

**Assessment of agricultural information needs in  
African, Caribbean and Pacific (ACP) States for  
CTA's Products & Services**

**Phase 1: Pacific**

**Country study: Papua New Guinea**

**Final Report**

Prepared by

**Ipul Powaseu**

On behalf of the

**Technical Centre for Agricultural and Rural Cooperation (CTA)**

**Project Reference Number: 4-7-41-152-3/g**

**Papua New Guinea, December 2004**

### Disclaimer

This report has been commissioned by the CTA to enhance its monitoring of information needs in ACP countries. CTA does not guarantee the accuracy of data included in this report, nor does it accept responsibility for any use made thereof. The views and opinions expressed in this report are those of the author alone and do not necessarily reflect the views of CTA. CTA reserves the right to select projects and recommendations that fall within its mandate.

## Table of Contents

<b>Executive Summary .....</b>	<b>1</b>
<b>1. Introduction .....</b>	<b>4</b>
1.1 Background .....	4
1.2 Objectives .....	4
1.3 Methodology .....	5
<b>2. Country Profile.....</b>	<b>6</b>
2.1 Agriculture, Forestry and Fisheries.....	6
<b>3. Overview of Information and Communication Management Issues: Capacity, Services and Needs.....</b>	<b>12</b>
3.1 Information and communication management capacity .....	12
3.2 Agricultural information and services .....	14
3.3 Information needs .....	19
3.4 Capacity building needs .....	22
<b>4. Conclusions and recommendations .....</b>	<b>25</b>
4.1 Conclusions .....	25
4.2 Recommendations.....	26
<b>References .....</b>	<b>28</b>
<b>Annexes .....</b>	<b>29</b>
<b>Annex 1: Terms of Reference .....</b>	<b>29</b>
<b>Annex 2: Country Profile.....</b>	<b>32</b>
2.1 General agricultural profile.....	32
2.2 Socio-economic profile.....	37
2.3 Media and Telecommunication.....	41
<b>Annex 3: Profile of Institutions .....</b>	<b>44</b>
<b>Annex 4: Persons contacted .....</b>	<b>57</b>
<b>Annex 5: List of Abbreviations and Acronyms .....</b>	<b>59</b>

# **Executive Summary**

## **Introduction**

The current study was initiated and funded by the Technical Centre for Agricultural and Rural Cooperation (CTA). In the “Evaluation of the Implementation of the Mid-Term Plan (1997 – 2000)” there were various issues raised as to the fact that CTA needed to develop a more proactive approach in regard to its choice of partner organizations and beneficiaries. Also highlighted were the issues that traditionally, the Pacific and Caribbean regions have not received sufficient attention in CTA’s programmes and activities. Consequently CTA has commissioned this study selecting eight Pacific Island Countries to undertake an information needs assessment study.

In this respect, the study was undertaken to assess the agricultural information needs of Papua New Guinea. After presenting a country profile, the study goes on to cover information and capacity building needs, and identifying specific areas for possible collaboration with CTA.

## **Objectives of the study**

The objectives of the study as contained in the terms of reference are:

- i. To identify agricultural information needs of key actors/beneficiaries for CTA products and services
- ii. To identify needs of potential actors/beneficiaries of CTA activities and services in terms of building capacity for information and communication management;
- iii. To identify potential partners/beneficiaries for CTA activities and services;
- iv. To develop some baseline data to facilitate subsequent monitoring activities.

## **Methodology**

The study was intended to be undertaken from January to April 2004 however, due to late disbursement of funds, was extended to June 2004 and included: background reading, conducting the survey of organizations and institutions, collating and analysing data, draft and final report writing.

The methodology used included: visits to selected institutions and organizations, desk study (secondary research), interviews and questionnaires.

## **Expected result**

The expected result was one main report not exceeding 20 pages according to the format provided.

## **Findings**

Selected institutions and organizations actively involved in agriculture, including NGOs, statutory and government bodies, were visited and/or contacted to acquire information relating to their specific roles and responsibilities, and background information on the status of their information management activities and capacity.

Much of the data reproduced in this report comes from discussion with officials in the selected institutions and organizations visited and/or contacted, from reference materials made available, and from the author’s many years of experience in the area of information management as well as working in the agricultural sector in the country for the last 16 years.

Papua New Guinea is predominantly rural based with over 87% of the population engaged in agriculture, forestry and fisheries. Agriculture plays a significant role in the economic development of the country and employs up to 25% of the workforce, contributes to 25% of GDP and earns about 14% of the foreign exchange.

The extent of agricultural information services provided is not compatible with the percentage of population engaged in agricultural activities, and the increase in introduced crops and livestock, as well as the introduction of new information and communication technology.

Lack of financial support was found to be the major constraining factor affecting and limiting access to needed information resources, infrastructure development such as telecommunication and power supply, and required human resources.

Development of infrastructure such as rural telecommunication and electrification systems will require government interventions. However, factors such as information and human resources require cohesive policy and strategies by all the different players in the agricultural sector.

## **Conclusion**

The following conclusions are drawn from the study:

1. More horizontal exchange of information rather than vertical exchanges, and a more participatory approach to identifying information needs of farmers is required.
2. With limited budgetary support, more co-ordinated effort is required by institutions and organizations to form information consortia for the benefit of sharing resources, i.e. both equipment and human.
3. More efforts have to be made to utilize information sources effectively, such as radio and TV, to support the dissemination of information in rural areas.
4. Information resources and services within PNG are very fragmented, and institutions and organizations in the country are working in isolation. There is a need to find effective mechanisms to allow for better access to available information within the country for all who need it. The initiative by NARI and CIC-CGSD to develop an integrated agricultural information system is one approach by which the information can be made available to everyone in the research arena and other organizations needing this information. Other organizations within the renewable resources sector should contribute to this system so as to develop it into a national agricultural information database.
5. A coherent national policy is required to build up the capacity of information staff together with a transparent national structure that addresses organisational linkages in the field of information services. The national policy should also provide for intensive dialogue at various levels to identify users and their specific needs, technical options, the roles of various institutions and create policy support. Some research institutes within PNG have their own information strategies to address their own research needs, however a major limiting factor for these institutions is the finance needed to keep the information systems working. Therefore, institutions and organizations needed to consider developing networks particularly to look at IT-related issues that would minimise expenditure, optimise resources, and encourage collaboration. A new approach is required by the government of many developing countries to see the potential of ICT as a tool for advancing education and research. For this to be effective, telecommunication policy, regulatory and user-related issues need to be addressed. Developmental trends in educational requirements for IT in the developing countries needed to be studied.

## **Recommendations**

The following recommendations for CTA interventions are:

### **Information Products and Services**

- Provide information services to key institutions to support decision-making in the agricultural sector for the provision of better research recommendations, through the supply of SDI and document delivery services for its various researchers.

- Support key institutions and organizations libraries through the supply of relevant and up-to-date information based on their identified needs. CTA is to support these institutions through their Publications Distributions Services.

#### **Communication Channels and Services**

- Fund in-country workshops to develop information and communication policy and strategies mainly for the managers of information and communication sections of institutions in the agricultural sector.

#### **ICM Skills and Systems**

- Web based systems and development of web sites
- Radio script writing and radio broadcasting
- Extension writing and publishing

Training is required in all the above areas. When planning training courses, the participants should be drawn from all parts of the agricultural sector such as researchers, extensionists, entrepreneurial farmers, youths and women farmers.

In addition, in-country training for information officers and librarians on the design of cost-effective and participatory ICM systems should be provided.

# 1. Introduction

## 1.1 Background

1. The task of CTA is to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of African, Caribbean and Pacific (ACP) countries to produce, acquire, exchange and utilise information in this area. CTA's programmes are organised around three principal activities: (i) providing an increasing range and quantity of information products and services and enhancing awareness of relevant information sources; (ii) supporting the integrated use of appropriate communication channels and intensifying contacts and information exchange (particularly intra-ACP); and (iii) developing ACP capacity to generate and manage agricultural information and to formulate information and communication management (ICM) strategies, including those relevant to science and technology.

2. In January 2002, CTA's Strategic Plan (2001–2005) was implemented and CTA's activities were distributed among three operation programme areas/departments:

- Information Products and Services
- Communication Channels and Services
- Information and Communication Management Skills and Systems

3. These operational departments are supported by Planning and Corporate Services (P&CS) which is charged with the methodological underpinning of their work and monitoring the ACP environment in order to identify emerging issues and trends and make proposals for their translation into programmes and activities. This current exercise, therefore, falls within the mandate of P&CS.

4. CTA works primarily through intermediary organizations and partners to promote agriculture and rural development. Through partnerships, CTA hopes to increase the number of ACP organizations capable of generating and managing information and developing their own information and communication management strategies. The identification of appropriate partners is therefore of primordial importance.

5. The "Evaluation of the Implementation of the Mid-Term Plan" (1997–2000) emphasised the need for CTA to develop a more pro-active approach and elaborate criteria for decision-making with regard to the choice of partner organizations and beneficiaries. Beside partner identification and selection issues, the observation has also been made that, traditionally, the Pacific and Caribbean regions have not received sufficient attention in CTA's programmes and activities. Furthermore, the admission of six new Pacific member states under the Cotonou Agreement means not much know about them, hence the need to develop CTA intervention strategy and provide more targeted assistance<sup>1</sup>. Finally, various national and regional partners with whom CTA has had a long-standing relationship have requested for the current study in order to provide more targeted assistance to their beneficiaries.

## 1.2 Objectives

6. The objectives of the current study are as follows:

- To identify agricultural needs of key actors / beneficiaries for CTA products and services;

---

<sup>1</sup> Signatories from the Pacific of the original Lomé Convention were Fiji Islands, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. With the advent of the Cotonou Agreement, these eight were joined by another six countries from the Pacific: Cook Islands, Federated States of Micronesia, Marshall Islands, Nauru, Niue and Palau.

- To identify needs of potential actors / beneficiaries of CTA activities and services in terms of building capacity for information and communication management;
- To identify potential partners / beneficiaries for CTA activities and services;
- To develop some baseline data to facilitate subsequent monitoring activities.

7. The study should assist the three operational departments of the CTA as well as its local representatives to improve and better target interventions and activities aimed at potential partners and beneficiaries (including women, youth, private sector and civil society organizations); to have a more informed picture of their needs and aid in the elaboration of a strategy and framework of action. The study should also highlight where there are specific needs for CTA's products and services thereby enabling improvement in the delivery of the same.

### **1.3 Methodology**

8. Data for the study were collected using the following methods:

- The desk review of available literature and information sources including the findings of programme evaluations;
- The conduct of face-to-face interviews with relevant stakeholders and concerned parties; and
- Limited use of questionnaires.

9. The following institutions and organizations were visited and contacted:

- NGOs
  - Community Development Initiatives Foundation
  - Research Conservation Foundation (RCF)
  - Liklik Buk Information Centre (LLBIC)
  - Lutheran Development Services (LDS)
- Statutory Organizations
  - Coffee Industry Corporation, Research and Grower Services Division – (CIC-RGSD)
  - Fresh Produce Development Company (FPDC)
  - National Fisheries Authority (NFA)
  - National Agricultural Research Institute (NARI)
  - National Research Institute (NRI)
  - Papua New Guinea Forest Research Institute (FRI)
- Government Institutions/Departments
  - Department of Agriculture and Livestock (DAL)
  - Department of Agriculture and Livestock, Highlands Regional Office

10. The write up of the study report followed closely the format provided by CTA through its designated regional coordinator. After receiving and incorporating comments from the coordinator on the draft reports submitted in July, the report in drafts was forwarded to CTA in November for their perusal and comments.

## 2. Country Profile

11. Papua New Guinea (PNG) is located on the eastern half of the island of New Guinea, the second largest island in the world. PNG shares the island with West Papua (formerly Irian Jaya) a province of Indonesia. It is the largest country within the South Pacific region with a land area of 462,243 km<sup>2</sup> with over 80% forested, and an economic fishing zone of 2.4 million km<sup>2</sup>. Papua New Guinea's terrain is mostly mountainous with coastal lowlands and rolling foothills, and is surrounded by 600 small offshore islands of raised coral and coral atolls.

12. PNG is divided politically into four regions: the New Guinea Islands Region (comprising the island provinces of Manus, New Ireland, East and West New Britain, and Bougainville), Momase Region (the northern coastal areas including the provinces of Morobe, Madang, East Sepik and Sandaun), the Southern Region (including the provinces of Western, Gulf, Central, National Capital District, Oro and Milne Bay) and the Highlands Region (which covers mostly provinces in the highlands of PNG including, Eastern Highlands, Simbu, Western Highlands, Southern Highlands and Enga). There are 20 provinces all in Papua New Guinea.

### 2.1 Agriculture, Forestry and Fisheries

#### 2.1.1 Agriculture

##### Agricultural population, land use and farming systems

13. Papua New Guinea is predominantly agro-based with about 87% of its population engaged in smallholder farming. Only a small proportion of the population is engaged in formal paid jobs (4.5%), with a small percentage (8.5%) of the rural population depending entirely on subsistence; that is, growing food mainly for consumption.

14. About 30% of PNG's land area is suitable for agriculture development, however only one quarter is regularly under production (1% of total land area), and about another quarter is used at lower levels of intensity. The remaining half of the land is far from villages with poor market access and is constrained in its use by customary ownership restrictions. About 90% of the land with agricultural potential is held under customary land tenure within which clans grant individual families land usage rights, but do not transfer parcels of land.

15. There are two forms of production systems: (1) export tree crops production system, such as coffee, cocoa, coconut, oil palm and rubber, and (2) food crops production system including sweet potato, yams, cassava, banana, taro, potato, sago, sugarcane, corn and peanut.

16. Farming systems are highly adapted to the local environment. There are four main farming systems: (1) Sago and taro based farming systems in the wet lowlands; (2) yams, bananas and cassava based systems in the dry lowlands; (3) taro and sweet potato based systems in the highlands and its fringes; and (4) sweet potato and Irish potato systems in the higher altitude valleys.

17. Smallholders have traditionally accounted for most of the output of the main export and staple agricultural commodities, namely coconut, coffee, cocoa, oil palm, rubber, chilli, pyrethrum and, recently vanilla.

18. The principle crops for domestic consumption include sweet potatoes, bananas, taro, yams, sugarcane, corn and peanuts. Virtually all smallholder crops are rain-fed, intercropped, with low input levels and low productivity. Food crops account for more than 50% of the total agricultural output; about 25% of the produce is marketed.

19. The livestock sub-sector accounts for about 12% of total production in PNG, of which subsistence pig and poultry production accounts for two-thirds. Broiler production dominates

the commercial sector, followed by beef, eggs, crocodile skins and pork. Pigs play an important economic and cultural role at the village level, particularly in the highlands, providing wealth, status and protein.

### **Agriculture in the economy**

20. Agriculture plays a significant role in the economy of PNG. It accounts for the livelihoods of 87% of people in the rural areas, provides employment for 25% of the workforce in the formal sector, contributes 14% of foreign exchange earnings and contributes to 25% of GDP. The agriculture sector also provides markets for the industries and service sector, and is a source of capital, labour and products for the other sectors.

21. Agricultural exports are limited to tree crops and some alternative crops including tea, rubber and vanilla. Export earnings during 2000 were valued at K955.5 million which is 16.5% of total export earnings.

22. The agriculture sector has performed poorly in the last two decades. The main cause was the halving of world market prices for tree crops commodities (coffee, cocoa, copra and palm oil), which was only partly offset by domestic policy action (devaluation of the kina, subsidies). Other factors contributing to the poor sectoral performance include low productivity in smallholder production systems, poor product quality, high costs of production, (high labour, transport and processing costs), excess processing capacity and costly marketing systems. This combination of factors has made PNG significantly non-competitive in many of its traditional agricultural export markets.

### **Sub sectors within the agriculture sector**

23. During the last two decades, the agriculture sector was not performing well. Consequently various consultations and reviews proposed a major restructure within the agriculture sector. This resulted in the establishment of commodity-based research institutes within PNG. The main reason for this restructure was to improve performance, both in terms of research capabilities and for more directed efforts aimed at a specific crop or issue.

24. Four new commodity-based research institutes now exist within PNG: (i) Cocoa Coconut Institute of Papua New Guinea (CCI)<sup>2</sup>; (ii) Coffee Industry Corporation's Research and Grower Services Division (CIC-RGSD)<sup>3</sup>; (iii) Oil Palm Research Association (OPRA) and (iv) Ramu Sugar's Sugar Breeding Centre.

25. The late 1990s also saw further restructure of the DAL Research Division. Research and technical functions related to food crops were transferred over to the new National Agricultural Research Institute; the marketed fruits and vegetable project component was transferred to the Fresh Produce Development Company (FPDC 2001); and the agricultural quarantine regulations and surveillance was transferred to the National Agricultural Quarantine and Inspection Agency (NAQIA) (DAL 2003).

26. At the national political level, further devolution of power was enacted through the 1995 National Organic Law (NOL) on Provincial Governments and Local Level Governments, which replaced the 1977 Organic Law on Provincial Governments and shifted the roles of resources and responsibilities to the provincial and local level government and changed powers, structures, roles and responsibilities of national government departments. Under the 1995 Organic Law, districts must provide extension services in agriculture, fisheries, commerce and industry, environmental management, women and youth.

27. This enactment also resulted in the restructuring of many departments including DAL, and the creation of other organizations such as the regionally based Division of

---

<sup>2</sup> Previously two related institutions: PNG Cococ and Coconut Research Institute (CCRI) and PNG Cocoa and Coconut Extension Agency (CCEA).

<sup>3</sup> Previously known as the PNG Coffee Research Institute (CRI).

Provincial and Industry Support Services (P&ISS). The further decentralisation of powers from provincial government to district and local levels now means that direct involvement of national and line departments will now diminish (Mesa 2001). The devolution of powers and responsibilities of research and extension to mostly semi-government or statutory government agencies means that the primary role of the Department of Agriculture and Livestock will be to formulate policy advice for the national government, coordinate donors' inquiries, and undertake monitoring and evaluation exercises.

### **Policy Issues**

28. The vision for agriculture is: increased agricultural productivity, food security, income generation and employment resulting from well-coordinated and collaborative sector.

29. The policy framework of the agriculture sector is premised towards developing capacity in the sector to enable it to improve the social, physical and economic well-being of rural producers by increasing their productivity, incomes and providing them with employment opportunities.

30. Four areas have been given high priority and represent the key elements of PNG's sector development programme:

- The equitable delivery of quality agricultural services, including fisheries;
- Increased food security and nutritional levels for those involved in subsistence agriculture with little cash production;
- The development of export commodities, including diversification into alternative crops in order to reduce vulnerability to price fluctuation of traditional export crops;
- The development of downstream processing for agricultural crops, fish, timber and other resources, including cottage industries.

31. The key elements of agricultural production and food security are to strengthen agricultural research and planning at all levels, improve agricultural extension services and to enhance food production and food security.

32. The development strategy recognises that the smallholder sector continues to be the backbone of agricultural production systems whereas the largeholder private sector will be important for commercialisation of the agriculture sector.

### **2.1.2 Forestry**

33. Papua New Guinea's largest renewable resource is its forest, both from the natural and plantation sources. About 36 million hectares of land is forested of which 15 million hectares is classified as productive forest containing high quality tropical hardwoods considered suitable for development. Of the 15 million hectares of productive forest a total of 4.86 million hectares had been identified with 37 forest concessions for development. These concessions contain 76.6 million m<sup>3</sup> of tropical hardwoods, which are available for harvest. The majority of the remaining resources are located in the western and northern half of mainland Papua New Guinea.

34. It is estimated that about a third of the total land area has forestry production potential, but 70% of that area is still not adequately mapped. Whilst the customary landowners and clans own most of the forests, the Government issues logging licences to private operators.

35. Papua New Guinea Forest Authority (PNGNFA) is a statutory corporation formed in 1993 to lead the forestry reform process and devise programmes to manage the tropical rainforests. The Authority administers the industry through resource acquisition or on management contract with traditional landowners (forest resources customary owned) and invite investors to develop the resource on behalf of the State and landowners. The forest

revenues are distributed between the three parties. The policy instruments that are in place to ensure that the forest resource is developed on a sustainable basis and to ensure that equitable benefits to the main stakeholders namely the customary landowners, Government and investors prevail, and the main enabling frameworks through which the industry is administered are as follows:

- Forestry Act and Regulations
- National Forest Policy
- National Forest Plan
- Logging Code of Practice
- Other operational manuals.

36. The Authority monitors and ensures compliances of the rules and regulations including contracts between the State, landowners and investors. It also promotes and develops policies relating to the industry.

37. Research and development is carried out by the PNG Forest Research Institute, whilst PNGNFA is mandated to undertake monitoring, evaluation and policy issue.

38. At provincial levels, under the 1995 NOL, roles and responsibilities of implementation of projects are shifted to the district and local level governments.

### **2.1.3 Fisheries**

39. Papua New Guinea claims jurisdiction over 2.4 million km<sup>2</sup> of ocean, the third largest Declared Fishing Zone (DFZ) in the region. The fisheries zones include an extended reef system, numerous islands and an extensive coastline. These create huge opportunities but also present an enormous challenge for monitoring and control (National Fisheries Corporate Plan, 2003).

40. Papua New Guinea has an extensive and valuable fisheries sector ranging from inland river fisheries, aquaculture, coastal bêche-de-mer and reef fisheries to the prawn trawl and large-scale deep water fisheries. Those participating in the industry include the artisanal community, medium-sized domestic prawn and tuna longline operators and large international purse seine fleets in the deepwater tuna fisheries.

41. Under the *Fisheries Management Act 1998*, the National Fisheries Authority (NFA) is “responsible for the management and development of the fisheries sector in accordance with the provisions of this Act under the overall policy direction of the Ministry” and “shall perform and exercise its functions and powers on behalf of Papua New Guinea”.

42. NFA is a non-commercial, statutory authority owned by the government and people of PNG. As a statutory authority NFA is required to implement government policy for managing and developing fisheries as a national asset.

43. The Minister of Fisheries has overall responsibility for policy direction in accordance of the *Fisheries Management Act*. The Minister is required to provide an annual report to the Speaker for presentation to Parliament on the performance of NFA in terms of its functions and financial performance. The report is also provided to each provincial government.

44. The objectives and guiding principles in respect of fisheries waters are:

- Promote the objective of optimum utilisation and long term sustainable development of living resources and the need to utilise living resources to achieve economic growth, human resource development and employment creation and a sound ecological balance;
- Conserve the living resources for both present and future generations;

- Ensure management measures are based on the best scientific evidence available, and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by environmental and economic factors including fishing patterns, the interdependence of stocks and generally recommend international minimum standards;
- Apply a precautionary approach to the management and development of aquatic living resources;
- Protect the ecosystem as a whole, including species which are not targeted for exploitation, and the general marine and aquatic living resources;
- Preserve biodiversity;
- Minimise pollution; and
- Implement any relevant obligations of Papua New Guinea under applicable rules of international law and international regulations.

45. In addition it is required that the rights of customary owners of fisheries resources shall be fully recognised and respected in all transactions affecting the resource or the area in which the rights operates.

46. The government's objective towards fisheries is to develop a fishing industry that is internationally competitive, generates employment, expands local food supply and reduces imports.

#### **General Sectoral Policy Objective of RRS**

47. Because of the significance of the rural economy as a vehicle for economic growth of the country the government recently has given greater emphasis and priority to improvement in rural sector as emphasised in the recent Medium Term Development Strategy (MTDS) (GOPNG 2000).

48. The general policy objective for the renewable resources sector (RRS) including agriculture, fisheries and forestry according to the recent Medium Term Development Strategy (MTDS), 2003 to 2007, emphasises the ability of economy to create productive employment opportunities particularly in the rural communities in the following order:

- Agriculture and rural development
- Export driven economy
- Downstream processing

49. The above-mentioned activities are forward planning strategies from 2003 to 2007. Income generating activities to achieve the next four social activities listed below:

- Good governance
- Infrastructure
- Education and health
- Poverty reduction

50. The recent Government's Development Strategy push for rural empowerment and for a strong and vibrant agricultural sector has directed the agricultural sector to realign its focus towards a more cohesive and collective policy development. In so doing, the agricultural sector under the guidance of the Department of Agriculture and Livestock has been given the task of developing a National Agricultural Development Plan (NADP). The overall goal of the NADP is to stimulate and induce growth with the full participation of all the stakeholders (farmers, private sector, NGOs, government institutions, donor agencies). It is anticipated that

the NADP will give the individual plans of the different agencies some sense of national purpose by producing a unified direction for agricultural development and Government's Export Driven Recovery Policy. It will aim to rationalise and maximise efficiency in the use of limited development funds and resources, clarify the roles and responsibilities of different players, particularly that of the Department of Agriculture and Livestock. Implementation of the specific plans and development strategies will be the responsibility of the commodity boards, statutory agencies and provincial governments (Dekuku et al., 2004).

### **3. Overview of Information and Communication Management Issues: Capacity, Services and Needs**

#### **3.1 Information and communication management capacity**

51. In PNG, the capacity to access and utilise information is affected by many factors. The rural farmer is constrained by physical access (mobility) due to poor road conditions, illiteracy (a factor that influences the choice of which information sources or communication medium he/she is able to use), and socio-economic factors (gender, culture, finance). These factors have often led the farmer to rely mainly on the extension officer to be his/her main source of information.

52. The degree of access by various organizations and institutions is determined by what sources of funding they receive. Government institutions do not receive much funding and therefore have to prioritise their budget allocations often assigning low priority to information and communication sections.

53. Private organizations are in a much better position as they are able to generate their own income and depending on their priorities, they allocate resources accordingly.

54. Lack of funding support has been noted as the major bottleneck affecting accessibility to other resources and services.

55. Various factors will be discussed here that have impacted on the management capacities of information and communication in PNG. For the purpose of this discussion, such factors such as human resources capacities, technological capacities, institutional frameworks and finance will be discussed.

56. On a national level, communication and information systems are adequately available. Refer to Annex 2.3 which presents the various means of media and telecommunications.

57. The discussion will look at the information and communication management capacities under three different categories: (i) government agricultural and related institutions; (ii) private sector agriculture and related institution; and (iii) community based organizations.

#### **3.1.1 Government agricultural and related institutions**

58. This category includes the commodity-based research institutions (CIC Research & Grower Services Division, Cocoa Coconut Institute of Papua New Guinea, Oil Palm Research Association) and the fully Government-funded statutory institutions such as the National Agricultural Research Institute, PNG Forest Research Institute and National Fisheries Authority.

##### **Commodity based institutions**

59. **Human resource capacity** devoted to agricultural information/communication sector is adequately provided. Each institution has an information officer/publications officer to manage the information section. The qualification levels of the above persons are university degree in either agriculture or science. Coupled with that are also librarians in the case where the institution has a library facility. Most often the librarian is a qualified librarian and/or with Grade 10 certificate having had experience in library management.

60. The information/communication unit of these institutions is structured around the premise of information provider/generators. As such various positions held within this unit are: liaison officer, scientific editor, publications officer, and librarian.

61. The liaison officer is the most senior person in most cases, followed on with the scientific editor and or the publications officer. These positions attract degree-holders usually

in agriculture, science or journalism. The librarian on the other hand is either a qualified librarian with a degree or certificate in librarianship or either a grade 10 Certificate holder with basic training or experiences in library management. Today more and more libraries are moving towards virtual facilities and therefore librarians in PNG require ICT skills to search for information and also to manage their current information resources. Many information staff and even scientific staff require skills in accessing and searching information online.

62. **Information Resource Capacities:** Scientific staff are able to support the information advisory services however, there is a general lack of up-to-date technical information in specific areas as outlined below. The various commodity-based research institutes have a basic library facility, a publications unit and an in-house printery which does black and white printing. Multi-colour documents are given to commercial printers.

63. **Budgetary support** is adequately provided to support the publishing and production of publications emanating from the institutes. However, library support is not adequately provided due to high costs of journal subscriptions, reference books and manuals. Many of the various institutes' libraries are either supported by information provisions supplied by regional organizations (SPC) or international organizations such as FAO and CTA. Most of the libraries current holdings are out of date.

64. **Communication resource supports** are seen as essential tools. The three main commodity research institutes (CCI, CIC-RGSD and OPRA) have opted for local area network (LAN) to be set up within their organizations. This should solve the problems of Internet and email access. During the time of study, it was noted that Internet and email access is only limited to at least 5 computers the most, except for UNITECH which has a LAN system. Computers are adequately supplied to mainly scientific staff. The accessibility to Internet and email is depended on the number of direct telephone lines available or whether there is a LAN in place.

65. The research institutions have a great strength in providing information related to their specific commodity based crops. CCI supports cocoa and coconut related information, while CIC-RGSD can support coffee-related information and OPRA and the Oil Palm Industry Association (OPIC) support oil palm-related information. Institutions within this category play a very critical role as information generators and providers.

### **Government and Semi-Government (Statutory) Institutions**

66. This includes institutions such as the National Agricultural Research Institute (NARI), the PNG Forest Research Institute (FRI), the National Agriculture and Quarantine Inspection Authority (NAQIA), the National Fisheries Authority and the Department of Agriculture and Livestock.

67. Prior to structural reforms within the agriculture sector in the early 80s, the then Department of Primary Industry had a very good information unit which included several libraries, and a printery (which is still maintained under DAL). However, after the restructure and transfer of assets and functions to respective institutions, DAL is now left with a small library collection; other library materials have been scattered within various sections or destroyed.

68. NARI, FRI and National Fisheries Authority have good library facilities and are supported by bilateral and multilateral donors and have adequate human resources capacities to manage these libraries. Communication capacities in terms of Internet and email access are still poorly developed due to lack of budgetary support.

### **Tertiary Agricultural Institutions**

69. Tertiary agricultural institutions such as University of Technology (UNITECH), University of Goroka (UOG) and University of Vudal (UOV) have good libraries and

communication systems. However, the libraries lack up-to-date library materials due to high costs of journal subscriptions and reference books.

70. As these are institutions of higher educational learning, support for journal articles and reference materials are essential.

71. Generally the above institutions, principally the publicly wholly funded (e.g. NARI), and partially funded (e.g. CCI, CIC-RGSD) research institutes received very modest Government financial support in the last government budget, as did the universities that focus on agriculture. Assurances from bilateral and multilateral donors have assisted in building up capacities such as NARI with assistance from the ACNARS project<sup>4</sup>. Other institutions such as CIC-RGSD and CCI with a previously well-earned reputation and research capacities have declined. The current institutes are below critical mass, individually making them largely unsustainable, which adversely affects their capacity to undertake credible applied research. Crucially it also means that there is a scarcity of useful information available for dissemination.

72. Improved capacities within the information and communication sectors of the above institutions are very critical as they serve as the base for access to agricultural information in PNG.

### **3.1.2 Private Sector Agriculture and other Related Institutions**

73. Many of the institutions within this sector provide the input supply, processing and marketing infrastructure and services base for the smallholders. The entrepreneurial and managerial expertise of these businesses is a critical factor in the competitiveness of PNG's agricultural industries, but increasing social disorder and unattractive returns has resulted in a withdrawal of their operations from many parts of the country.

74. Information/communication sectors are adequately supported such as access to Internet and Email but with limited support in the area of library management. But this is not seen as a priority especially for providing information to the public.

### **3.1.3 Community Based Organizations (CBOs)**

75. These include farmer associations, private firms, particularly those servicing outreach contract farmers, non-government organizations (NGOs) and church groups. Many of these groups have been pro-active in seeking technical, market and financial information for their clients from a whole range of sources. They have much closer ties with their farmer base than traditional extension services and they have the capacity to tap into international databases through the Internet. However, these 'grassroots' organizations demonstrate weaknesses in genuine community needs (as opposed to political wish lists) and identifying, designing, implementing and monitoring projects that actually deliver benefits to the community on a sustainable basis.

## **3.2 Agricultural information and services**

76. Much valuable information for the agricultural community has been generated by research in PNG. A large amount of this information is available in the various institutions within PNG. This information is made available to the public in many formats depending on the target audiences. Below are the types of agricultural information available at the specific institutions.

77. Commodity-based institutions have information on specific crops such as coffee (CIC-RGSD), cocoa and coconut (CCI), oil palm (OPRA). The National Agricultural Research Institute provides information on food crops, alternative cash crops and livestock.

---

<sup>4</sup> Australian Contribution to a National Agricultural Research System.

78. **Coffee Information:** Can be obtained from the Coffee Industry Corporation. Current available information are:

- Coffee husbandry and agronomic practices
  - pruning techniques,
  - soil management
  - spacing and density
- Coffee varieties and adaptability
  - Arabica (*Coffea arabica*)
  - Robusta (*Coffea canephora*)
- Processing and quality control
  - Coffee parchment quality
  - Green bean quality control
- Pest and disease control
  - Coffee leaf rust (*Hemileia vastatrix*)
  - Green scale (*Coccus viridis*)

79. **Cocoa and Coconut Information:** can be obtained from Cocoa and Coconut Institute. Information provided are on cocoa and coconut breeding, agronomy and husbandry techniques, pests and disease control. Information on market price and market access is available from the Kokonas Industries Koporesen and the Cocoa and Coconut Board.

80. **Information on Commercial Sugarcane** is available from Ramu Sugar Ltd's Agriculture and Development Section on the various aspects of sugar breeding, agronomy and husbandry techniques, pests and disease control. As Ramu Sugar Ltd is diversifying into cattle research, oil palm and peanut, information on these crops and livestock will be made available from Ramu Sugar Ltd.

81. **Information on livestock and staple food crops** such as sweet potato, yam, taro, banana, cassava, alternative cash crops such as vanilla, pepper, turmeric and on resource management such as soil maintenance can be sought from NARI and DAL.

82. NARI currently undertakes research on the following crops and livestock. Current agricultural information that can be supplied from NARI are:

- Small ruminants: management practices information on:
  - Rabbits
  - Ducks
  - Chicken (Australorps and village chickens): looking at alternative and cheaper feeds as commercial feeds are expensive for the simple farmer
  - Sheep and Goat
- Staple Crops (sweet potato, yams, cassava, taro, banana) information on:
  - Varieties (local and introduced)
  - Management practices (spacing, soil management, yields)
  - Pest and disease controls (taro beetle, yam anthracnose, taro leaf blight)
- Alternative cash crops (vanilla, turmeric, pepper)
  - Vanilla cultivation, harvesting and curing and market prices

- Agronomic practices (turmeric, pepper, vanilla)
  - Water and Soil management
    - Soil erosion control
    - Drought mitigation techniques
83. The Oil Palm Research Association and Oil Palm Industry Corporation provide general information on **oil palm** in PNG on agronomic practice, pest and disease control, quality control, and market price.
84. Information on the **market and post-harvest production of fresh vegetables** is available from the Fresh Produce Development Company. FPDC works mostly with farmers and therefore their information is available in simple English and Tok Pisin (*lingua franca*).
85. **Fisheries** information that can be provided by the National Fisheries Authority:
- Estuarine water fishery (beche-de-mer, barramundi, prawn and lobsters)
  - Deep sea water fishery (tuna)
  - Inland Fishery (Tilapia, carp, trout)
  - Reef Fishery
86. On the other hand, NGO groups and church-based organizations such as the Christian Leadership Training Centre (CLTC), Lutheran Development Services (LDS), Baptist Church, Adventist Development Relief Agencies (ADRA), Salvation Army, Community Development Initiative Foundation (CDI) and individual publishers are also publishing information to meet the needs of their clients.
87. A list of the types of agricultural information and publishers within PNG is provided in Table 1.

**Table 1. List of agricultural information publishers in PNG**

<b>Agricultural Information Publishers</b>	<b>Titles of publications series</b>	<b>Current status</b>	<b>Constraints</b>
DAL	Extension booklets (farming notes series, Rural Development Series Handbooks, Pocket Books); Technical reports; Papua New Guinea Journal of Agriculture, Forestry and Fisheries; Harvest Extension Journal; videos	Currently publishing only the two Journals (PNGJAFF and Harvest) with support from the Australian funded project ACNARS	Lack of budgetary support for upkeep of printery and printing of the other publications
NARI	Toktoks series (extension pamphlets); Information Bulletin; Technical Bulletin, Conference Proceedings, Workshop proceedings	Has in-house printing facilities that can do black and white printing. Colour printing job is done commercially	
FPDC	Extension materials such as the Know Your Vegetables Series; posters	Most of these need revising	No skilled personnel to do the layout of the publications
Liklik Buk Information Centre	Mainly books on development and appropriate technology	Publishes and sells books on all aspects of development and appropriate technology	

<b>Agricultural Information Publishers</b>	<b>Titles of publications series</b>	<b>Current status</b>	<b>Constraints</b>
National Research Institute	Consultancy reports on education, environmental policy, socio-economic issues, rural development issues, political issues	Still produces these publications and sells them at a price	Fully resourced
CIC-RGSD	Publishes books specifically on coffee research and development. Also publishes the PNG Coffee Journal	Very active	
CIC	Books mainly on cocoa and coconut research and development	Not publishing these anymore due to no staff	
HELP Resources	Publishes books on child and women's rights	Still active	

88. The following areas show the means by which information is transferred to meet the demand of clients:

- Field days, shows, demonstration: are effective means by which information mostly in printed forms and demonstration of live specimens are displayed for the public. Most farmers are able to meet their information needs from these methods
- Visit to institutions: mostly by schools and group visits where clients come to learn about the institutions and the type of work being carried out
- Printed media: most frequently-used media where technical information is simplified into simple leaflet format and translated into the local language (Tok Ples) or Tok Pisin. Very good for the educated public but not so effective for illiterate farmers. However, farmers have been seen to purchase these leaflets to be read to them by their children. The publishers identified in Table 1 are those who normally publish extension-type publications that are distributed interested clients including farmers.
- Farmer to farmer: the most effective means by which farmers learn by doing from other farmers.

89. Library services have played a significant role in meeting the needs of agricultural research institutions, researchers, other NGOs, private organizations and students.

90. The types of services provided through the library services are: photocopy of available literature, interlibrary loan services, electronic databases (CD ROMs), bibliographic references and online access to the Internet.

91. Support for information resources and products have come from various international and regional organizations to several organizations including NARI, DAL, CIC-RGSD, CCI, and National Fisheries Authority (NFA).

92. The following international organizations have been supporting PNG with the supply of information products and services as identified during the study research:

- **Secretariat of the Pacific Community (SPC)** – supporting agricultural institutions with the supply of CABI Crop Protection Compendium
- **Food and Agricultural Organization of the United Nations (FAO)** – distributing FAO books to certain organizations and agricultural institutions through its Publication Distribution Quota services and online access to agricultural journals (AGORA).
- **Technical Centre for Agricultural and Rural Cooperation (CTA)** – SDI services, CD ROM support, Publications Distributions Services (credit points) and QAS.

93. Other external donor agencies including the Australian Centre for International Agricultural Research (ACIAR), World Bank, Asian Development Bank, European Union (EU), SPC have also provided information support to their PNG project partners through the provision of relevant reference materials.

94. As observed by the author during the study, information services in the agricultural sector in PNG are very fragmented and information resources are poorly managed. Many agricultural research libraries and information sections work in isolation from each other and there is not much sharing of information within or between organizations.

95. In the end, finding out about available information depends on whom you know and what is available and where. There are no proper mechanisms in place for identifying available sources of information and types of services available, although very rich information resources are available within the country. Huge efforts are required to assemble them and make them accessible for use but the skills and know-how to manage and collate this resource is lacking.

96. The importance of having access to information on past research is very crucial. It allows for better planning, reduces time, makes better use of available resources and cuts down on costs.

97. This does not mean that PNG lacks historical research information. Filing cabinets, archive rooms, libraries, or even scientists hold collections of the many trials and experiments, journal articles and papers that are equally as important for any research planning. Information does not only reside in books but also with the people who are specialists in their own right. Hence, the mobilization and collation of information to make it more accessible is very crucial for proper agricultural planning.

98. Interestingly there is a project<sup>5</sup> currently being undertaken in PNG funded by the ACNARS project, an AusAID funded initiative which is working closely with a team of librarians and information officers from the National Agricultural Research Institute (NARI) and Coffee Industry Corporation through its Research and Grower Services Division (CIC-RGSD) to develop a system that is intended to enhance the libraries' capacity and put in place an electronic framework to facilitate the efficient and effective management and use of information within research organizations in the agricultural sector. Over 20,000 records have been assembled incorporating 13,000 records from PNG Agriculture Bibliography (developed by the Australian National University (ANU) Land Management Group in Canberra) and just over 7,000 records contributed by SPC, NARI and CIC-RGSD. The expected outcome of this project is better, more credible research and consequently improved access to agricultural information within Papua New Guinea. These include records of 457 publications for distribution/sale (about 124 from NARI, 163 from DAL, 32 from FPDC, 109 from CIC-RGSD and 29 records from CCI).

99. The integrated agricultural research information system's main aim is to contribute to providing 'agricultural information services, extension service support and other technical assistance to the agricultural sector' in Papua New Guinea.

100. This system not only contains catalogues of CIC-RGSD and NARI library holdings but also contains extension materials that have been produced by DAL, CCI, CIC-RGSD, and NARI. The system is also capable of compiling bibliographies of various crops automatically. For example, all coffee bibliographies are automatically compiled as information is entered. Eventually, records of the contact details, qualifications, skills, and interests of all scientific and technical staff within NARI, CIC-RGSD and other institutions and their various disciplines will also be available complementing what is already available in the catalogue database.

---

<sup>5</sup> This project activity is coordinated by Peter Walton and undertaken by librarians and information officers in NARI and the CIC Research and Grower Services Division; the author is a major contributor to the development of this system.

101. The benefits this system can offer are:

- Providing access to information and knowledge resources of collaborating institutions (currently, NARI and CIC-RGSD)
- Directory of human resources within the two collaborating organizations (CIC-RGSD and NARI)
- Extension publications produced within PNG (currently in a preliminary stage, requiring inputs from other institutions)
- Automatically prepared bibliographies of various crops and disciplines assisting in the effective planning of research projects
- Access to unpublished data and trial reports of past research undertaken within PNG through these collaborating organizations.

102. The NARI integrated agricultural research information system is a step towards developing a PNG national agricultural research information system. However, this can only be achieved if other research institutions in the natural resources such as PNG Forest Research Institute, Cocoa Coconut Institute of PNG, Oil Palm Research Association, Ramu Sugar Ltd's Agriculture and Development Section and Coffee Industry Corporation see the importance of what this system is able to offer.

103. Institutions, especially other commodity-based research institutions (e.g. CCI, New Britain Palm Oil Ltd, Ramu Sugar, FRI), FPDC and DAL, are encouraged to participate in identifying and cataloguing library materials, and by contributing to the extension materials database and database of people and their expertise.

104. The NARI/CIC information system is moving towards addressing the issue of information mobilization for both researchers, extension officers and even agricultural research clients to be more effective in promoting the role agricultural research in order to alleviate poverty and sustain productivity. It also aims to develop an agricultural research information databank leading to a real science-based knowledge system in PNG.

105. Formal agricultural research in PNG is compartmentalized into specific research areas as outlined above. Other informal research is undertaken by various NGOs, church-based and private sector organizations.

106. However, some of these institutions do not have organised libraries to meet the informational needs of its researchers. For example, the Cocoa Coconut Institute of PNG does research on cocoa and coconut yet does not have an organized library and also has no effective arrangements for access to overseas information resources. All information needed is gathered in an ad hoc fashion, depending on personal contacts. Another example is the Department of Agriculture and Livestock, as the apex agricultural ministry in the country, receives a lot of support for information resources from international organizations such as FAO and CTA but has no capacity to manage these useful information resources nor to share nationwide.

### **3.3 Information needs**

107. The study identified wide-ranging information needs by different target groups of the agricultural sector in PNG.

108. Rural farmers normally seek information during the initial stage of cash crop establishment. In other words, farmers' information seeking behaviours are driven by cash income opportunities. The type of requested information would be mostly on production techniques, market information, where to sell their produce or in the case of entrepreneurial farmers seeking information on current world prices.

109. It is very difficult to pin down which are farmers' priority needs but a study carried out by NARI to prioritise research needs within the country outlined the following areas as of priority (NARI 2001; unpublished):

1. **Staple crops** (sweet potato, banana, taro, yam, cassava, sago)
  - a. Information on yield improvement
  - b. Information on crop varieties tolerant to drought and water logged conditions
  - c. Pest and diseases, mainly pest and disease-resistant/tolerant varieties
  - d. Information on post harvest including storage, packaging, transportation, processing and preservation
  - e. Market access and availability of planting materials.
2. **Vegetables** (include all horticultural crops including introduced; Brassicas, cucurbits, legumes (beans), edible alliums, salad and fruit vegetables and mushrooms). These crops have strong cash generating opportunities and therefore the following research areas and information are of priority:
  - Genetic resources
  - Production and post-harvest information
  - Mechanisation,
  - Processing and marketing
  - Pest and disease control
  - Soil fertility and fertiliser.
3. **Fruits and nuts** (these crops play a significant role in supplementing nutritional requirements of the people within PNG. Although it has not been seen to have export potential in the past, recently there is a growing need for these crops to have exportable significance. Therefore information needs identified are:
  - a. Market information
  - b. Crop improvement such as propagation, crop management, breeding, variety performances
  - c. Post-harvest handling.
4. **Rice and grains** mainly peanuts, maize, rice, and wheat. Information needed is in the areas of:
  - a. Small scale machinery for processing, especially rice and wheat
  - b. Economic significance of these crops
  - c. Pest management
  - d. Soil, water and land management suitable to agro-ecological conditions as most of these crops are introduced crops and therefore local adaptability is a real research need
5. **Commodity crops** (coffee, cocoa and tea)
  - a. Pest and disease control
  - b. Genetic improvement
  - c. Weed control
  - d. Crop nutrition and husbandry

- e. Farm budgeting
  - f. Downstream processing for value added products and bi-products into other uses.
6. **Emerging crops** which have potential for added cash incomes such as: spices (turmeric, vanilla, pepper, ginger); essential oils (patchouli, vetiver); medicinal plants and drugs (*Piper methysticum*); and miscellaneous (abaca, balsa, pyrethrum, sandalwood). Needed areas of priority are:
- a. Expected yields under intensive and extensive cultivation and associated cost of production
  - b. Cultivation practices
  - c. Post-harvest handling and processing
  - d. Ecological requirements
  - e. Economic importance
  - f. Agronomic and husbandry
  - g. Market access
  - h. Pest and diseases.
7. **Livestock** includes pigs, chickens, rabbit, goats, sheep and ducks. These are well-established small-scale livestock to complement nutritional diets of farmers and also, in the case of pigs, play an importance cultural significance in the highlands of PNG and coastal areas. Recently some farmers are moving towards commercial productions to meet the increasing demand for nutrition supplements (poultry) and cultural significance (pig). Information is required in the following areas:
- a. Lower cost of feeding for chickens
  - b. Feeding of penned pigs
  - c. Improved management of Australorp and ducks
  - d. Feasibility of local incubation and supply of chickens and ducks
  - e. Rabbit feeding and management
  - f. Land use suitability for grazing and pasture development including under crops
  - g. Pond fish production systems and potential including integration with rice and other livestock
  - h. Feed formulation for pigs and poultry (chicken).
8. **Natural resource management** is fundamental to the long-term sustainability of food security in PNG. The country is following a current trend of dependence to over-dependence on imported food. Increasing land pressure due to population increase is also having a significant impact on how natural resources are being managed. Urbanisation is also impacting on peri-urban agriculture and information is required in the following areas for farmers to understand the significance of natural resource management:
- a. Soil management: soil fertility maintenance and related issues are the main areas of concern. Within increasing pressure exerted on soil due to population increase, the fallow periods are significantly reduced resulting in lower production. Another example is the urban drift which is causing proliferation of peri-urban gardening.

- b. Invasive species such as water hyacinth, giant African snails and other invasive weed species are threatening the existence of useful natural resources, hinder and impact on the effective utilisation of these resources by man, impact on agricultural production and pose risk to human.
  - c. Water storage and irrigation: since the last drought in 1997–98, this is a major need.
  - d. Land use planning: as population increase and land resource decreases, efficient planning on how the land is to be used is very critical
  - e. Efficient use of organic materials is yet to be fully realised in PNG. This is an area where information is required which can provide benefits in alleviating and correcting many soil problems particularly for resource poor farmers in rural areas.
9. **Integrated Production Systems** is the main mode of production for most farmers in PNG through mixed cropping systems. The main reasons for this widespread use of integrated production system in PNG are: the desire to maximise use of resources, avoid risks of low productivity due to adverse weather, pests and diseases. By adopting a mixed system, there is some insurance in times of risks such as drought, and it also minimises the risks of price fluctuation. If price falls in one commodity they can be earn an income from the other. However there are areas where information is required and these are:
- a. Having right information to make choices of what to integrate (density spacing and specie type)
  - b. Economic significance of integration. For new species look at how to assess species integration for their compatibility, productivity, sustainability and profitability.

110. The following needs identified above were collated from a wide range of stakeholders including farmers, Primary industry organizations, institutions and private agricultural institutions.

111. It must also be noted here that a lot of valuable information generated by research in PNG have not been document and therefore remains inaccessible. Bourke (1999) noted a total of 403 unpublished research reports/papers located in PNG in 1999 that are yet to be published.

### **3.4 Capacity building needs**

112. Three main capacity needs are identified from this study: (i) staff training needs, (ii) information resources and (iii) information policy intervention.

#### **3.4.1 Staff Training**

113. There is a general lack of skilled manpower in the area of information resource management. Many of those who are employed within the information and communication sections of specific institutions and organization have been put there as a result of their previous experience acquired while on the job. In most NGOs, information and communication staffs are either Grade 10 or 12 school certificate holders.

114. In those institutions where there are no qualified librarians, there is need for training in basic library management skills. Computer skill training was identified as another capacity building needs. There exist limited skills in the use of other ICT such as radio, TV, web-based technology to effectively transmit and transfer agricultural information to the various target audience. Training is required in this area also.

### **3.4.2 Information Resources**

115. As also noted from the study, many libraries are poorly stocked and therefore there is need in updating most libraries with up-to-date information resources. ICM skills for better and effective planning of resources are needed. Currently the initiative by NARI and CIC-RGSD is pointing towards better management of resources but there is training need in areas such as digitalizing of resources for easy access. However, not all libraries identified under this project have electronic cataloguing systems, and for those with an electronic library catalogue, the software is not standard. There is a need for standardized software and also for standardized tools to increase compatibility.

### **3.4.3 Information Policy Intervention**

116. The underlying limiting factor affecting agricultural information and services within PNG is the lack of an information policy. There exists no information policy to guide the implementation of information services, the acquisition of materials and the recruitment of staff needed for the information and communication units of the various agricultural and rural development organizations. Coupled with that there are no set strategies developed and in place to create effective information management systems. This is a critical factor. As noted by the author, the formulation of effective information policies and strategies will drive the implementation of successful agricultural and rural development projects. What this means is that information needs can be streamlined and effectively targeted at the right audience with the right messages. Many of the organizations surveyed noted a lack of capacity to develop effective extension materials for farmers. However, what was also observed is that there are other means of communication that the institutions and organizations involved in agricultural and rural development could utilise. Lack of basic infrastructure such as telephone and electrification system requires political intervention if the significant impact of these systems is recognized by Government.

117. Many of the initiatives in terms of information services are supported by external funding agencies. Sustainability is a major concern, because experience has shown that once the term of these external funds cease, support for information services has also ceased due to a lack of funds from within. To ensure that activities and services of international and regional organizations support national requirements rather than their own agendas, external funding agencies need to acknowledge existing potential and requirements of the recipient organizations. Ultimately, funding agencies would like to see that what has been introduced is sustained in the future.

118. Walton (2000) rightly points out that the reason for lack of capacity building stems from the fact that in most or almost all organizations involved in research and development in the Pacific, lack an appropriate information policy. This lack of appropriate information policy and strategy contributes to ad hoc policies involved in the purchase of computers without specific requirements for the types of software to be purchased and used within specific organizations and the recruitment of relevant and qualified staff.

119. Vernon (2001) stated that although managers and scientists can have access to more information than ever before with the advancement of telecommunications technologies revolutionizing agricultural research, the critical question remains unanswered: are managers and scientists able to use it to improve the efficiency and relevance of what they are doing? He argues that the need for an information policy is a must. An information policy and strategy provides guidelines as to the purposes for which information within an organization is to be used, as well as on how it is to be managed.

120. Again Walton (2000) states correctly that many of these staff involved in the information and communication sections of various research and developmental institutions tried to do their best but due to lack of appropriate policies there is little understanding of what constitutes a credible information service. These staff are just doing what they are instructed to do.

121. Policy interventions are required from the agricultural sector and the government of the day to realise the impact information and communication technologies will have in advancing agriculture.

## 4. Conclusions and recommendations

### 4.1 Conclusions

122. Papua New Guinea, a large country in terms of geography and demography (culture and languages), poses many challenges when considering the most effective approach to achieve successful agricultural and rural development activities. With over 87% of its population living in the rural areas, and a low literacy rate of 56% compared to other Pacific Island countries, targeting a specific sector of the population is a real challenge mainly for the reasons stated above.

123. Agriculture is the mainstay of the economy and agricultural research is the catalyst required for development. However, in most cases, the agricultural information required to support agricultural research and extension, is very poor. Libraries are poorly stocked while there is a general lack of qualified persons within the agricultural information sector to effectively manage information for effective agricultural and rural development planning.

124. Budgetary support is also a major constraint. The lack of an effective information and communication policy is also a major bottleneck to effective planning. The lack of an effective information and communication policy has also been found to contribute significantly to unqualified staff, and inappropriate equipment and information services as institutions are acquiring these things on an ad hoc basis and without proper planning and strategies.

125. Support for information resources and services are currently provided mainly by external funding agencies and external project collaborators for those institutions and organizations who are partners and collaborators with the same.

126. A critical analysis of the information needs and capacities of the various partners and beneficiaries of agricultural information and services reveals the following conclusions:

- The emergence of the new ICT has also changed the role of research, extension and education. There are new emerging partners in the way agricultural research information and knowledge is being disseminated. There is a new shift in thinking how information needs can be met. More horizontal exchange of information rather than vertical exchanges and a more participatory approach to identifying information needs of farmers is required.
- With limited budgetary support, more concerted efforts are required by institutions and organizations to form information consortia for the benefit of sharing resources, i.e. both equipment and human.
- There is still heavy dependence on ineffective communication means of disseminating information unsuitable to the needs of the rural populations. More efforts have to be made to utilize effective information sources, such as the radio and TV, to support the dissemination of information and in turn knowledge. But this again requires political interventions and political will.
- Information resources and services within PNG are very fragmented. Institutions and organizations are working in isolation. There is a need to find effective mechanisms to allow for easy accessibility to available information within the country for all who need them. The initiative by NARI and CIC-CGSD to develop an integrated agricultural information system is one means by which the information can be made available to everyone in the research arena and other organizations needing this information services. Other organizations within the renewable resources sector should contribute to this system so as to develop it into a national agricultural information database.

- A coherent national policy is required to build up the capacity of information staff together with a transparent national structure that addresses organisational linkages in the field of information services. The national policy should also provide for intensive dialogue at various levels to identify users and their specific needs, technical options, the roles of various institutions and create policy support. Some research institutes within PNG have their own information strategies to address their own research needs, however a major limiting factor for these institutions is the finance needed to keep the information systems working. Therefore, institutions and organizations needed to consider developing networks particularly to look at IT-related issues that would minimise expenditure, optimise resources, and encourage collaboration. A new approach is required by the government of many developing countries to see the potential of ICT as a tool for advancing education and research. For this to be effective, telecommunication policy, regulatory and user-related issues need to be addressed. Developmental trends in educational requirements for IT in the developing countries needed to be studied.
- Agricultural information providers such as agricultural institutions, NGOs and even other farmers' groups have met the needs of their clients mainly through the provision of simple extension leaflets or training. Agricultural information providers on the other hand have been providing information based mainly on the type of research they have been conducting. Often, the information being disseminated may not really meet the needs of the farmers. For instance, a study conducted by Powaseu (1995) found out that although coffee leaf rust was a major concern in the 80s, and the then PNG Coffee Research Institute was mandated to come up with a rust-resistant variety, farmers were reluctant to adopt this variety. In this case, the coffee extension division went out to create awareness of this new coffee resistant variety and selected farmers were given seeds of this to plant. The study found out that not many farmers willingly planted the seeds. Therefore understanding farmers' behaviours and farming practices should be studied also for adoption to take place.

127. Many of the issues raised are not any different to other developing countries and each country is developing strategies and plans to alleviate and strengthen its own information system. The suggestion is that the agricultural sector on a sectoral level needs to consider all these issues and plans and should attempt to develop a research agricultural information system that will see the development of ICTs as a tool to advance research in PNG. However, one should also bear in mind the impact of ICTs on the lives of the rural communities, considering the current constraints.

## 4.2 Recommendations

128. Assessing the information needs of PNG agricultural sector has been a major challenge and also an opportunity to really understand the strength and weaknesses and look at opportunities available. The study conclusion provides opportunities in areas where CTA's interventions can make a difference. Therefore the study recommends the following areas:

### Information Products and Services

129. As identified from the study, the information needs of the different sectors of the agricultural systems are varied. Farmers' needs are in the area of 'how to do' type information. Agricultural research institutions needs are research based. Therefore CTA intervention is required in the following areas:

- Provide information services to key institutions to support decision-making in the agricultural sector for the provision of better research recommendations, through the supply of SDI and document delivery services for its various researchers.

- Support key institutions and organizations' libraries through the supply of relevant and up-to-date information based on their identified needs. CTA is to support these institutions through their Publications Distribution Services.

### **Communication Channels and Services**

130. On a micro-level, the agricultural sector has to audit where there are weaknesses and bottlenecks that might impede the development of the Government's focus on the agricultural sector as the foremost national development priority. Information and communication management skills and effective systems have been identified in the study as areas that needed to be looked at. Information has the power to empower people economically and politically but the mechanism to make this a reality is lacking. CTA's interventions in the interim will help the country to streamline its efforts to develop mechanisms and systems that will foster the country's national development strategies as identified in section 2.1 of this report. Thus CTA's intervention is required in the following area:

- Fund in-country workshops to develop information and communication policy and strategies mainly for the managers of information and communication units in the agricultural sector.

### **ICM Skills and Systems**

131. As identified in the study, the most used communication channels are the library systems, however, various key organizations are opting for collaborative approaches to communication and information services such as the resource centre options. There are limited skills in the areas of:

- Web-based systems and development of web sites
- Radio script writing and radio broadcasting
- Extension writing and publishing

132. Therefore training is required in the above areas. In conducting these training courses the expected participants should be drawn from all sectors of the agricultural sector such as researchers, extensionists, entrepreneurial farmers, youths and women farmers.

133. In addition, in-country training for information officers and librarians on the design of cost-effective and participatory ICM systems should be provided.

## References

- Bourke, R.M. 1999. *Short term report – inventory of unpublished agricultural research in Papua New Guinea*. Australian Contribution to the (PNG) National Agricultural Research System. Canberra, Australian Agency for International Development.
- Dekuku, R.Chris; Jigo, O., and Supiramanian, S., (eds). 2004. *Proceedings of the initial consultative workshop on National Agricultural Development Plan*. 18-19 February 2004, Port Moresby, PNG.
- Department of Agriculture and Livestock. 1989. *White paper on agriculture: national policies for the development of the agriculture sub-sector*. Department of Agriculture and Livestock, Port Moresby.
- Department of Agriculture and Livestock. 2003. *White paper on agriculture: national agricultural development policies 2001-2012 – towards national food security*. Port Moresby, Papua New Guinea.
- Fresh Produce Development Company. 2001. *Fresh Produce Development Company Profile*.
- GOPNG 1998. *Organic Law on Provincial and Local Level Governments*. Port Moresby, Department of Provincial and Local Government Affairs.
- GOPNG, 2000. *Strategy for National Agricultural Development: Horizon 2001*. Port Moresby, Department of Agriculture and Livestock.
- Mesa, S.A. 2001. How does the Department of Agriculture and Livestock address food security at the regional level? *ACIAR Proceedings No. 99*, Canberra, ACT. pp. 54-60.
- National Fisheries Authority. 2003. *National Fisheries Authority Corporate Plan*. Papua New Guinea
- National Statistical Office. 2003. *Papua New Guinea 2000 Census: national report*. Port Moresby, Papua New Guinea.
- Powaseu, I. 1995. *Communication in the diffusion of catimor among coffee farmers in Papua New Guinea*. Masters Thesis, Queensland University of Technology, Australia.
- Smallholder Support Credit Facility (SSCF). n.d. *Smallholder support services pilot project: Division of Agriculture and Livestock – the programme in Eastern Highlands Province*.
- Vernon R. 2001. *Knowing where you're going: information systems for agricultural research management*. The Hague, International Service for National Agricultural Research.
- Walton, P. 2000. *Rural development stakeholders in Pacific ACP countries: their roles, information needs and response capacities: paper presented at a CTA seminar on information for agricultural and rural development in ACP countries: emerging stakeholders, new media and priority themes*, Paris, France, 29 May. pp 182-212.

## **Annexes**

### **Annex 1: Terms of Reference**

#### **Assessment of Agricultural Information Needs in African, Caribbean and Pacific (ACP) States: Phase1: Pacific, Country Study – Papua New Guinea**

CTA works primarily with intermediary organizations and partners to promote agriculture and rural development. Through partnerships, CTA hopes to increase the number of ACP organizations capable of generating and managing information and developing their own information and communication strategies. Thus CTA sees the identification of relevant partners as very important.

The Evaluation of the Implementation of the Mid-Term Plan (1997-2000) emphasised the need for CTA to develop a more pro-active approach and be strategic in the choice of partner organizations and beneficiaries. The Strategic Plan and Framework for Action –2001 –2005, identifies the following strategic issues such as: improved targeting, geographical coverage, decentralisation, regionalisation and thematic orientation.

There was also the concern that the Pacific and the Caribbean have not received sufficient attention in CTA's programmes and activities. Also with the admission of 6 new Pacific member states under the Cotonou Agreement, not much is known about these new 6 member states hence the need to develop CTA intervention strategy and provide more targeted assistance.

Phase I of this study is being conducted in the Pacific region. Papua New Guinea is one of those 8 Pacific countries undertaking this study.

#### **Objective and scope of the study**

The objectives of the study are as follows:

- To identify agricultural information needs of key actors/beneficiaries for CTA products and services;
- To identify needs of potential actors/beneficiaries of CTA activities and services in terms of building capacity for information and communication management;
- To identify potential partners/beneficiaries for CTA activities and services;
- To develop some baseline data to facilitate subsequent monitoring activities.

The study should assist the three operational departments of the CTA as well as its local representatives to improve and better target interventions and activities aimed at potential partners and beneficiaries (including women, youth, private sector and civil society organizations); to have a more informed picture of their needs and aid in the elaboration of a strategy and framework of action. The study should also highlight where there are specific needs for CTA's products and services thereby enabling improvements in the delivery of the same.

#### **Methodology**

The study was carried out using a combination of qualitative and quantitative rapid appraisal methods including:

- The desk review of available literature and information sources including the findings of the programme evaluation
- The conduct of face-to-face interviews with relevant stakeholders, concerned parties and individuals

- Limited use of questionnaires.

The rapid appraisal approach provided a general overview of the key issues and organisational profiles and provides insights in other issues that may be required for future studies.

### **Expected outcomes / output**

One main report per country not exceeding 20 pages according to the following table of contents:

#### **Main report**

1. Executive summary
2. Introduction
3. Country profile – summary structure and economic characteristics with particular attention to the agricultural sector (includes fisheries and forestry):
  - Summary of how agriculture, fisheries and forestry is organised in the country
  - Summary of the information and communication management capacity
  - The current source of agricultural information and services (synthesise Annex 3)
4. Needs analysis
  - Information needs
  - Capacity building needs (skills, training, media, ICT, equipment)
5. Conclusions and recommendations
6. References

#### **Annexes**

1. *Terms of reference*
2. *Country profile*
  - 2.1 General agricultural profile (from available documentation)
    - Size of agricultural population (male / female / youth)
    - Farmed land, forests, fishing areas
    - Agricultural systems
    - Agriculture in the economy (percentage GDP)
    - Main agricultural produce and secondary products
    - Main export markets
    - Trade agreements that include agriculture
    - Sectoral policy related to agriculture, fisheries and forests
  - 2.2 Socio-economic profile (from available documentation)
    - Total active population, demographic breakdown
    - Literacy level and languages
    - Access to services (health, schools, electricity)
    - Rural urban drift
  - 2.3 Media and telecommunications (update / check)
    - Newspapers, periodicals, magazines, radio stations, television channels,
    - Telecommunication services (fixed, mobile, etc.)
    - Computers and Internet access

3. *Profile of institutions*

- List of all institutions involved in agriculture and rural development activities, including private sector and civil society organisations, with name, contact details, type and role of institution
- Select list of key institutions involved in agriculture and rural development, with extensive data and information on the institution, the problems faced and why it is considered a key actor

It is also expected that the results of this study will lead to identification / update of some priority agricultural information themes which will feed into a possible priority-setting exercise in the Pacific in 2004.

## Annex 2: Country Profile

### 2.1 General agricultural profile

#### Size of agricultural population

Table 2.1: Size of agricultural population by sectors

<b>Category of agricultural population</b>	<b>Percentage of population engaged in agricultural activity</b>	<b>Service Providers for technology, information and other interventions</b>
Pure subsistence	8.5	
Semi-subsistence or semi-commercial (Village smallholders)	87	DAL, NARI, PDPIs, Commodity Institutions, NGOs
Plantations, Blockholders, Paid agriculture work	4.5	Commercial Banks, Management Agencies, Research Institutes

*Source:* Department of Agriculture and Livestock, (1989). White Paper on Agriculture: National Policies for the Development of the Agricultural Sub-Sector

#### Farmed land, forests and fishing areas

##### Farmed land

About 30% of PNG's land area is suitable for agriculture development, however only one quarter is regularly under production (1% of total land area), and about another quarter is used at lower levels of intensity. The remaining half of the land is far from villages with poor market access and is constrained in its use by customary ownership restrictions. About 90% of the land with agricultural potential is held under customary land tenure within which clans grant to individual families the land usage rights, but not transfer parcels of land.

With the increasing population growth and the spread of cash crops, the sustainability of the customary land has been challenged.

##### Forested areas

Papua New Guinea's largest renewable resource is its forest, both from the natural and plantation sources. About 36 million hectares of land is forested of which 15 million hectares is classified as productive forest containing high quality tropical hardwoods considered suitable for development. Of the 15 million hectares of productive forest a total of 4.86 million hectares had been identified with 37 forest concessions for development. These concessions contain 76.6 million cubic meters of tropical hardwoods, which are available for harvest. The majority of the remaining resources are located in the western and northern half of mainland Papua New Guinea.

It is estimated that about a third of the total land area has forestry production potential, but 70% of that area is still not adequately mapped and located. Whilst the customary landowners and clans own most of the forests, the Government issues logging licences to private operators.

##### Fishing areas

Papua New Guinea claims jurisdiction over 2.4 million square km of ocean, the third largest Declared Fishing Zone (DFZ) in the region. The fisheries zones include an extended reef

system, numerous islands and an extensive coastline. These create huge opportunities but also present an enormous challenge for monitoring and control.

Papua New Guinea has an extensive and valuable fisheries sector ranging from inland river fisheries, aquaculture, coastal beche-de-mer and reef fisheries to the prawn trawl and large scale deep water fisheries. The range of participants covers artisanal community to medium sized domestic prawn and tuna longline operators to large international purse seine fleets in the deepwater tuna fisheries.

### **Agricultural systems**

Two distinct sub-sectors can be distinguished in the agriculture sector:

1. Estates, which hire labour and which produce mainly tree crop products for export; and
2. Smallholders who grow cash crops, mainly for export, and staple root crops, fruits and vegetables for their own consumption or for sale on a small-scale in their immediate vicinity.

There are two forms of production systems: (1) export tree crops production system, such as coffee, cocoa, coconut, oil palm, rubber, and (2) food crops production system including sweet potato, yams, cassava, banana, taro, potato, sago, sugarcane, corn and peanut.

Farming systems are highly adapted to the local environment. There are four main farming systems: (1) Sago and taro based farming systems in the wet lowlands; (2) yams, bananas and cassava based systems in the dry lowlands; (3) taro and sweet potato based systems in the highlands and its fringes; and (4) sweet potato and Irish potato systems of the higher altitude valleys.

Smallholders have traditionally accounted for most of the output of the main export and staple agricultural commodities, namely coconut, coffee, cocoa, oil palm, rubber, chilli, and pyrethrum and recently vanilla.

The principle crops for domestic consumption include sweet potatoes, bananas, taros, yams, sugarcane, corn and peanuts. Virtually all smallholder crops are rain-fed, intercropped, have low input levels and low productivity. Food crops account for more than 50% of the total agricultural output and about 25% of the produce is marketed.

The livestock sub-sector accounts for about 12% of total production in PNG, of which subsistence pig and poultry production accounts for two thirds. Broiler production dominates the commercial sector, followed by beef, eggs, crocodile skins and pork. Pigs play an important economic and cultural role at the village level, particularly in the highlands, providing wealth, status and protein.

### **Agriculture in the economy**

Agriculture is a key component of the Renewable Resource Sector and is the mainstay of the economy. The agriculture sector accounts for 87% of the livelihood of the rural population, provides employment for over 25% of the workforce in the formal sector, contributes to 14% of foreign exchange earnings, contributes 25% of the gross domestic product (GDP) and provides markets for the industries and services sector, a source of capital, labour and products for the other sectors. This 87% of the population produces all the food for subsistence and provides a base for income generation for these people.

Agricultural export is limited to tree crops and some alternative crops including tea, rubber and spices. Export earnings during the 2000 valued at K955.5 million which is 16.5% of total export earnings.

Over the past decade, the performance of the agricultural sector has been mixed. For the cash crop sub-sector, there has been strong growth in oil palm. Smallholder coffee also grew

strongly towards the end of 1990s, but has since contracted in the wake of falling international commodity prices and poor growing conditions in 2000. Food crop staples (which also included introduced food crops) grew steadily over the past decade, although the 1997-98 droughts heightened concern over food security in certain parts of the country (Department of Agriculture and Livestock, 2003).

Other factors contributing to the poor sectoral performance include low productivity in smallholder production systems, poor product quality, high costs of production, (high labour, transport and processing costs), excess processing capacity and costly marketing systems. This combination of factors has made PNG significantly non-competitive in many of its traditional agricultural export markets.

As a result, private sector agricultural investment has been insufficient. Maintenance and replanting of smallholder tree crops have come to a halt, plantations have laid off almost 20% of their labour, no major new investments have been undertaken by private sector plantations and use of modern imported inputs have dropped by about one-third. Public sector allocations for the agriculture sector have also declined, both absolutely and relatively. The forestry sub-sector has suffered in the same period from absence of a coherent and implemented national forestry plans, unclear ownership, unclear legal rights, unclear government objectives and increased world market competition from neighbouring countries.

Expenditures for food imports have increased. In 1995, PNG spent about PGK56.5 million on importation of rice into PNG. With the exception of poultry, pigs and vegetables, the domestic supply of crop and livestock products have stagnated or even declined. Commercial food, grain and tuber production has increased in recent years but has not kept pace with population growth.

#### **Main agricultural produce and secondary products**

- **Primary produce:** coffee, cocoa, coconuts, palm kernels, tea, rubber, sweet potatoes, fruit, vegetables; poultry, pork, tuna fish, timber
- **Secondary products:** canned fish, instant coffee, packaged tea, frozen poultry products, coconut oil

#### **Main export markets**

- Australia (30%)
- Japan (11%)
- China (4%)
- Germany (4%)
- South Korea (3%)
- United Kingdom (1%)
- Philippines (1%)

#### **Trade agreements that include agriculture**

##### **Multilateral international trade agreements:**

- Lomé Convention – PNG receives non-reciprocal tariff and other preferences from EU on many goods as well as financial assistances.
- Asia Pacific Economic Cooperation (APEC) – is committed to achieving free trade and investment in the region on agricultural goods and services by 2020.

- South Pacific Regional Trade and Economic Agreement (SPARTECA) - is a non-reciprocal agreement between Australia and New Zealand on one hand and the island nations of the South Pacific Forum on the other. It, too, provides duty-free, unrestricted and concessional access for most products originating in PNG.
- Melanesian Spearhead Group (MSG) – PNG, Solomon Islands, Vanuatu, and Fiji are members of the Melanesian Spearhead Group, which has agreed to reduce or eliminate tariffs on certain products traded within the group.

#### **Bilateral Agreements:**

- Australia under Australia PNG Trade and Commerce Relations Agreement (PATCRA) that establishes a non-reciprocal free-trade area providing duty-free access for all exports to Australia.
- PNG/Fiji Trade Agreement is another in which certain goods can enter Fiji market at year 2000 rate but are levied at 10% Value Added Tax (VAT). Certain goods also enter at concessional rates, subject to quarantine approval on most eligible agricultural products.

**General System Preference (GSP)**, (where 27 industrialized economies allow PNG's exports duty-free into their markets):

- USA (fisheries and agricultural products),
- Germany and United Kingdom (coffee and cocoa)
- Japan (timber)

#### **International Commodity Agreements:**

- International Coffee
- Agreement, International Cocoa Agreement,
- Association of National Rubber Producing countries,
- Asia and Pacific Coconut Community,
- International Tropical Agreement, and
- International Spice Agreement.

### **Sectoral policy related to agriculture, fisheries and forests**

#### **Agriculture**

The agriculture sub sector is a major component of the Renewable Resource Sector. The government's vision is that the agriculture sector has a role and potential to make a significant contribution to the national economy, with the ultimate aim of improving the living standards of the people. The government also recognises that development in this sector can also help to reduce law and order problems. The vision of agriculture is: increased agricultural productivity, food security, income generation and employment resulting from well-coordinated and collaborative sector.

The policy framework of agriculture sector is premised towards developing capacity in the agriculture sector to enable the sector to improve the social, physical and economic well-being of rural producers by increasing their productivity, incomes and providing them with employment opportunities.

Four areas have been given high priority and represent the key elements of PNG's sector development programme.

- The equitable delivery of quality agricultural services, including fisheries,
- Increased food security and nutritional levels for those involved in subsistence agriculture with little cash production,
- The development of export commodities, including diversification into alternative crops in order to reduce vulnerability to price fluctuation of traditional export crops, and
- The development of downstream processing for agricultural crops, fish, timber and other resources, including cottage industries.

The key elements of agricultural production and food security are to strengthen agricultural research and planning at all levels, improve agricultural extension services and to enhance food production and food security.

The development strategy recognises that the smallholder sector continues to be the backbone of agricultural production systems whereas the largeholder private sector will be important for commercialisation of the agriculture sector.

### **Forestry**

The Papua New Guinea Forest Authority was formed in 1993 as a statutory corporation, to lead the forestry reform process and devise programmes to management the tropical rainforests. The Authority administers the industry through resource acquisition or on management contract with traditional landowners (forest resources customary owned) and invite investors to develop the resource on behalf of the State and landowners. The forest revenues are distributed between the three parties. The policy instruments that are in place to ensure that the forest resource is developed on a sustainable basis and to ensure that equitable benefits to the main stakeholders namely the customary landowners, Government and investors prevail, and the main enabling frameworks through which the industry is administered are as follows:

1. Forestry Act and Regulation,
2. National Forest Policy,
3. National Forest Plan,
4. Logging Code of Practice, and
5. Other operational manuals.

The Authority monitors and ensures compliances of the rules and regulations including contracts between the State, landowners and investors. It also promotes and develops policies relating to the industry.

### **Fisheries**

Under the *Fisheries Management Act 1998*, the National Fisheries Authority (NFA) is “responsible for the management and development of the fisheries sector in accordance with the provisions of this Act under the overall policy direction of the Ministry” and “shall perform and exercise its functions and powers on behalf of Papua New Guinea”.

NFA is a non-commercial statutory authority owned by the government and people of PNG. As a statutory authority NFA is required to implement government policy for managing and developing fisheries as a national asset.

The Minister of Fisheries has overall responsibility for policy direction in accordance of the *Fisheries Management Act*. The Minister is required to provide an annual report to the Speaker for presentation to Parliament on the performance of NFA in terms of its functions and financial performance. The report is also provided to each provincial government.

The objectives and guiding principles in respect of fisheries waters are:

- Promote the objective of optimum utilisation and long term sustainable development of living resources and the need to utilise living resources to achieve economic growth, human resource development and employment creation and a sound ecological balance;
- Conserve the living resources for both present and future generations;
- Ensure management measures are based on the best scientific evidence available, and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by environmental and economic factors including fishing patterns, the interdependence of stocks and generally recommend international minimum standards;
- Apply a precautionary approach to the management and development of aquatic living resources;
- Protect the ecosystem as a whole, including species which are not targeted for exploitation, and the general marine and aquatic living resources;
- Preserve biodiversity;
- Minimise pollution; and
- Implement any relevant obligations of Papua New Guinea under applicable rules of international law and international regulations.

In addition it is required that the rights of customary owners of fisheries resources shall be fully recognised and respected in all transactions affecting the resource or the area in which the rights operates.

The government's objective towards fisheries is to develop a fishing industry that is internationally competitive, generates employment, expands local food supply and reduces imports.

## 2.2 Socio-economic profile

### Demographics

Table 2.2: Population by sector, sex and citizenship, PNG 2000 Census

<b>Area</b>	<b>Total</b>	<b>Citizen</b>	<b>Non-citizen</b>
<b>All sectors</b>			
Persons	5,190,786	5,171,548	19,238
Males	2,691,744	2,679,769	11,975
Females	2,499,042	2,491,779	7,263
<b>Urban sectors</b>			
Persons	686,301	675,403	10,898
Males	372,453	365,533	6,920
Females	313,848	309,870	3,978
<b>Rural sector</b>			
Persons	4,504,485	4,496,145	8,340
Males	2,319,291	2,314,236	5,055
Females	2,185,194	2,181,909	3,285

*Source: National Statistical Office 2000 National Census: National Report*

Table 2.3: Citizen population by province, broad age groups and dependency ratio, (2000 Census data).

Area	Total	Age group (years)			Dependency ratio
		Less than 15	15-64	65 and over	
PNG	5,171,548	40.0	57.6	2.4	73.6
Urban	675,403	36.6	62.4	1.0	60.3
Rural	4,496,145	40.5	56.9	2.6	75.8
<b>Southern Region</b>					
Western	148,356	44.6	53.5	1.9	75.8
Gulf	106,660	44.3	53.8	1.9	85.8
Central	183,805	42.1	54.8	3.1	82.4
NCD	248,948	35.1	63.9	1.0	56.5
Milne Bay	210,056	41.3	55.9	2.8	78.9
Northern	132,952	43.4	54.2	2.4	84.6
<b>Highlands Region</b>					
Southern Highlands	546,001	37.2	60.7	2.1	64.7
Enga	294,727	35.6	62.2	2.2	60.8
Western Highlands	439,336	36.3	61.0	2.7	64.0
Chimbu	259,536	34.4	61.7	3.9	62.1
Eastern Highlands	431,799	38.8	58.5	2.7	70.8
<b>Momase Region</b>					
Morobe	537,415	40.2	57.8	2.1	73.2
Madang	364,407	43.9	54.3	1.8	84.2
East Sepik	342,741	43.7	53.5	2.8	86.8
West Sepik	185,193	43.8	54.4	1.8	83.8
<b>New Guinea Islands Region</b>					
Manus	43,294	41.8	55.3	2.8	80.9
New Ireland	117,994	43.0	54.1	2.9	85.0
East New Britain	219,298	42.0	55.3	2.7	80.9
West New Britain	183,977	43.2	54.9	1.9	82.2
North Solomons	175,053	43.5	53.9	2.5	85.5

*Source: National Statistical Office 2000 National Census: National Report*

In every population, some depend on others for their daily subsistence. This can be approximated by the dependency ratio but in this context it represents more a feature of the age structure of the population than a true measure of dependency. The dependent population is defined as those aged less than 15 years and those aged 65 years and over. The working group is those aged 15-64 years.

Table 2.4: Total population distribution by province by sex, PNG, 2000

Province	2000 Census		
	Persons	Males	Females
Papua New Guinea	5,190,786	2,691,744	2,499,042
Western	153,304	79,240	74,064
Gulf	106,898	55,529	51,369
Central	183,983	96,062	87,921
National Capital District (NCD)	254,158	138,974	115,184
Milne Bay	210,412	109,668	100,744
Northern	133,065	69,857	63,208
Southern Highlands (SHP)	546,265	278,331	267,934
Enga	295,031	153,146	141,885
Western Highlands (WHP)	440,025	224,697	215,328
Chimbu	259,703	134,928	124,775
Eastern Highlands (EHP)	432,972	222,851	210,121
Morobe	539,404	280,710	258,694
Madang	365,106	190,322	174,784
East Sepik (ESP)	343,106	172,012	171,169
West Sepik (WSP)	185,741	95,523	90,218
Manus	43,387	22,401	20,986
New Ireland (NIP)	118,350	62,760	55,590
East New Britain (ENB)	220,133	115,704	104,429
West New Britain (WNB)	184,508	99,015	85,493
North Solomons	175,160	90,014	85,146

Source: National Statistical Office of PNG, Papua New Guinea 2000 Census: final figures

### Literacy level and languages

Table 2.5: Literacy rate of citizen population aged 10 years and over by languages, sex and sector

Literacy	Total			Urban			Rural		
	Total	Males	Female	Total	Males	Female	Total	Males	Females
Total	56.2	61.2	50.9	86.2	88.6	83.3	51.7	56.8	46.3
English	40.4	45.4	35.0	74.6	78.3	70.2	35.2	40.1	30.0
Pidgin	45.2	51.0	38.9	76.6	80.5	72.0	40.4	46.2	34.2
Motu	5.0	6.0	4.0	17.0	18.2	15.7	3.2	4.0	2.4
Tokples	41.7	45.4	37.7	62.5	65.2	59.4	38.5	42.3	34.6

Source: National Statistical Office 2000 National Census: National Report

There are over 800 different local dialects also referred to as *Tokples*. However, three common languages are widely spoken in Papua New Guinea. English is the language of education and commerce, whilst Pidgin (*lingua franca*) is widely spoken and is also the language of communication. Motu is only spoken in the Southern region of Papua New Guinea.

According to the 2000 Census, the overall literacy rate (literate in at least one language) for PNG was 56% as can be seen in Table 2.4 above. In the urban areas one would expect literacy rate for English to be higher than Pidgin. In the rural areas, tokples literacy would be higher.

## **Access to services (education, health, electricity)**

### **Education**

The level of educational attainment of the population is an important determinant of its capacity to be economically independent. Increasing levels of education indicate development progress both at an individual and societal level. Access to education for children 6-16 years is compulsory in PNG.

The current school system in PNG divides the population into several groupings. Elementary refers to the early years of education and covers Elementary Prep, Elementary Prep 1 and Elementary Prep 2. Primary is grades 3-6 and top-up refers to grades 7 and 8. Finally, secondary is grades 9 to 12. The system is designed to allow for school leavers from the top-up and secondary levels.

Overall 51% of PNG's citizen population aged 5 years and over counted at the 2000 Census had received some formal schooling. The level of attendances though is quite different in the urban compared to the rural areas. Just over three quarters of people counted in urban areas had received some schooling compared to less than half in the rural areas. The proportion of males and females currently attending school are the same in the urban areas which is about 25%, but in the rural area proportionally more males than females are currently in school, 17% and 15% respectively.

There are just under 10 Teachers Training Colleges offering Diploma Courses in Secondary Teaching. Four national high schools cater for Grades 11 and 12 and with the government education policy of setting up secondary levels schools within each provinces, the number of students attending Grades 11 and 12 have increased.

A total of 5 Universities, two of which are church-run offer a wide range of courses. Up till 1990s, the government paid for students' fees attending the 3 government universities. About the mid 1990s the government changed its policies and introduced the User Pay Policy. This has had impact on the students' enrolment as most students come from poor rural families who are not able to afford the exorbitant fees.

### **Health**

The department of Health provides dispensaries and public health facilities all over PNG. The government also subsidises, and works closely with, church groups, which provide medical facilities. Hospital charges are based on the ability to pay, so services are either free or have negligible charges.

### **Electricity**

Electricity to rural areas is very negligible. Access to electricity is only available in the major provincial centres and within its peripheries. The main source of energy for PNG is fossil fuels, mainly firewood accounting for about 74% of total source of energy. Hydropower accounts for 26% of source of energy for PNG households.

### **Rural-urban drift**

Of the nearly 5.1 million citizens counted in private dwellings in PNG at the 2000 Census, 1 million (20%) had not been born where they were enumerated and were therefore classified as migrants.

A considerable urban drift towards the National Capital District (NCD) being the nations capital and due to its urban nature and status, which combine to offer better employment opportunities.

A total of 454, 000 citizens born in PNG were not living in their province of birth at the 2000 Census. The main destination provinces for these people were NCD (119,000), Morobe

(69,000) and Western Highlands (56,000). These three provinces received just over half of all inter-provincial migrants. These three provinces are the three major urban centres of PNG. Provinces that experienced large out-migration were Chimbu (47,000), East Sepik (42,000), and Southern Highland (42,000).

There is a high rate of migration from the rural areas into the urban areas particularly with men seeking better working conditions. This has created more problems in the urban areas contributing to a law and order problems, squatter settlements and increasing demand for basic services and land.

## 2.3 Media and Telecommunication

### Newspapers, periodicals and broadcast media

#### Newspapers

Table 2.6: Types of newspapers circulated in PNG

	The National	Post Courier	Wantok
Ownership	Monarch Investment	News Corp Ltd	Word Publishing
Language	English	English	Tok Pisin
Coverage	Major centres	Major centres	Major centres
Circulation figure	65 000	28 000	Limited circulation
Frequency	Daily (Monday – Friday)	Daily (week days)	Weekly (Thursdays)
Columns dedicated to agricultural news	Commodity Updates (appears every Wednesday)	Rural Industries Weekly (Thursday)	NA
Website	<a href="http://www.thenational.com.pg">www.thenational.com.pg</a>	<a href="http://www.postcourier.com.pg">www.postcourier.com.pg</a>	NA

#### Radio stations

Table 2.7: Radio stations in PNG

Radio Station	Type of frequency	Coverage	Language of broadcasting	Ownership
Karai	FM <sup>6</sup> , MW <sup>7</sup> , SW <sup>8</sup>	Nationwide	English	NBC <sup>9</sup>
Kundu	SW	Province wide (19 stations)	English, Tok pisin and in major provincial local dialects	NBC
Kalang <sup>10</sup>	FM	Nationwide (commercial)	English, Tok Pisin and Motu	NBC

<sup>6</sup> Frequency Modulation and can ride on both the MW and SW band frequencies and can be heard all over the country.

<sup>7</sup> Medium Wave covers all of PNG including the nations capital and Central Province

<sup>8</sup> Short Wave frequency and can take the coverage to every hamlets both in PNG and the world over.

<sup>9</sup> National Broadcasting Commission – Government Statutory Organisation

<sup>10</sup> Was sold to Telikom PNG in 1994.

NauFM	FM	Nationwide	Tok Pisin	PNG FM Pty (80%); Fiji Communications (20%)
YumiFM	FM	Nationwide	Tok Pisin	NauFM
FM Morobe	FM	Morobe and parts of Eastern Highlands Province	Tok Pisin	Private
FM Central	FM	Central Province	Motu	Private

Karai National Radio (KNR) operates out of the Nation's capital, Port Moresby. It started broadcasting in 1974 and still providing news, information and entertainment to the national population. Broadcast time is from 0500 to 2400 hours daily.

After a decade of public service broadcasting KNR was commercialised by a government statute in 1980 to enable corporate businesses to tap into the huge market that this radio service has build over the years. The Kalang Radio Services undertakes this commercial arm of the NBC.

Kundu Radio Service is located in the other 19 provincial headquarters right around PNG. Currently out of the 19 stations, only 11 are on air (pers comm. Kevin Marai). Limited budgetary support from the respective provincial government means that the radio service is off air.

### **TV Channels**

Only 1 TV station: EMTV

- Run by Media Niugini Ltd
- Owned by the Nine Network (Australia)
- Operates 12 hours, 7 days in English and Tok Pisin.
- Has coverage in most major centres: Madang, Lae, Rabaul, Vanimo, Port Moresby, Goroka, Kimbe, Kavieng, Mendi, Tabubil, Kainantu.

### **Telecommunication services**

The PNG Telecommunication Authority (PANGTEL) is the sole national regulatory, licensing authority and promoter of telecommunications and radio communications, including television, and broadcasting services in PNG.

Telikom PNG however, is a company established by a Company Act in 1999. It is 100% nationally owned and currently has three subsidiaries:

- Pacific Mobile Communication (PMC), which is responsible for Internet Gateway issuance of Internet, Service Providers, and the Mobile Phones issuances and registry.
- PNG Directory – publishing of the Telephone directory
- PNG Postal – operates the PNG Postal Services

Table 2.8: National Telephone charge calls

Type of Phones	Number of subscribers	Coverage	Cost per 3 minutes (kina)		
			Same zone (local calls)	Adjoining zone	Non-adjointing zone
Fixed Phones		Nationwide	0.30	0.70	1.00
Mobile phones	30 000	Madang, Goroka, Lae, Port Moresby, Mt Hagen	Does not apply		1.60

*Source: 2003 PNG telephone director: Current rate: 0.31 cents to K1.00*

### **Computers and Internet**

- Internet users: 3000 (2001)
- Internet Service Distributors: 5 (2002)
  - Global Technologies ([@global.net.pg](mailto:@global.net.pg))
  - Daltron Electronics ([@daltron.com.pg](mailto:@daltron.com.pg))
  - Data General (DG) ([@dg.com.pg](mailto:@dg.com.pg))
  - Online South Pacific (Data Nets) ([@online.net.pg](mailto:@online.net.pg))
  - Datec ([@datec.net.pg](mailto:@datec.net.pg))
- Two direct access users
  - Telikom PNG and Unitech
- Cost of 10 hour usage per month
  - Datec: K33.00 (individual user)
  - Global: K40.00; (single user); K400 (Corporate)

### Annex 3: Profile of Institutions

#### List of all institutions involved in agriculture

Name and contacts	Type	Role
Cocoa Board Industries PO Box 530, Rabaul, East New Britain Province Tel: (675) 982 8560/ 982 8579; Fax: 982 8712 Email: <a href="mailto:coco_board@global.net.pg">coco_board@global.net.pg</a>	PRV	PP
Kokonas Industri Koporesen PO Box 81, Port Moresby, National Capital District Tel: (675) 321 1133/ 321 1513; Fax: (675) 321 4257 Email: <a href="mailto:kik@datec.net.pg">kik@datec.net.pg</a>	PRV	PP
Oil Palm Industries Corporation PO Box 3216, Boroko, National Capital District Tel: (675) 323 1511; Fax: (675)	PRV	RD
Spice Board Industries Board PO Box 2003, Port Moresby, National Capital District Tel: (675) 321 2271/ 320 1717; Fax: (675) 321 7813	PRV	PP
PNG Growers Association PO Box 14, Rabaul, East New Britain Province Tel: (675) 982 9123; Fax: (675) 982 9264 Email: <a href="mailto:davidloh@global.net.pg">davidloh@global.net.pg</a>	AS-F	
Morobe Women's Group PO Box 1468, Lae, Morobe Province Tel: (675) 473 1579; Fax: (675) 472 2347	AS-W	
Rural Development Bank of Papua New Guinea, PO Box 686, Waigani, National Capital District Tel: (675) 324 7500; Fax: (675) 325 9817	BNK	FS
Adventist Development and Relief Agency (ADRA) PO Box 3206, Lae, Morobe Province Tel: (675) 472 7088; Fax: (675) 472 7638 Email: <a href="mailto:mabel@adventist.org.pg">mabel@adventist.org.pg</a>	CHU	EX
Divine Word University PO Box 483, Madang, Madang Province Tel: (675) 852 2937; Fax: (675) 852 2812 Email: <a href="mailto:jjczuba@global.net.pg">jjczuba@global.net.pg</a>	CHU	TRA
Lutheran Development Services (LDS) PO Box 291, Lae, Morobe Province Tel: (675) 472 1122/4588; Fax: (675) 472 1638	CHU	EX
Sonoma Adventist College PO Box 360, Kokopo, East New Britain Province Tel: (675) 982 1782; (675) 982 2164	CHU	TR
Department of Agriculture and Livestock, PO Box 2033, Port Moresby, National Capital District Tel: (675) 321 4096; Fax: (675) 321 1387 Email: <a href="mailto:kauam@datec.net.pg">kauam@datec.net.pg</a> ; Web site: <a href="http://www.dal.gov.pg">www.dal.gov.pg</a>	GOV	PP

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Highlands Agricultural College (HAC) PO Box 317, Mt Hagen, Western Highlands Province Tel: (675) 545 1243/1247; Fax: 545 1480	GOV	TRA
The University of Vudal Private Mail Bag, Rabaul, East New Britain Province Tel: (675) 983 9144; Fax: (675) 983 9166 Email: <a href="mailto:tvprice@daltron.com.pg">tvprice@daltron.com.pg</a>	GOV	TR
Liklik Buk Information Centre Private Mail Bag, Lae, Morobe Province Tel: (675) 473 4776; Fax: (675) 473 4303 Email: <a href="mailto:info@atcdi.unitech.ac.pg">info@atcdi.unitech.ac.pg</a> Web site: <a href="http://www.unitech.ac.pg/ATCDI/Index.html">www.unitech.ac.pg/ATCDI/Index.html</a> or <a href="http://www.ngo.org.pg/atcdi">www.ngo.org.pg/atcdi</a>	NGO	RD/ EX
Community Development Services (CDS) PO Box 17, Banz, Mt Hagen, Western Highlands Province Tel: (675) 546 2272; Fax: (675) 546 2272	NGO	EX
Foundation for People and Community Development (FPCD) PO Box 1119, Boroko, National Capital District Tel: (675) 325 8470; Fax: (675) 325 2670 Email: <a href="mailto:fpcd@datec.net.pg">fpcd@datec.net.pg</a> Website: <a href="http://www.fpcd.org.fj/png.html">www.fpcd.org.fj/png.html</a>	NGO	EX
Foundation for Rural Development Inc (FORD) PO Box 719, Mt Hagen, Western Highlands Province Tel: (675) 542 3524; Fax: (675) 542 3530	NGO	EX
HELP Resources PO Box 1071, Wewak, East Sepik Province Tel: (675) 856 1615; Fax/Ph: (675) 856 1453 Email: <a href="mailto:help_info@global.net.pg">help_info@global.net.pg</a>	NGO	EX
Liklik Buk Information Centre (LLBIC) Private Mail Bag, Lae, Morobe Province Tel: (675) 473 4776; Fax: (675) 473 4303 Email: <a href="mailto:info@atcdi.unitech.ac.pg">info@atcdi.unitech.ac.pg</a> Web site: <a href="http://www.unitech.ac.pg/ATCDI/Index.html">www.unitech.ac.pg/ATCDI/Index.html</a> or <a href="http://www.ngo.org.pg/atcdi">www.ngo.org.pg/atcdi</a>	NGO	IN
National Council of Women PO Box 154, University, National Capital District Tel: (675) 326 375	NGO	PP
Research Conservation Foundation PO Box 958, Goroka, Eastern Highlands Province Tel: (675) 7323211; Fax: (675) 732 1123 Email: <a href="mailto:rcf@rcf.org.pg">rcf@rcf.org.pg</a> ; Web site: <a href="http://www.rcf.org.pg">www.rcf.org.pg</a>	NGO	RD
Village Development Trust (VDT) PO Box 2397, Lae, Morobe Province Tel: (675) 472 1666; Fax: (675) 472 4824 Email <a href="mailto:vdt@global.net.pg">vdt@global.net.pg</a> ; web site: <a href="http://www.vdt.org.pg">www.vdt.org.pg</a>	NGO	EX
Agmark Pacific Ltd PO Box 348, Lae, Morobe Province Tel: (675) 472 2022; Fax: (675) 472 6650	PRV	PS-S

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Research and Growers Services Division Coffee Industry Corporation, PO Box 105, Kainantu, Eastern Highlands Province Tel: (675) 737 3511; Fax: (675) 7373524 Email: <a href="mailto:cofres@datec.net.pg">cofres@datec.net.pg</a> ; Web site: <a href="http://www.coffeecorp.org.pg">www.coffeecorp.org.pg</a>	PRV	RD
Coffee Industry Corporation PO Box 137, Goroka, Eastern Highlands Province Tel: (675) 732 1226; Fax: (675) 732 1327 Web site: <a href="http://www.coffeecorp.org.pg">www.coffeecorp.org.pg</a>	PRV	RG
Farmset Limited PO Box 684, Lae, Morobe Province Tel: (675) 472 2880; Fax: (675) 472 5178	PRV	PS-S
Fresh Produce Development Company PO Box 958, Goroka, Eastern Highlands Province Tel: (675) 732 3356; Fax: (675) 732 3357 Email: <a href="mailto:fpdcgoroka@datec.net.pg">fpdcgoroka@datec.net.pg</a>	PRV	EX
North Fly Rubber PO Box 20, Kiunga, Western Province Tel: (675) 548 1084; Fax: (675) 548 1195	PRV	
Ok Tedi Mining Ltd PO Box 1, Tabubil, Western Province	PRV	EX
PNG Table Birds PO Box 962, Lae, Morobe Province Tel: (675) 472 6644; Fax: (675) 472 6504	PRV	PS-P
Ramu Sugar Ltd PO Box 2183, Lae, Morobe Province Tel: (675) 474 3270; Fax: (675) 474 3295; or 474 3239 Email: <a href="mailto:lkuniata@ramusugar.com.pg">lkuniata@ramusugar.com.pg</a>	PRV	RD/EX
Trukai Industries Ltd PO Box 2129, Lae Morobe Province Tel: (675) 472 2466; Fax: (675) 472 6073	PRV	EX
W.R. Carpenters (PNG) P/L PO Box 105, Port Moresby, National Capital District Tel: (675) 325 5166/ 325 5568; Fax: (675) 323 5330 Email: <a href="mailto:hlaird@carpenters.com.pg">hlaird@carpenters.com.pg</a>	PRV	TM
Cocoa and Coconut Institute PO Box 1846, Rabaul, East New Britain Province Tel: (675) 9839131; Fax: (675) 983 9115 Email: <a href="mailto:ccri@datec.net.pg">ccri@datec.net.pg</a>	STA	RD
Forest Research Institute, PO Box 314, Lae, Morobe Province Tel: (675) 472 4188; Fax: (675) 472 4357	STA	RD
Investment Promotion Authority PO Box 5053, Boroko, National Capital District Tel: (675) 321 7311; Fax: (675) 321 2819 Email: <a href="mailto:iepd@ipa.gov.pg">iepd@ipa.gov.pg</a> Website: <a href="http://www.ipa.gov.pg">www.ipa.gov.pg</a>	STA	RG

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
National Agricultural Quarantine Inspection Authority (NAQIA) PO Box 741, Port Moresby, National Capital District Tel: (675) 311 2113; Fax: 325 1673 Email: <a href="mailto:naqia@dg.com.pg">naqia@dg.com.pg</a>	STA	RG
National Agricultural Research Institute PO Box 4415, Lae, Morobe Province Telephone: (675) 475 1444/ 1445/1446; Fax: (675) 4751450 Email: <a href="mailto:nari@datec.net.pg">nari@datec.net.pg</a> ; Web site: <a href="http://www.nari.org.pg">www.nari.org.pg</a>	STA	RD
National Fisheries Authority 11 <sup>th</sup> Floor, Deloitte Tower PO Box 2016, Port Moresby, National Capital District Tel: (675) 309 0444; Fax: (675) 320 2061 Email: <a href="mailto:nfa@fisheries.gov.pg">nfa@fisheries.gov.pg</a> Website: <a href="http://www.fisheries.gov.pg">www.fisheries.gov.pg</a>	STA	PP/RD
National Fisheries College, National Fisheries Authority, PO Box 239, Kavieng, New Ireland Province Tel: (675) 984 2187; Fax: (675) 984 2343 Website: <a href="http://www.fisheries.gov.pg">www.fisheries.gov.pg</a>	STA	TR
National Forest Authority, PO Box 5055, Boroko, National Capital District Tel: (675) 327 7800; Fax: (675) 325 4433	STA	PP
National Research Institute, PO Box 5854, Boroko, National Capital District Tel: (675) 326 0300/ 326 0061/ 326 0079/ 326 0705 Fax: (675) 326 0213 Email: <a href="mailto:nri@global.net.pg">nri@global.net.pg</a> Web site: <a href="http://www.nri.org.pg">www.nri.org.pg</a>	STA	RD/PP
Oil Palm Research Station, PO Box 165, Kimbe, West New Britain Province Tel: (675) 985 4009; Fax: (675) 985 4031 E-mail: <a href="mailto:ian.orrell@pngopra.org.pg">ian.orrell@pngopra.org.pg</a>	STA	RD
Monsiu Integrated Farming, Food Security Project PO Box 763, KUNDIAWA, Simbu Province Tel: (675) 735 1610; Fax: (675) 735 1020	NGO	EX
Community Development Initiative Foundation Trust Fund 5 <sup>th</sup> Floor Pacific MMI, Champion Parade, PO Box 383, Port Moresby PNG Tel: (675) 321 3177; Fax: (675) 322 5535 Website: <a href="http://www.cdi.org.pg">www.cdi.org.pg</a>	NGO	EXT

## Key

<u>Type</u>		<u>Role</u>	
AS-F	Farmers' association (includes co-ops)	EX	Extension and outreach
AS-W	Women's association	IN	Information services
AS-Y	Youth association	FS	Financial services
BNK	Bank or credit institution	PP	Policy and planning
CCI	Chamber of commerce and industry	PS-E	Private sector – exporter (fresh, frozen and dried produce)
CHU	Church-based group	PS-M	Private sector – manufacturer (e.g. tannery, bottler, refiner, roaster)
EDU	Educational institution	PS-P	Private sector – producer (e.g. commercial farm, fishing company)
GOV	Government department / ministry	PS-S	Private sector – supplier (e.g. chemicals, seeds) (what about public / state-owned enterprises in this area?)
NGO	Non-government organisation	RD	Research and development
PRV	Private enterprise, company	RG	Regulation (compliance, standards)
REG	Regional organisation or network	TR	Training (tertiary and vocational level)
STA	Statutory body	TM	Trade and marketing (include development)

## **Select list of key institutions**

### ***Fresh Produce Development Company (FPDC)***

**Mission statement:** Assist growers and businesses associated with the fresh produce industry to improve their income levels and maintain efficient and profitable enterprises through the development of a sustainable industry

**Objective:** Aggressively promote and develop a sustainable commercially oriented fruit and vegetable industry

**Field of Specialisation:** Marketing and Post harvest Production of fresh vegetables.

**Number of staff:** 20 (HQ staffing only). Have staff also located at regional centres in other parts of PNG.

**Branches, other site:** have regional centres in selected sites representing all regions of the country. Offices in Western Highlands Province, Eastern Highlands (HQ), Morobe Province, Central Province, East New Britain Province

**Annual Budget:** K2 million

**Source of funding:** Government recurrent budget

**Programme/Projects undertaken:** Transport of vegetables from the Highlands to the Coast and major urban centres (funded by Australian Centre for International Agricultural Research (ACIAR))

**Target audience:** all sectors of the rural community particularly women, youths and the farming community

**Extent of interaction with CTA:** As an organization, FPDC has no direct interaction with CTA however, the acting general manager and acting manager. Technical services have interactions with CTA through Publications Distribution services and receive CTA Spore magazines and credit points. The acting manager, Technical Services receives SDI services from CTA. These staff had their initial contacts with CTA whilst they were working with Department of Agriculture and Livestock and the National Agricultural Research Institute.

**Extent of collaboration/interaction with other institutions (name, nature):** New Zealand Government – initial funding for the establishment of the company, training and supply of seeds materials and research. Australian Centre for International Agricultural Research (ACIAR) – donor support for research project on movement of vegetables from the highlands to the coastal regions

**How information needs are met, and from where or by who:** Researchers working within this organizations carry out research mainly on food crops productions and post harvest handling and provide market information for their clients and stakeholders. Most of their information are gleaned from old reports and research documents written or compiled by the organization in the past.

**Main information need not satisfied:** basic information on production and marketing aspects; cost of production for vegetable and other food crops, such as cabbages, sweet potato, carrots, broccoli etc.

There is no library within this organization. There is a shelf available with 4 bays and limited resources (books and manuals) available to meet their needs. The organization does not subscribe to any journals and there is no budget for library and book purchases.

**Main problems faced in terms of information and communication management:**

- No library staff and no library
- Lack of expertise in desk top publishing and development of extension materials

**Why institution selected as key:** FPDC deals mostly with rural farmers on production issues such as post harvest handling of vegetable and food crops. FPDC is adopting the Village Extension Workers (VEW) approach and works closely with these VEW who are regarded as contact farmers within their respective communities. With their direct involvement with farmers and having build an extensive networks with the rural communities, they will have much greater impact in dealing directly with the farmers and the farming communities. FPDC programme is spread throughout the country having offices in all four regions of the country.

---

**Research Conservation Foundation (RCF) – Conservation Education Centre**

**Objective/Mission Statement:** The main goal of RCF is to educate the people of Papua New Guinea to sustain the use of their natural resources and to ensure conservation of biodiversity using the Crater Mountains Wildlife Management Areas (CMWMA) model. In order to achieve this goal the objectives are threefold:

- Raise the education level of local landowners to move toward the independent management of Crater Mountains Wildlife Management Areas (CMWMA), Crater Mountain Projects
- Raise general public awareness on conservation issues
- Attempt to influence public policy by liaising with the various relevant government departments

**Field of specialisation:** environmental conservation, biodiversity and community development, and sustainable agriculture

**Number of staff:** 7

**Main location:** Goroka, Eastern Highland Province

**Branches, other site:** Sub centres are available at these other sites – Kundiawa, Mt Hagen and Lae.

**Annual budget:** K3 million

**Main source of funding:** Papua New Guinea Incentive Fund Project (PNGIF) (AusAID funded project for 3 years)

**Programmes/project undertaken:** Provides semester long course in environmental science to teachers at the University of Goroka and the Balob Teachers College.

**Target Audience:** PNG teachers (who are in the best position to teach PNG’s future resource owners of the importance of protecting natural resources.

**Extent of interaction with CTA:** None

**Extent of collaboration/interaction with other institutions (name, nature):** Two tertiary institutions have recognised the importance of conservation education and have entered into agreements with RCF to teach courses in conservation education to trainee teachers:

- **University of Goroka (UOG)** – The course “Environment and Conservation in Melanesia” was first introduced in 2001 and is offered to final year Social Science major trainee teachers. The course incorporates the Habitat Learning Programme (HELP) and local and global issues on the environment. UOG

trains teachers to go on to teach in secondary schools throughout PNG and neighbouring Pacific countries of Solomon Islands and Vanuatu.

- **Balob Teachers College** – A similar course; “Conservation in PNG” is offered to second year trainees at Balob Teacher’s College in Lae, Morobe Province. Balob Teachers College trains teachers who go on to work as primary school teachers in various schools in PNG.

**How information needs are met and from where:** the Christensen Research Institute in Madang donated the current collections. Other books are donated by external Board of Directors from overseas (USA, Canada). A budget is also provided through the Incentive Fund of Papua New Guinea (IFPNG). Video cassettes were purchased mainly from Skul bilong Piksa (PNG Film Institute).

**Main information needs not satisfied:** Reference books on sustainable agriculture to meet the needs of teachers who teach agriculture.

**Main information and communication problems:** Most of the staff recruited at the centre are graduates with environmental science and education degrees. Officers manning the sub-centres have grade 10 certificates. Most lack computer literacy and skills. Other centres do not have Internet and Email connectivity.

**Why institution selected as key:** This institution targets the teachers who will have a greater impact on the community because they deal directly with children and the community they teach in. Also one of the key factor with this institution is that the education centres serves as a community resource centres where teachers can bring in their students to have a first hand class activity sustainable agriculture among other things. RCF-Conservation Education Resource Centre Programme will have a greater impact on the rural community with adequate resources and can serve as a training centre for rural communities.

---

### **Liklik Buk Information Centre**

**Objective/mission statement:** To research and develop technologies appropriate to the needs of Papua New Guinea communities and to disseminate information to those communities and groups.

**Field of specialisation:** gathering and distribution point for information at ATCDI<sup>11</sup>. The centre publishes and distributes a variety of development materials, collects and exchanges information, maintains a small resource library. LLBIC distributes publications such as the famous Liklik Buk, Save na Mekim, Where there is no doctor, and various books on gardening, health, food, and many more.

**Number of staff:** 2.

**Main location:** Lae Morobe Province

**Branches, other sites:** None

**Annual Budget:** K40, 000 generated from book sales

**Main source of funding:** World Bank funded the Liklik Buk Project

**Programme/projects undertaken:** Revision of the Liklik Buk a development resource book for rural development workers;

**Target audience:** all those concerned with the development of PNG – farmers, development workers, health workers, women, youths etc.

**Extent of collaboration with CTA:** receive spore magazine, and books from AGROMISA

---

<sup>11</sup> Appropriate Technology and Community Development Institute

**Extent of collaboration with other institution (name, nature):** PNG University of Technology – houses the programme; Australian Volunteers International – supplied volunteer; Canadian Fund – funded publishing set (computers & accessories); Community Development Scheme – extended office space and computers; German Development Services – funded translation training

**How Information needs is currently met:** (1) Library; (2) Bookshop; (3) selected information research; (4) website

**Main information needs not satisfied:** (1) agriculture: weed and pest control, appropriate technology, new skills and technology; (2) health; (3) gender; (4) land use.

**Main information and communication problems:** (1) short staffed; (2) staff not sufficiently skilled; (3) lack of resources (library software)

**Why institution selected as key:** The Liklik Buk Information Centre is an information resource centre that publishes and distributes books on development and appropriate technology. This centre could also serve as a partner organization with CTA to support the distribution of appropriate technology information resources such as food processing technology, simple gardening techniques etc. It could also serve as a distribution points for other development books for CTA.

---

### **National Agricultural Research Institute**

**Objective/mission statement:** To contribute through applied research and technical services to the development of the agriculture sector and realisation of the national goals by identifying, adapting and transferring agricultural technologies and information on food crops, alternative cash and food crops, livestock and resource management so as to:

- Enhance the productivity, efficiency, stability and sustainability of smallholder agriculture, and
- Foster and contribute to the general improvement of farmer incomes, food security and the welfare of Papua New Guineans and the Nation of PNG.

**Field of specialisation:** agricultural research and development on staple crops (yams, taro, banana, sweet potato); grains and cereals (rice, wheat, maize); nuts (peanuts); spices (vanilla, pepper, turmeric); livestock (small ruminant such as pigs, rabbits, goat, sheep, chickens and ducks); and resource management (soil fertility, drought mitigation techniques)

**Number of staff:** over 103 spread throughout the five major locations and programmes

**Main location:** Five major locations – based on the agro-ecological zones of PNG: lowlands wetland at Bubia in Morobe Province; Lowland islands at Rabaul in East New Britain Province; Dry lowlands at Laloki in Central province; Main Highlands at Aiyura in Eastern Highlands Province and High Altitude Highlands in Tambul, Western Highlands Province.

**Branches/other sites:** NARI operates out of the main regional centres and travel to sites within each of the agro-ecological zones to undertake research based on site specific needs and the farming systems involved

**Annual budget:** 3 million kina (2003)

**Main source of funding:** government recurrent budget, AusAID (through its project ACNARS<sup>12</sup>).

**Programmes/projects undertaken:** Development of an Integrated Agricultural Information Systems (funded by ACNARS)

---

<sup>12</sup> Australian Contribution to a National Agricultural Research System

**Target audience:** smallholder rural farmers

**Extent of collaboration with CTA:** Receive Spore magazine (organization and by individuals within the organization, CTA publications such as annual reports and other books, SDI, CD-ROM subscription, QAS PNG sub-node,

**Extent of collaboration with other institutions (name, nature):** CTA (information supply); CABI (membership); APAARI (member, information supply, training); SPC (donor support, collaborative research projects); ACIAR (donor support for collaborative research projects); AusAID (donor support, training).

Coffee Research Institute (collaborative project – NARI integrated information systems database); PNG University of Technology (MOU for research and training); Ok Tedi Mining Ltd (research extension on taro breeding work);

**Information needs met, from where and by whom:** CTA (supplies information resource support for the organizations and individuals through its many information support services provided for ACP countries; FAO (distribution of publications through its FAO Publications Quota Distribution services)

**Main information needs not satisfied:** CTA has been generously supporting NARI through its various services and products as mentioned above. Recently, NARI also was given online access to AGORA facilitated by FAO.

One of the areas that might require CTA intervention is in the area of Extension Publications training and also in computer training skills.

**Main information and communication problems:** Most of NARI's main programme centres do not have LAN system and most staffs have no access to email. This has created a lack of networking with colleagues within the organizations and outside of the organization.

**Why institution selected as key:** NARI is the leading agricultural research institute in PNG. It currently collaborates with a lot of partner institutions in PNG and its main target audiences are the smallholder farmers.

---

### ***National Research Institute (NRI)***

**Objective/mission statement:** Undertake research into the economic, social, political, legal, educational, environmental and cultural issues and problems of Papua New Guinea and to formulate practical solutions to these problems.

**Field of specialisation:** The Institute focuses its research on the following areas:

- **Economic studies** – focuses on macroeconomic, microeconomic, and sectoral policies that affect national development
- **Education studies** – evaluation of all levels of education, with priority on critically assessing and reviewing the Government's ongoing education initiatives and development programmes
- **Political and legal studies** – focuses on research into governance and politics, provincial and local level governments and developments in crime level and crime prevention
- **Social and environmental studies** – focuses on a broad range of development issues including sustainable development, socio-economic impact studies, forestry activities, resource development, environmental and conservation studies, gender and population studies and human development indicators.

**Number of staff:** 24 professional staff with 5 support staff

**Main location:** Port Moresby, National Capital District

**Branches/other sites:** None

**Annual budget:** K2 million

**Main source of funding:** government support, support and sponsorship from regional and international agencies such as the World Bank, ADB, UNDP, UNEP, UNICEF, AusAID, JICA, the European Union, ACIAR and UNESCO, The Australian National University, GTZ and many others

**Programmes/projects undertaken:** see above (field of specialisation to give you a picture of the types of project undertaken)

**Target audience:** Government Policy makers

**Extent of collaboration with CTA:** None

**Extent of collaboration with other institutions (name, nature):** NA

**Information needs met, from where and by whom:** books are mainly purchased from overseas publishers with budgetary support from specific research funds.

**Main information needs not satisfied:** The needs are fairly satisfied supported by research funds for each research projects.

**Main information and communication problems:** Library does not have access to Internet

**Why institution selected as key:** National Research Institute provides guidance for the government in policy issues and intervention regarding agriculture, rural developments, socio-economic issues, health and education. These are the think tank of the government. Supporting NRI will provide better decision-making policies for the rural development sector of PNG.

---

### **Department of Agriculture and Livestock**

**Objective/mission statement:** To increase rural welfare by facilitating sustainable improvements in agricultural production systems and enhancing productive rural employment opportunities.

**Field of specialisation:** Agricultural Policy, Regulations and Monitoring (national DAL). Regional DAL focuses on research developments in collaboration with Provincial Division of Primary Industry (DPI)

**Number of staff:** its staff are scattered throughout the four regions of PNG but roughly over 200 staff

**Main location:** Port Moresby, National Capital District

**Branches/other sites:** Regional offices are located at the four major regional sites in PNG: Rabaul, Goroka, Lae and Port Moresby.

**Annual budget:** K8 million

**Main source of funding:** Government recurrent Budget

**Programmes/projects undertaken:** NA

**Target audience:** Rural farmers

**Extent of collaboration with CTA:** current CTA focal point for PNG, receives SPORE magazine, books points for its various staff.

**Extent of collaboration with other institutions (name, nature):** Other sister institutions such as the various NARS in PNG, the private sector as OK Tedi and Provincial DPIs within the country, through monitoring and evaluation of activities and formulation of policies.

**Information needs met, from where and by whom:** DAL being an apex ministry receives information support from donor organizations such as FAO, CTA and SPC

**Main information needs not satisfied:** The needs of its field staff scattered throughout the four regions of PNG are inadequately met. They do not have libraries and even the DAL central library has no network links with each of the four regional offices. Secondly there is no funding support for the central library. The printshop is also short of finance to keep it functioning. One approach DAL Printery has taken is to run the Printshop as a commercial entity.

**Main information and communication problems:** lack of human capacity, no internet and email access by the libraries, no network between libraries.

**Why institution selected as key:** National Department of Agriculture and Livestock is the Apex Agriculture Ministry in PNG. Agricultural policy issues are brought to the government through the Secretary for national DAL. With its key position in the country, any policy issues needed to be channelled through this department.

---

### **Coffee Industry Corporation – Research & Growers Services Division**

**Objective/mission statement:** The Coffee Industry Corporation has been formed to promote and support the continuing development of a soundly-based coffee industry in Papua New Guinea which will: (a) maximise financial returns to all coffee producers, and (b) contribute to the government's economic and social policy goals.

**Field of specialisation:** Mainly Research and Development on all aspects of coffee husbandry, breeding, soil management, processing, pest and diseases

**Number of staff: 82**

**Main location:** Aiyura Valley, Kainantu, Eastern Highlands Province

**Branches/other sites:** Mt Hagen Sub stations, Western Highlands Province and Lowlands sub-station at Omuru, Madang Province.

**Annual budget:** K4 million

**Main source of funding:** levies collected from growers

**Programmes/projects undertaken:** farmer training and extension, agronomy department, farm management and postharvest research, publications and information (including library)

**Target audience:** coffee-farming communities of PNG

**Extent of collaboration with CTA:** receives CD-ROM support (CAB Abstracts, AGRICOLA, TROPAG Rural), SDI support, Spore, PDS

**Extent of collaboration with other institutions (name, nature):** collaborating with NARI in developing the Integrated Agricultural Information System (as discussed in the document).

**Information needs met, from where and by whom:** CTA provides SDI, CD ROMs and document delivery services from which scientists within CR&GSD glean information to meet their research needs. Other sources are through the Internet from a standalone computer.

**Main information needs not satisfied:** farmers need simplified information on coffee husbandry, coffee processing and quality control. Most of the current information provided are too technical and do not meet the needs of the farmers.

**Main information and communication problems:** one computer with dial up access to DATEC ISD. Library has not email and Internet connection. Library has no specific budget.

**Why institution selected as key:** Research and Growers Services Division is the research and extension arm of the Coffee Industry Corporation. Its extension and research mandates covers all areas of coffee growing areas and includes over 400 000 households in PNG. Coffee also is the biggest cash crop export earner because of the number of households it encompasses. PNG produces quality coffee and improvement in the smallholder coffee farming community will boost the economy of PNG.

---

### **Cocoa and Coconut Institute**

**Objective/mission statement:** To engage in research, extension, promotion, marketing, administration, management and the control of the cocoa and coconut industries in PNG.

**Field of specialisation:** cocoa breeding, agronomy, quality, plant pathology, entomology; coconut breeding, agronomy and farming systems, downstream processing,

**Number of staff:** Not known

**Main location:** Tavilo near Keravat in East New Britain Province

**Branches/other sites:** Stewart Research station near Madang in Madang Province

**Annual budget:** K2million

**Main source of funding:** Government recurrent budget and from levies

**Programmes/projects undertaken:** Cocoa Research, Coconut Research, Industry Services, Commercial, and Corporate Services.

**Target audience:** cocoa and cocoa farming communities of PNG

**Extent of collaboration with CTA:** receives Spore, CTA annual report, PDS

**Extent of collaboration with other institutions (name, nature):** NARI, University of Vudal, ACIAR, Queensland DPI, University of Sydney, COGENT (coconut research), IFPRI (common funds for commodities)

**Information needs met, from where and by whom:** The institute has a good range of publications aimed at extension officers, and farmers including information bulletins, manuals and books. The various experts also are a pool of scientific knowledge that is imparted to the farmers upon request

**Main information needs not satisfied:** Not known

**Main information and communication problems:** Adequately supported with computers, and LAN system to be set up soon

**Why institution selected as key:** The Cocoa and Coconut Institute provides research on cocoa and coconut and disseminates this information to their farming clients. As the leading institution in cocoa and coconut research, they will form the information base for cocoa and coconut in the country.

---

#### Annex 4: Persons contacted

Nicks Maniha	Chief Information Officer Department of Agriculture and Livestock, PO Box 2033, Port Moresby, National Capital District Tel: (675) 321 4096; Fax: (675) 321 1387 Email: <a href="mailto:dalit@daltron.com.pg">dalit@daltron.com.pg</a>
Augustine Mobiha	Senior Management National Fisheries Authority 11 <sup>th</sup> Floor, Deloitte Tower PO Box 2016, Port Moresby, National Capital District Tel: (675) 309 0444; Fax: (675) 320 2061 Email: <a href="mailto:nfa@fisheries.gov.pg">nfa@fisheries.gov.pg</a> Website: <a href="http://www.fisheries.gov.pg">www.fisheries.gov.pg</a>
Rosa Koian	Information Manageress Liklik Buk Information Centre Private Mail Bag, Lae, Morobe Province Tel: (675) 473 4776; Fax: (675) 473 4303 Email: <a href="mailto:info@atcdi.unitech.ac.pg">info@atcdi.unitech.ac.pg</a> Web site: <a href="http://www.unitech.ac.pg/ATCDI/Index.html">www.unitech.ac.pg/ATCDI/Index.html</a> or <a href="http://www.ngo.org.pg/atcdi">www.ngo.org.pg/atcdi</a>
Lydia B Dori	Manager, Conservation Education Centre Research Conservation Foundation PO Box 958, Goroka, Eastern Highlands Province Tel: (675) 7323211; Fax: (675) 732 1123 Email: <a href="mailto:rcf@rcf.org.pg">rcf@rcf.org.pg</a> ; Web site: <a href="http://www.rcf.org.pg">www.rcf.org.pg</a>
Edward Edawi	Librarian Research and Growers Services Division Coffee Industry Corporation, PO Box 105, Kainantu, Eastern Highlands Province Tel: (675) 737 3511; Fax: (675) 7373524 Email: <a href="mailto:cofres@datec.net.pg">cofres@datec.net.pg</a> ; Web site: <a href="http://www.coffeecorp.org.pg">www.coffeecorp.org.pg</a>
Robert Lutulele	Manager, Technical Services Division Fresh Produce Development Company PO Box 958, Goroka, Eastern Highlands Province Tel: (675) 732 3356; Fax: (675) 732 3357 Email: <a href="mailto:fpdcgoroka@datec.net.pg">fpdcgoroka@datec.net.pg</a>
Denar Douglas	Librarian Forest Research Institute, PO Box 314, Lae, Morobe Province Tel: (675) 472 4188; Fax: (675) 472 4357
Roy Masamdu	Chief Plant Protection Officer National Agricultural Quarantine Inspection Authority (NAQIA) PO Box 741, Port Moresby, National Capital District Tel: (675) 311 2113; Fax: 325 1673 Email: <a href="mailto:naqia@dg.com.pg">naqia@dg.com.pg</a>
Information Officers at WLIP, DLP,	National Agricultural Research Institute PO Box 4415, Lae, Morobe Province Telephone: (675) 475 1444/ 1445/1446; Fax: (675) 4751450

WLMP, HAHP	Email: <a href="mailto:nari@datec.net.pg">nari@datec.net.pg</a> ; Web site: <a href="http://www.nari.org.pg">www.nari.org.pg</a>
Peter Maima	Director Monsiu Integrated Farming, Food Security Project PO Box 763, KUNDIAWA, Simbu Province Tel: (675) 735 1610; Fax: (675) 735 1020
Jimmy Soia	Chief Agricultural Officer Community Development Initiative Foundation Trust Fund 5 <sup>th</sup> Floor Pacific MMI, Champion Parade, PO Box 383, Port Moresby PNG Tel: (675) 321 3177; Fax: (675) 322 5535 Website: <a href="http://www.cdi.org.pg">www.cdi.org.pg</a>
Leon Saleu	Director, Highland Regional Department of Agriculture and Livestock PO Box, Goroka, Eastern Highlands Province Papua New Guinea Tel: (675) 732 xxxx; Fax: (675) 732 xxxx
	Chief Librarian National Research Institute, PO Box 5854, Boroko, National Capital District Tel: (675) 326 0300/ 326 0061/ 326 0079/ 326 0705 Fax: (675) 326 0213 Email: <a href="mailto:nri@global.net.pg">nri@global.net.pg</a> Web site: <a href="http://www.nri.org.pg">www.nri.org.pg</a>
Dr Lastus Kuniata	Head, Sugar Breeding Centre Ramu Sugar Ltd PO Box 2183, Lae, Morobe Province Tel: (675) 474 3270; Fax: (675) 474 3295; or 474 3239 Email: <a href="mailto:lkuniata@ramusugar.com.pg">lkuniata@ramusugar.com.pg</a>
Mrs Mawe Beka	President Morobe Women's Group PO Box 1468, Lae, Morobe Province Tel: (675) 473 1579; Fax: (675) 472 2347
Yati Bun	Director Foundation for People and Community Development (FPCD) PO Box 1119, Boroko, National Capital District Tel: (675) 325 8470; Fax: (675) 325 2670 Email: <a href="mailto:yati.bun@datec.net.pg">yati.bun@datec.net.pg</a> Website: <a href="http://www.fpcd.org.fj/png.html">www.fpcd.org.fj/png.html</a>
Regina Nukundj	Senior Livestock Officer Food Security Project PO Box 763, KUNDIAWA, Simbu Province Tel: (675) 735 1610; Fax: (675) 735 1020
Doris Omaken	Information Officer HELP Resources PO Box 1071, Wewak, East Sepik Province Tel: (675) 856 1615; Fax/Ph: (675) 856 1453 Email: <a href="mailto:help_info@global.net.pg">help_info@global.net.pg</a>

## **Annex 5: List of Abbreviations and Acronyms**

ACIAR	Australian Centre for International Agricultural Research
ACNARS	Australian Contributions to a National Agricultural Research System
ACP	African, Caribbean and Pacific
ADB	Asian Development Bank
AGORA	Access to Global Online Research in Agriculture
APAARI	Asia Pacific Association of Agricultural Research Institute
APEC	Asia Pacific Economic Cooperation
ATCDI	Appropriate Technology Community Development Institute
CBOs	Community Based Organisations
CCEA	Cocoa and Coconut Extension Agency
CCI	Cocoa and Coconut Institute of PNG
CDI	Community Development Initiative
CDS	Community Development Scheme
CIC	Coffee Industry Corporation
CMWMA	Crater Mountains Wildlife Management Area
CR&GSD	Coffee Research and Growers Services Division
CTA	Technical Centre for Agriculture and Rural Cooperation
DAL	Department of Agriculture and Livestock
DFZ	Declared Fishing Zone
DLP	Dry Lowlands Programme
EHP	Eastern Highland Province
FAO	Food and Agriculture Organisation of the United Nations
FM	Frequency Modulation
FORD	Foundation for Rural Development Inc.
FPDC	Fresh Produce Development Company

FRI	Forest Research Institute
GSP	General Systems Preference
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (Germany)
HAC	Highlands Agricultural College
HAHP	High Altitude Highlands Programme (under NARI)
ICT	Information Communication Technology
IFPNG	Incentive Fund of Papua New Guinea
JICA	Japan International Corporation Agency
KNR	Karai National Radio
LAN	Local Area Network
LDS	Lutheran Development Services
LLBIC	Liklik Buk Information Centre
MOU	Memorandum of Understanding
MSG	Melanesian Spearhead Group
MTDS	Medium Term Development Strategy
MW	Medium Wave
NAQIA	National Agriculture Quarantine Inspection Authority
NARI	National Agricultural Research Institute
NBC	National Broadcasting Commission
NFA	National Fisheries Authority
NGOs	Non-Governmental Organisations
NRI	National Research Institute
OPIC	Oil Palm Industry Corporation
OPRA	Oil Palm Research Association
P&CS	Planning and Corporate Services
PANGTEL	Papua New Guinea Telecommunication
PATCRA	PNG Trade and Commerce Relations Agreement

PDPI	Provincial Department of Primary Industry
PMC	Pacific Mobile Communications
PNG	Papua New Guinea
QAS	Question and Answer Services
RCF	Research Conservation Foundation
RRS	Renewable Resources Sector
SDI	Selective Dissemination of Information
SPARTECA	South Pacific Regional Trade and Economic Agreement
SPC	Secretariat of the Pacific Communities
SPF	South Pacific Forum
SW	Short Wave
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Education Science Cultural Organisations
UNICEF	United Nations International Children Education F
UNITECH	PNG University of Technology
UOG	University of Goroka
UOV	University of Vudal
USA	United State of America
VAT	Value Added Tax
VDT	Village Development Trust
VEW	Village Extension Workers
WLIP	Wet Lowlands Islands Programme
WLMP	Wet Lowlands Mainland Programme

**Currency Exchange Rates**

**PGK 1 = US\$0.31**

**PGK 1 = Euro 0.2403**