation of the communities has to be established to approve the proposals, and manage and control the fund.
- 3) The local, district, provincial authorities grant fund and electoral development fund and donors fund may provide support in establishing the fund.
- 4) The other important structures that play important supporting roles in the reforms are the National Monitoring Authority, the National Economic and Fiscal Commission, Provincial Inspectorate and the provincial and district treasuries. These authorities need to be shifted from their present ineffective status to fulfil their expected roles in PNG development. They have important roles in facilitating provincial and local level governments.
- 5) If the true spirit of decentralisation is not translated at grassroots level, then it can fuel unrealistic demands and expectations on the part of local population. There is urgency in this since inaction and continued limited funding of community priorities create social discontent and even social violence. More power and defined responsibilities have to be assigned to local communities. Local youth, females and males, have to be involved in the decision-making.
- 6) A strong partnership has to be built between NGO's/CBO's and private sector.

## ***G. No Progress in Reducing Malnutrition***

The prevalence of chronic malnutrition is a precise indicator for endemic poverty. It is reliably measured by the prevalence of stunted children in the age group up to five years. In PNG, in 1982/83 stunting at the national level was estimated at 43%, which is high. Furthermore, the most recent survey conducted in 1996 recorded no progress or reduction (World Bank 1999).

The IFAD-OE surveys in Simbu and East Sepik provinces in year 2000 demonstrated that children were more likely to be stunted in Simbu (46%) than in East Sepik (30%). By contrast the prevalence of wasting was higher in East Sepik (20%) than in Simbu (4%). **Mothers underestimate the prevalence of chronic malnutrition: only 21% of children in Simbu and 11% in East Sepik were perceived by their mothers as not well grown for their age (i.e. stunted). But body measurements have shown that stunting rates were as high as 46% and 30% in Simbu and East Sepik respectively.**

Preliminary results of the determinants of child nutritional outcomes suggest that, in areas that have received no assistance (from PNG Government, NGOs, International Organisations), measures that can significantly improve child nutrition status comprise improving the quality of the drinking water, supporting savings and credit groups, and improving access to land.

The IFAD-sponsored NSRDP targeted the more deprived households in Simbu province, but the survey data do not confirm that the intervention was successful in reducing stunting among children.

In Simbu, mothers were more likely to receive training on nutrition, *inter alia*, when the group leaders of their CBO were better educated. But results suggest that such training did not have a significant impact on child malnutrition. This is in contrast with results of a previous IFAD study (2001) in Nepal. An important difference was that training package in the surveyed districts of Nepal included regular child growth monitoring, which was not the case in PNG. Without regular monitoring it is difficult to diffuse knowledge, awareness and improved practices among beneficiaries.

Finally, statistical analysis has shown that, where CBOs with higher capabilities (measured by a composite maturity index), *ceteris paribus* the level of chronic malnutrition is significantly lower. This suggests that the “maturity” of community organisations is a crucial element to build upon, in order to improve food security.

