RESEARCH PRIORITIES FOR THE AGRICULTURE, FORESTRY AND FISHERIES SECTORS IN THE PACIFIC SUB-REGION: A SYNTHESIS*

Synthesised By

R.D. Ghodake

*** Revised Version of the Synthesis Paper Presented at the Sixth Executive Committee Meeting of APAARI and Expert Consultation on ARD Priority Setting, 12-14 November 2001, Bangkok, Thailand**

This paper is based on the presentations of the country papers/notes and deliberations at the Workshop on Research Priority Setting in the Agriculture, Forestry and Fisheries Sectors in the Pacific Sub-Region, held from 28 to 30,October 2001 in Nadi, Fiji. The paper synthesises the workshop notes prepared by Ms. Christina Tuitubou and Mr. Stephen Hazelman of SPC, and the workshop report prepared by Mr Timothy Healy, and incorporates a section on the feedback obtained from the APAARI Expert Consultation on ARD Priority Setting, in Thailand.

Contents

Contents

RESEARCH PRIORITIES FOR THE AGRICULTURE, FORESTRY AND FISHERIES SECTORS IN THE SUB-PACIFIC REGION: A SYNTHESIS

1 Introduction and Background

1.1 Introduction

Research is an important integral part of the planning and development in the agriculture, forestry and fisheries sectors in the Pacific Island Countries and Territories (PICTs). Many research activities in the past have been conducted in the Pacific, and their findings have influenced decision making in policy and development. If properly prioritised, designed and executed, research has high potential in contributing to and realisation of sustainable development, socio-economic growth and welfare of people in the Pacific region. It can also greatly enhance individual country's ability and capacity to provide guidance for policy and future development in respective sectors.

In order to be efficient and effective, research should provide solutions to priority constraints and problems, and must explore new opportunities, which lead to development and to contribute to welfare of people. Therefore, research issues and areas need be prioritised, based on the development needs and aspirations of nations and stakeholders (rural community, in general).

1.2 Background

- The Asia-Pacific Association of Agricultural Research Institutions (APAARI) during its Sixth General Assembly Meeting, in November 2000 resolved to begin implementation of APAARI vision 2025 (APAARI 2000a). As part of this process, the Association decided to revisit the regional and sub-regional research priorities that were formulated in 1996 (APAARI 1996). The need was to integrate additional and new considerations, and to systematically undertake the research priority setting exercise by incorporating needs of the key stakeholders and nations within various sub-regions of the Asia-Pacific region.

- The research priority setting exercise was also considered to be of paramount importance by all sub-regional and regional fora and by a number of leaders of NARS at the meetings of the Global Forum on Agricultural Research (GFAR), held in Dresdan (May 2000) and Washington (October 2000). At the same time, the International Agricultural Research Centers (IARCs) under the Consultative Group on International Agricultural Research (CGIAR), during their Durban meeting in May 2001, approved and accepted Plank 4 of the new vision and strategy that called for the adoption of collaboration with national and regional partners and of a regional approach to research planning, priority setting and implementation (TAC 2001).

- The Secretariat of the Pacific Community (SPC), through its regular Regional Technical Meetings for the respective heads of these three sectors namely; the Permanent Heads of Agriculture and Livestock Production Services (PHALPS); the Permanent Heads of Forestry (PHOFO) and the Permanent Heads of Fisheries (PHOFI) has established the critical importance that research plays in each country and territory's planning and responds to many of the challenges affecting these three

- sectors. Theses meetings of the most senior officials also articulate the development issues most affecting theses respective sectors and the research needs to address them.

- The Australian Centre for International Agriculture Research (ACIAR), has been pro-active in the region and has funded a number research projects in agriculture, forestry and fisheries at both the national and regional levels in the Pacific region. ACIAR showed keen interest in supporting a research priority setting exercise in the region.

- Consequently, APAARI accorded high priority for the research priority setting exercise during 2001 for the sub-regions of the APAARI region (i.e. for South-West Asia, South-East Asia and the Pacific) and to further synthesize, refine and develop priorities for the Asia-Pacific region. The Association asked the PNG National Agricultural Research Institute (NARI) to co-ordinate this exercise for the Pacific region and requested support and collaboration from SPC and ACIAR and various regional and international organizations in the Pacific region.

2 Priority Setting Exercise in the Pacific Sub-Region: A Framework

A framework was developed by modifying the priority setting methodology used by CSIRO in Australia, and by using the experiences gained in developing research priorities in Papua New Guinea (Ghodake et al. 2001). The framework outlined the approach and process, and methodology for assessing, synthesizing and developing priorities and strategic directions for research in the sub-sectors of agriculture (crops and livestock), forestry and fisheries for the Pacific sub-region.

2.1 Purpose and Objective

The purpose of the priority setting exercise was to develop research priorities, and determine strategic directions in the sub-sectors of agriculture (crops and livestock), forestry and fisheries for the Pacific sub-region. Such sub-regional priorities were to be considered and incorporated into an equivalent set of strategic directions and research priorities for the Asia-Pacific region at the forthcoming APAARI regional meeting in November 2001. This analysis would provide input into ongoing development of research programmes of the International Agricultural Research Centers (IARCs), the National Agricultural Research Systems (NARS), and regional initiatives by regional and international organisations, and would form a basis for consideration by donors of resource requirements.

The objective of the priority setting exercise for the Pacific sub-region was to identify and assess research problems and research issues within specified areas of research opportunities, which would then be prioritised within each of the sub-sectors. The basic premise is that appropriate research, if it addresses these problems/issues successfully, will most effectively contribute to the improvement of the productivity and sustainability of the existing (given) production systems, development of new options and opportunities, and improvement of the quality and quantity of natural resources base. Ultimately, this should contribute to the overall economic and social well being of communities in the countries and the Pacific sub-region.

2.2 Expected Outputs

The key expected outputs of the priority setting exercise were to provide:

i) research priorities and strategic research directions for the Pacific-sub-region as a basis for developing research priorities for the Asia-Pacific region;

ii) a basis for developing networks, partnership and funding arrangements between and among (NARS), sub-regional and regional organizations, and the IARCs;

iii) strategic national research directions and priorities for the participating and representative countries in the Pacific sub-region; and

iv) systematic approach, process and methodology for deciding research focus and allocation of research resources within individual countries and within the Pacific sub-region.

2.3 Steps in Priority Setting

The priority setting exercise in the Pacific sub-region involved the following three major steps:

a) assessment of research problems and research issues by selected representative participating countries of the Pacific sub-region;

b) synthesis of material and information from existing strategies, programmes and documents available from various forums and meetings relevant to the sub-region; and

c) deliberations and outcomes of a consultation workshop held in October 2001.

2.4 Participation of Countries

Ten countries in the Pacific region, namely**, Papua New Guinea, Vanuatu, Solomon Islands, Fiji, Tonga, Samoa, Kiribati, Tuvalu, Palau and New Caledonia** were invited to participate in the exercise. These countries have various capacities in research and development in the Pacific sub-region, and represent broad agro-ecological / land forms and conditions, such as high hard rock, low-lying hard rock, uplifted coral, and atolls. One to two representatives (called national participants) from each of the participating countries were requested to assess research problems and research issues, and prepare documents for discussion and synthesis at the consultation workshop.

2.5 Assessment of Research Problems/ Issues in Participating Countries

The national participants from each of the participating countries were asked to assess research problems and research issues within broad areas of research opportunity for the sub-sectors - agriculture, forestry and fisheries. The premise was that such research issues and problems, if addressed successfully through appropriate research, could effectively address sectoral development issues and national development issues in the respective countries.

To assess research problems / issues and, therefore, the areas of research opportunity, the following steps/ guidelines were developed.

2.5.1 Deciding areas of research opportunity

It was necessary to identify those areas of development within each of the sub-sectors for which the constraints were amenable to resolution through research and for which the benefits of that research can flow in order to achieve a development impact. Such areas are called "Areas of Research Opportunity" (ARO)[1]. Therefore, any research problems/issues and emerging research responses, for addressing issues of development, can be clearly identified within these areas.

The first essential step was to identify and decide the areas of research opportunity that were appropriate to individual countries and the region. Table 1 provides a broad (and preliminary) list of areas of research opportunities within the three sub-sectors.

Table 1. Areas of research opportunity within sub-sectors of agriculture, forestry and fisheries in the Pacific Region

Sub-Sector	Main Research Area	Area of Research Opportunity
Agriculture	1. Crops	1.1 Field crops
		1.2 Plantation crops
		1.3 Emerging crops
	2. Livestock	2.1 Ruminants
		2.2 Pigs
		2.3 Poultry
Forestry	3. Forestry	3.1 Natural forests
		3.2 Tree plantations
		3.3 Agroforestry
Fisheries	4. Fisheries	4.1 Aquaculture
		4.2 Mariculture
		4.3 Pelagics
Common Area	5. Natural Resources Management	5.1 Soil and land
		5.2 Water
		5.3 Coastal/Marine
Common Issues	6. Common Issues	6.1 Information
		6.2 Economics
		6.3 Policy

Note: Genetic resources are included under respective areas of research opportunity as are aspects of system management such as crop protection, livestock health, agronomy, husbandry, silviculture, etc.

If there was any other important area, which is exclusive and is not covered under the above list of the areas, then such separate area might be specified and included as an additional area of research opportunity. Some countries may not need to cover all these areas, as some of these areas may not be relevant. Therefore, individual national participants were free to modify, reduce or expand the list the areas as appropriate in the context of their country situation, and for the purposes of the priority setting exercise.

[1] *The areas of research opportunity are mutually exclusive, collectively exhaustive, consistently grouped and based, forward looking and manageable in number. It is also important that these areas are independent of mandate of any research/development agency, not necessarily discipline-based, and can reflect benefits of successful research.*

2.5.2 National development scene

In order to appreciate the importance and significance of areas of research opportunity, it is necessary to paint a broader national development scene. This may include national gross domestic product (GDP), sub-sectoral GDP, current status of ARO in terms of production, area, trend, prospectus, and ARO's share in the national economy, GDP, employment and environmental impact/ concerns, if any.

Most of this information may come from national statistics and secondary (published or unpublished) papers and data sources. How much details one goes into will depend on the extent to which such information is readily available from secondary sources and the level of resources and time available for the task.

The scene may also present local variations, if any, within the country to capture and reflect different and distinct agro-ecosystems. However, this will depend on the degree and magnitude of differences in agro-ecological and socioeconomic factors and, therefore, correspondingly different research issues and problems. Most small countries in the Pacific sub-region may not need to consider such local distinctions and characterization.

2.5.3 National development issues

One can use the national development scene and secondary sources of information, and apply a standard method of SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats Analysis) to identify and assess constraints to and opportunities for development, in general, and development in the above sub-sectors, in particular. There may also be a need to have some perspective of institutional setting; reflecting ability and capacity of organizations, infrastructure, extension providers, and programme implementation, etc. which influence the development of the sub-sector. The outcome of this assessment can lead to the identification of key development issues in these sub-sectors.

Although preferable to present as much quantitative information as possible, it is reasonable to provide qualitative statements and assessments. Any background SWOT analyses should be included with the basic information and background data.

2.5.4 Research problems/ issues

It is important to make further assessment and identify research problems / issues that can address the development issues so identified. Such identified research problems/ issues may be addressed through appropriate research and technological advances within individual areas of research opportunity of the sub-sectors. It should be noted that some development issues may not be addressed through research and, therefore, may require different interventions and may need to be taken into account in the assessment of likelihood of adoption.

Some research issues may be broad issues of national importance while others may be more localized within the country but still issues of national importance. Both can figure in this assessment.

2.6 Existing Material and Information

The following material and information were available for consideration.

1. FAO documents and Commission reports on development issues in the sub-region for agriculture, forestry and fisheries

2. Papers and documents of South Pacific Commission (SPC)
3. Reports, minutes and resolutions of various meeting of the Permanent Heads of Agriculture Livestock Production Services (PHALPS), Permanent Heads of Forestry (PHOFO), and Permanent Heads of Fisheries (PHOFI) in the Pacific sub-region
4. Medium term plans of International Agricultural Research Centers
5. Regional aquaculture strategy developed from the SPC/ICLARM/ACIAR review of aquaculture in the Pacific
6. Plant genetic resources meetings Lae (ACIAR) March 1999 and Suva (SPC) in September, 2001
7. Documents and reviews of various networking projects, such as Tarogen, Taro Beetle, SPRIG, Yam Network (SPYN), Plant Genetic Resources, Fruit Fly, etc.
8. Research Priorities developed by the Asia-Pacific Association of Forestry Research Institutions (APAFRI) in early September, 2001
9. Recently completed COGENT review on coconut
10. Perspectives of donor agencies such as AusAID, ACIAR and NZODA
11. Perspectives of regional agencies such as SPC, FAO and USP

3 Assessment of Research Areas and Research Issues

3.1 Assessment Criteria

Having identified research problems/issues, the next step is to undertake an assessment of these areas and issues within each area of research opportunity.

The basis may be to realize the objective of maximizing returns (from research investment) to the nation in terms of increased production, productivity, income, employment, assured food and nutrition security, improved quality and quantity of natural resources, and all, collectively and/or individually, leading to sustainable development and socio-economic growth.

To reflect this objective in the assessment process, the research areas and issues can be assessed by using the following portfolio criteria, which are mutually exclusive and independent. These are 1) potential benefit, 2) adoption likelihood, 3) scientific potential and 4) research capacity. The assessment can be quantitative and/ or qualitative.

3.1.1 Potential benefits

The potential benefits can be in terms of extent of economic and social impact, extent of environmental impact and enhancement of research capacity. This will refer to research problems/ issues to be addressed, size and scope of the problem /or opportunity to be addressed, and nature of benefits arising[2].

Potential benefits increase with larger size of the area, faster growth, greater reduction in costs, higher research intensity, greater and positive environmental and social impact, and greater spillover benefits.

[2] *Benefits of research /innovation may be of the following nature:*

1. increased production/expanded production,
2. increased productivity of resources/inputs,
3. reduced cost per unit of output,
4. increased cash income,
5. increased employment and utilization of resources/inputs,
6. improved sustainability/reduced degradation of resources, and
7. assured food security/improved nutrition/reduced risk.

3.1.2 Adoption likelihood

This will cover probable users of likely research outputs and services, past performances in adopting similar results, and major impediments and inducements to uptake outputs. Specific points to be covered are appropriateness of technology, uptake events and directness of impact, capacity to use/adapt and deliver, capacity of extension and other service providers, and impediments/incentives to uptake. Some of the strengths and opportunities assessed earlier may be inducement for adoption, while some of the weaknesses and threats may be impediments to adoption.

Adoption likelihood improves with the faster adoption rate, more favorable government policies and regulations, higher research intensity and level of innovation, and higher international competitiveness in trade.

3.1.3 Scientific potential

This can consider the availability of tools and techniques/ scientific advances, existence and availability of relevant disciplines/networks not only in the country but also in the Pacific sub-region and globally, and probability of success in achieving research results (research risk), and time to produce research outputs.

Scientific potential becomes higher with faster rate of change in relevant disciplines, greater likelihood of scientific advance, better research tools and techniques, and higher ratio of basic and strategic research to applied research.

3.1.4 Research capacity

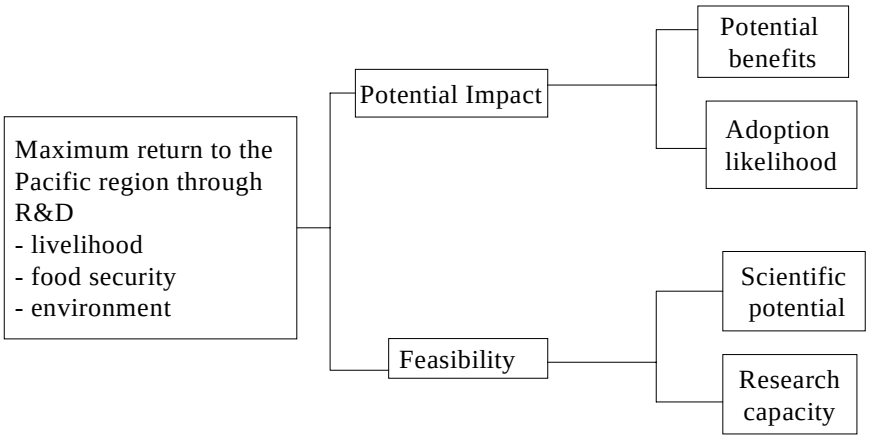
This accounts for and reflects the research/technical skills/quality and breadth of skills, critical mass of efforts, financial support, and quality of research infrastructure and support. It should take into account capacity and ability of organizations, networks and collaborative arrangements that are/or may be involved in the country or, to an extent, in the sub-region, and the capacity to access global knowledge.

Research capacity improves with the quality and breadth of skills available, ability to put together high performing research teams, efficiency of running research, quality of infrastructure, equipment and information systems, and quality and efficiency of support staff.

3.2 Priorities Framework

Diagram 1 shows the framework for assessing priorities.

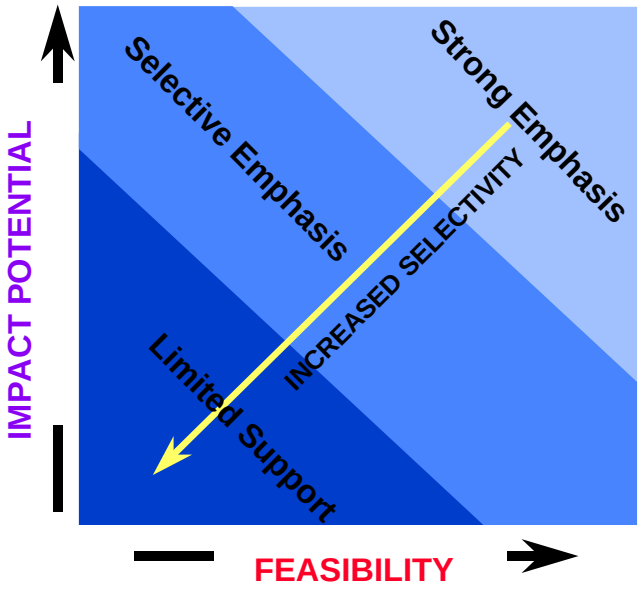
Diagram 1. Priorities Framework



3.3 Selectivity in Research Emphasis

The following diagram (Diagram 2) shows the priority setting, as assessed on the basis of two main criteria, i.e. impact potential and feasibility; and their approximate relationship to the level of selectivity and emphasis.

Diagram 2. Selectivity of Research Investment



Highest priority is assigned to high impact and high feasibility research areas, and that appears in the right hand side top corner of the diagram; lowest priority is assigned to low impact and low feasibility research area and that appears in the left hand side bottom corner of the diagram. Strong emphasis is then placed on the highest priority areas while more limited support is considered for the lowest priority areas. As one moves from highest to the lowest priority areas, increased selectivity is exercised in deciding on research projects and programmes within these lower priority areas; lower priority does not imply lesser importance.

4 Regional Workshop in the Pacific

4.1 Organisation of the Workshop

1. The Sixth General Assembly Meeting, in November 2000 of the Asia-Pacific Association of Agricultural Research Institutions (APAARI) resolved to revisit the regional and sub-regional research priorities that were formulated in 1996. As per that decision, Dr R.S. Paroda, Executive Secretary of APAARI requested Dr R.D. Ghodake of PNG National Agricultural Research Institute to co-ordinate ARD priority setting exercise in the Pacific region[3] with support and advice from Dr Ian Bevege, Principal Adviser of ACIAR.

2. Dr R.S. Paroda provided backstopping support by encouraging the organisers and organising funding and necessary logistical support for this exercise.

3. Dr Ian Bevege made very crucial and timely contribution in getting co-operation and participation all the collaborative organisations and institutions and by arranging funding support from ACIAR, participation of Dr John Fryer – Research Programme Manager - Forestry Sector (who had also participated in the APAFRI priority setting meeting), and workshop facilitation by Mr Tim Healy of CSIRO.

4. Dr Jimmie Rodgers – Senior Deputy Director-General of SPC, presided over the organisation of the workshop and overseen formal announcements, invitations, travel, accommodation, and all other logistical arrangements, through various SPC staff.

5. Mr Tim Healy facilitated the workshop in contributing to the development of the framework document, developing the workshop structure, and co-ordinating and overseeing the workshop deliberations, which included presentation of country papers, synthesis of available materials and documents, working groups, plenary session, reporting and evaluation.

6. Dr R. Ghodake co-ordinated the entire exercise by initiating contacts with countries, SPC, and other institutions/organisations, organising funds, leading the preparation of the framework document, serving as resource person and arranging workshop deliberations, and preparing the workshop proceedings (including this synthesis).

7. Ms Susan Why of PNG NARI provided initial logistical and secretarial support in PNG, while in Fiji, necessary logistical and facilitation were provided by Ms. Christina Tuitubou and Mr. Stephen Hazelman in taking workshop notes, by Ms. Agnes Rigamoto in providing secretarial services, and by Ms. Laisa Tigarea in making all logistical arrangements.

[3] *The Pacific region is one of the three sub-regions of the Asia-Pacific Region for the priority setting exercise, the others being the South-West Asia, and South -East Asia for this exercise.*

8. Funds were provided by APAARI, ACIAR, SPC, AusAID - ACNARS Project, and NARI and in-kind services were provided by SPC and PNG-NARI.

4.2 General Information and Structure of the Workshop

SPC announced the workshop and formally invited countries, individuals and institutions to the workshop. A workshop structure and programme was drafted and kept flexible to accommodate suggestions and adjustments as needed during the workshop. The final structure and programme that was used by the workshop is given in Appendix 1.

4.3 Participation at the Workshop

Representatives of ten countries namely**, Papua New Guinea, Vanuatu, Solomon Islands, Fiji, Tonga, Samoa, Kiribati, Tuvalu, Palau and New Caledonia** participated in this exercise in the sectors of agriculture, forestry and fisheries sectors, by preparing and presenting papers, and participating at the workshop and working group sessions. Key regional and national organisations - SPC, FAO, IAC/CIRAD, ACIAR, and APAARI - participated through their experts and managers.

In total 36 participants from 10 countries and five regional and national organizations (mentioned above) participated in the workshop (List of participants is given in Appendix 2). There were 18 participants from 10 countries representing the sub-sectors of agriculture, forestry and fisheries Fourteen SPC experts with specialisations in the areas of policy, agriculture, forestry, fisheries, livestock, anima health, pest and disease management, economics, and information and library participated in the workshop (Details in Table 2).

The country representatives presented 15 papers/statements highlighting important development and research issues, generating priority research areas in each of the countries. A number of papers and documents prepared by SPC and other regional organizations were considered by the participants while deliberating at the workshop (List of country papers and material is given in Bibliography in Appendix 3).

4.4 Opening Session

The workshop began at 17.00 hours on the 28th of October 2001 with welcome address by Dr Jimmie Rodgers who introduced the subject of research priority setting in the agriculture, forestry and fisheries sectors in the Pacific and emphasised the importance of priority setting to realising the development and policy formulation. Dr Rodgers welcomed all to Fiji, acknowledged efforts of the three organizations that were organising and sponsoring the Workshop – ACIAR, APAARI, and SPC. Noted was the importance of getting all three sectors together and setting priorities in these three sectors, i.e. fisheries, forestry and agriculture. Mr Jay Kumar, Vice-Chairman of APPAARI, made an opening statement (reproduced in Appendix 4).

Table 2. Sub-sector wise participation by countries and organisations

No.	Country/Organisation	Sub-Sectors			No. of Participants
		Agriculture	Forestry	Fisheries	
1	Papua New Guinea	*** (1)		*** (1)	2
2	Vanuatu	*** (1)	***(1)	***(1)	3
3	Solomon Islands	*** (2)			2
4	Fiji	*** (2)	***(1)	***(1)	4
5	Tonga	*** (1)			1
6	Samoa	***(1)	***(1)		2
7	Kiribati	***(1)			1
8	Tuvalu	***(1)			1
9	Palau		***(1)		1
10	New Caledonia	***(1)			1
	Organizations				
1	SPC	***(12)	***(1)	*** (1)	14
2	IAC/CIRAD	***(1)			1
3	FAO/Sub-Regional Office	***(1)			1
4	ACIAR		***(1)		1
5	APAARI	***(1)			1
15	**Total**	**26**	**6**	**4**	**36**

Note: Figures in parentheses indicate number of participants under each of the sectors from various countries and organisations.

4.5 Workshop Deliberations

Mr Tim Healy, Facilitator was then welcomed, introduced and requested by Dr Jimmie Rodgers to take over the proceedings of the Workshop, which had the following four main objectives.

1. Provide research priorities and strategic research directions for the Pacific sub-region to contribute to priorities for Asia-Pacific region.

2. Provide basis for developing networks, partnership and funding arrangements.

3. Provide national research directions and priorities for participating countries.

4. Develop a systematic approach to deciding research priorities for countries in the sub-region.

The workshop was structured to achieve the above objectives by working on the following topics.

1. Introductions and expectations of the participants.

2. Developing and understanding the region and its aspirations.

3. Distilling the regional issues for the three sub-sectors and major areas.

4. Assessing the priority of the issues in each of the sub-sectors and areas.

5. Developing implementation strategies for the sectors.

6. Developing a brief follow-up action plan.

The ensuing section (section 5) provides a synthesis of the workshop deliberations and the emanating research priorities and strategic directions in the Pacific Region.

5 Research Priorities and Strategic Directions in the Pacific Region[4]

5.1 Understanding the Region

The participating countries provided a brief overview of their respective priorities, outlining

a) the main development issues for the agricultural, fisheries and forestry sectors,
b) national aspirations for these sectors, and
c) most important drivers influencing the achievement of these national aspirations – 1) external to the country and 2) internal to the country.

5.1.1 Most important features in the region

The most important features of the agricultural, fisheries and forestry sectors in the region included:

1. The countries have very diverse environments, resources, production systems, capabilities and cultures coupled with changing life styles;

2. There have been changing national policies in recent times, without consistent and consequent policies for these three sub-sectors;

3. In general, most countries lack systematic planning and prioritisation in these sub-sectors.

4. There are limited skilled human resources, inadequate infrastructures and lack of relevant information and access to wider information systems;

5. The countries are concerned about sustainability of environment and resources, and these sectors are highly vulnerable to the weather and environmental factors;

6. The countries have poor access to export markets and face declining prices for export commodities;

7. There is a multiple and complex ownership of resources and land tenure arrangements, with dominance of small traditional subsistence and semi-subsistence farmers and fishermen;

8. The region is resource rich but income poor, with income disparities among and within countries and their peoples; and

[4] *The research priorities and strategic directions presented here are based on initial draft workshop report prepared by Mr Tim Healy and the detailed notes taken by two rapportuers - Ms. Christina Tuitubou and Mr. Stephen Hazelman (of SPC) whose painstaking efforts are highly appreciated and sincerely acknowledge with grateful thanks.*

9. The region is heavily influenced by external donors and organisations, and resource rent seekers, particularly in forestry and fisheries.

5.1.2 Aspirations of the region

The aspirations of the Region are:

1. Alleviation of poverty among the rural population;

2. Improved food security, food safety and quality, incomes and employment;

3. Sustainable development of sub-sectors and of rural based industries;

4. Prevention of the urban drift by improving the standard of living in the rural areas, resulting from maximizing current income and not future income;

5. Improved information access and literacy;

6. Improved market access, processing, value adding and quality;

7. Increased need and desire to export and participate in the international markets;

8. Capturing indigenous knowledge for food security and to maintain viability of local communities;

9. Improved capacity in research, development and extension;

10. Integration of indigenous crops and knowledge in research practices;

11. Regional collaboration and research coupled with local ownership and participation;

12. Development and implementation of regional collaboration and co-operation in research and development; and

13. Control and management of plant and animal diseases.

5.1.3 Most important drivers for the sectors in the region

The most important drivers for theses sectors in the region are:

1. Increased poverty exacerbated by rising population growth, low rates of economic growth and reduction in the standard of living;

2. Socio-cultural obligations inhibiting individual enterprises;

3. Land tenure and resistance to reforms;

4. Poor public health services particularly in rural areas;

5. Low local capacity of human resources in accessing information;

6. Participation by in-country stakeholders;

7. Highly fluctuating and uncertain international commodity prices;

8. Funding from Government and level of Government investment in rural development;

9. Government policies and implementation of legislation and regulations;

10. Political instability,

11. Regional research and development organisations;

12. Influence of external aid donors and their leverage through funding conditionality;

13. International treaties and conventions;

14. Impact and influences of WTO and globalisation; and

15. Sustainability of the environment.

5.2 Regional Research Issues

The issues were synthesised within six groups of research areas (four commodity areas and two common areas) by using country papers, already available material in the region, prepared by SPC, AusAID, FAO, and others as primary information sources. The considered issues included those important for most countries, those important for several countries, major issues of importance to one country. The six groups were:

1. Crops
2. Livestock
3. Forestry
4. Fisheries
5. Natural Resource Management
6. Cross-cutting issues, especially in the areas of information, economics, and policy

Table 3.1 Major research issues and broad research topics - crops

Research Issues	Broad Research Topics
1. Value adding	Post-harvest operations, processing, storage, packaging, transportation, grading and quality improvement
2. Markets and marketing	Size of demand, quantity and quality, responses, processes, efficiency, market studies
3. Sustainable agriculture	Resources degradation, soil and land management, productive capacity of environment, use of pesticides and fertilisers, nutrient management
4. Plant genetic resources	Conservation, management, utilisation, improvement, improved nutritional value, breeding, increased yield, off-season production, protection of sovereign rights
5. Drought and salinity tolerance	Soil, water and crop management, variety tolerance to environmental stress, atolls
6. Pest and diseases	Resistance/tolerance of material, IPM, ICM, biological control, plat derived pesticides
7. Accessibility and Utilisation	Off-season and prolonged production and seasonality
8.Integration with livestock	Crops, livestock, and aquaculture integration

Note: Numbers assigned to research issues are just to reflect the count and not to suggest any priority ranking of these issues.

The issues were then distilled within each of the six categories into broad research topics within research areas that were amenable for priority setting, i.e. mutually exclusive, collectively exhaustive, consistently grouped, forward looking, manageable in number (Tables 3.1 to 3.6).

Table 3.2 Major research issues and broad research topics - livestock

Research Issues	Broad Research Topics
1. Human resources	Skilled human resources for management and development, technical skills, consumption attitudes
2. Feed formulation	Nutrition, feed formulation, locally available ingredients / resources
3. Pests and diseases	Health - diseases and pests
4. Management and husbandry	Management, husbandry, quality of outputs, preservation, productivity and efficiency
5. Animal waste management	Chemical residue, integration of animal waste in crop production
6. Zoo noses – animal/human diseases	Human diseases caused by animal handling, exposure to animals, novel diagnostic tests
7. Integration into sustainable agriculture	Integration with crops/ farming systems, manure, draft
8. Livestock improvement	Genetic material/ introduction, improvement, selection (but no breeding)

Table 3.3 Major research issues and broad research topics – forestry

Research Issues	Broad Research Topics
1. Reforestation/ Aforestation	Use of native species, sustainability of production and harvesting systems
2. Timber utilisation	Improvement and use of Lesser Known Species (LKS), timber properties, preservation (improving durability), seasoning, processing and use of coconut timber, value adding processing
3. Forest health	Quarantine, invasive species, pest and disease management
4. Non-timber forest products	Management, husbandry, properties, quality of outputs, and preservation (improving durability)
5. Agro-forestry	Sustainability of atolls through agro-forestry and other land management practices; integration of agriculture with silivculture.
6. Integrated land use	Integration of forestry with livestock, cropping, fisheries
7. Forest product marketing	Production and marketing systems
8. Felling/cutting cycle	Inventory, growth, yield and policy issues, clearing for farming, sustainable management, silvicultural systems

Table 3.4 Major research issues and broad research topics – fisheries (aquaculture and coastal fisheries)

Research Issues	Broad Research Topics
1. Aquatic bio-security	Assessment of risk and coping ability, diseases, quality and environmental friendliness, introduced species, impact assessment
2. Reef fishery status assessment	Status of reef fisheries, inventory and stock assessment, assessment of high value species, outreach and communications of results
3. Sustainable catch rates	Sustainability and wild catch resources management
4. "Turnkey" aquaculture systems	Narrowing down systems/farming systems to a limited range for national promotion
5. Standards assurance	Certification, quality assurance, sustainable export standards
6. Integration of reef management with government systems	Networking and shared management methods, harmonised legislation, resources owner reef management and government management system, policy development, foreign vessels monitoring systems
7. Aquaculture feeds and feeding	Feed especially proteins, fish pen culture, local alternatives, feed distribution, waste and disease management, poly-culture

Table 3.5 Major research issues and broad research topics – natural resource management

Research Issues	Broad Research Topics
1. Integrated natural resource management	Integrated systems involving agriculture, forestry, fisheries and maintenance of natural ecosystems
2. Farming systems	Sustainable agriculture interaction between bio-physical, economic and socio-cultural factors/ environments
3. Soil fertility	Soil and land management, fertility management/maintenance
4. Water management	Soil water conservation, irrigation, atolls
5.Environmental degradation	Management of nutrients, soil physical degradation, soil and water pollution, restoration of depleted nutrients, increased bio-diversity
6. Waste management	Management and assessment of farm and municipal waste, composting of municipal and farm waste, composting Bioremediation

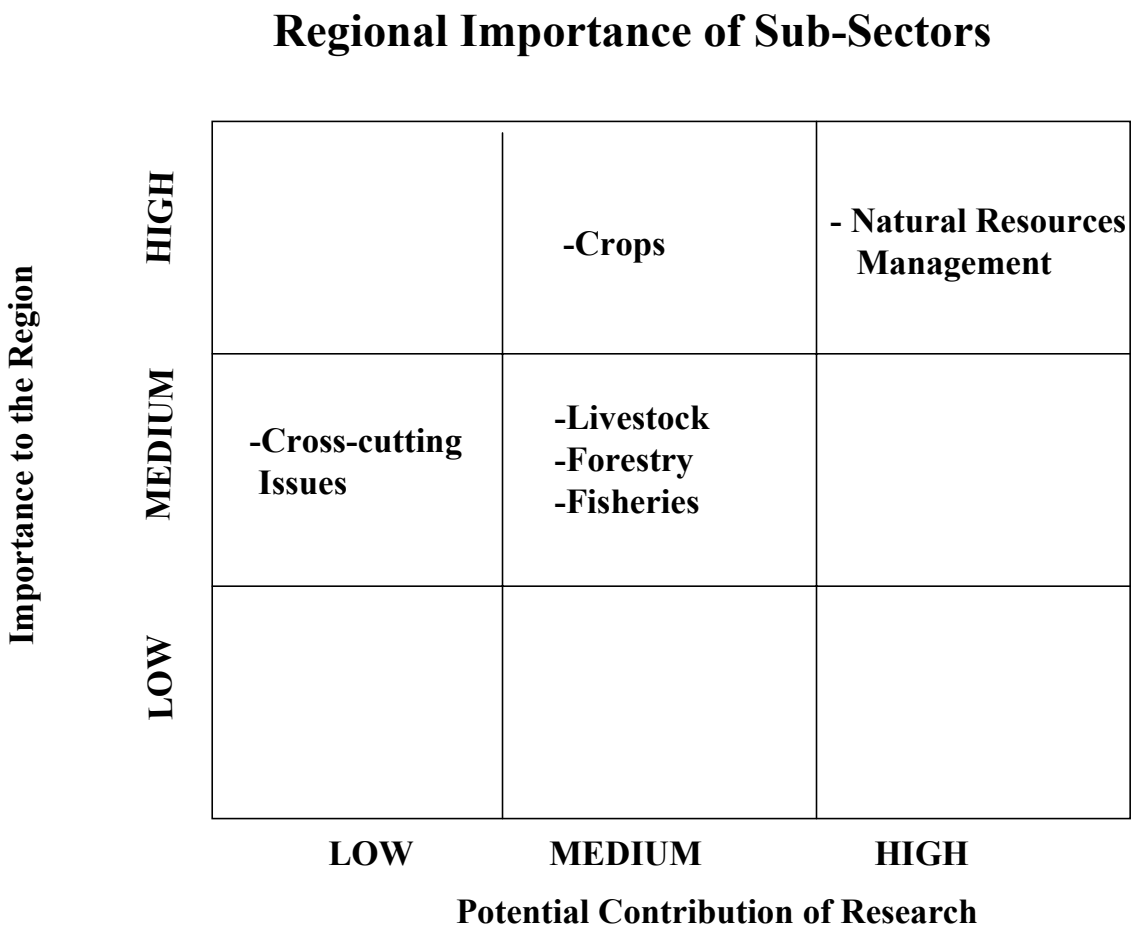
Table 3.6 Major cross cutting research issues and broad research topics

Research Issues	Broad Research Topics
1. Information packaging, access and use	Assessment and development of access, use and dissemination of information – effective management and dissemination
2. Supply and demand analysis	Supply and demand, analysis and estimation, markets and marketing systems research (industry analysis)
3. Production and marketing economics	Cost-benefit analysis, and cost-price analysis (at firm farm level)
4. Import and export policy	Policy and economic research into export, import and credit
5. Natural resource management policy	Research into policies on management of natural resources, environment, climate change, land and soil
6. Biodiversity policy	Research into bio-diversity policies and management strategies
7. Risk management	Research into strategies of risk (macro-overall) management at national, regional and local levels
8. Treaty incompatibility	Research into treaty incompatibility and ability of countries to fulfilling obligations and the development and implementation of standards for domestic trade

5.3 Regional Research Priorities

5.3.1 Priorities among areas

The six research areas were first assessed with respect to 1) their importance to the region and 2) the potential contribution from research in resolving the major issues raised in these respective areas. Working groups reached agreement and rated the areas on the two criteria using a high, medium and low rating scale. Natural resources management and crops were rated as being the most important to the sub-region. The potential contribution was assessed to be the highest for NRM (natural Resource management) and was the lowest for the crosscutting issues. The other three areas – livestock, forestry and fisheries were assessed to be at the medium level. The ratings are shown below.



5.3.2 Priorities among research issues within research areas

The issues within each of the six areas were discussed and rated against two criteria: 1) **potential impact** from successful research and 2) **feasibility** of carrying out the work successfully.

The potential impact criteria took account of both the potential benefits that could arise and the likelihood that research products and services would be disseminated and adopted. The feasibility criteria considered the scientific potential and research capacity, although the latter was the main determinant of the feasibility ratings. The High-Medium-Low rating procedure was used again. The results are provided below.

Prioritisation Results

Crops

POTENTIAL IMPACT	LOW	MEDIUM	HIGH
HIGH		-Plant genetic resources -Pests and diseases	-Value adding -Markets/marketing
MEDIUM	-Drought & salinity tolerance -Accessibility & utilization	-Integration with livestock systems	
LOW			

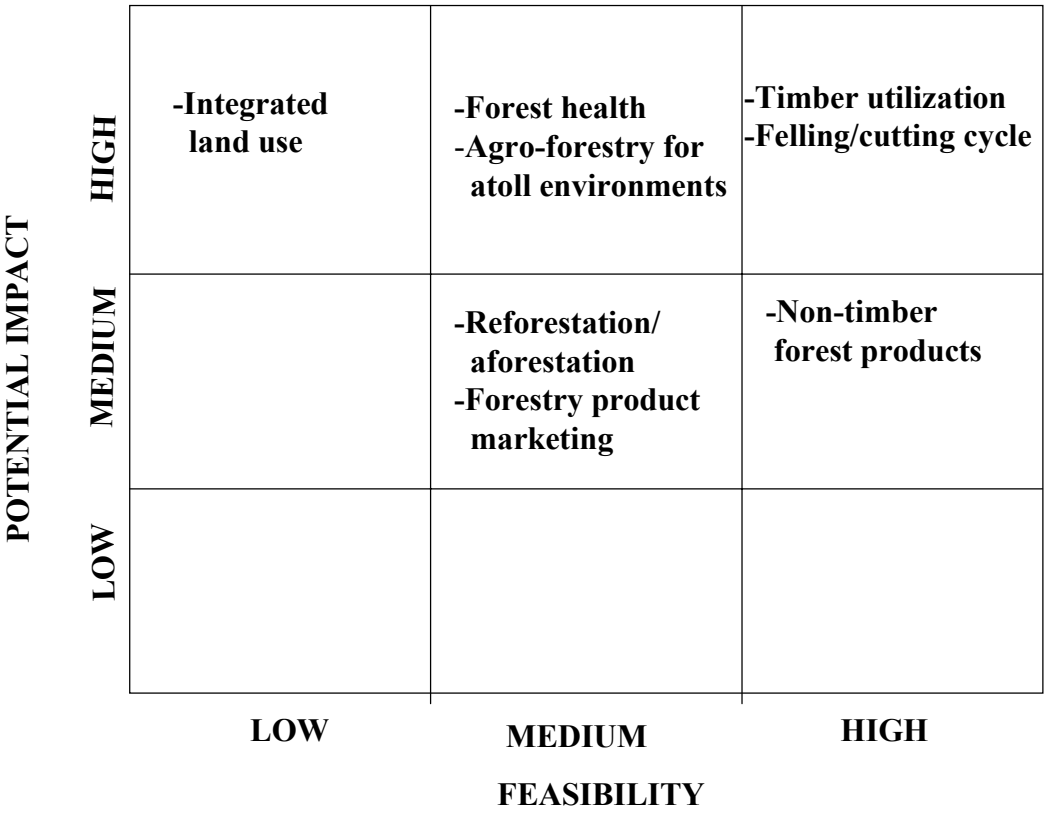
FEASIBILITY

Livestock

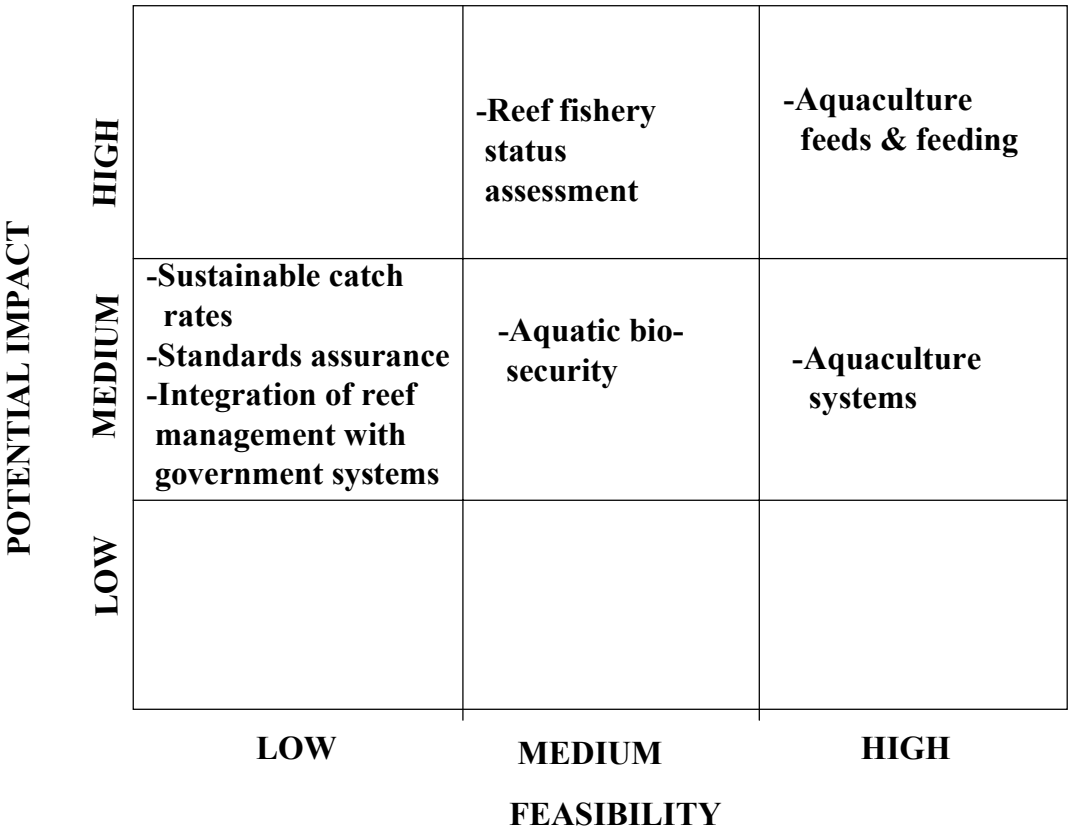
POTENTIAL IMPACT	LOW	MEDIUM	HIGH
HIGH	-Zoonoses	-Livestock improvement	-Feed formulation -Animal waste management
MEDIUM		-Human resources -Management & husbandry -Integration into sustainable agriculture	-Health – pests & diseases
LOW			

FEASIBILITY

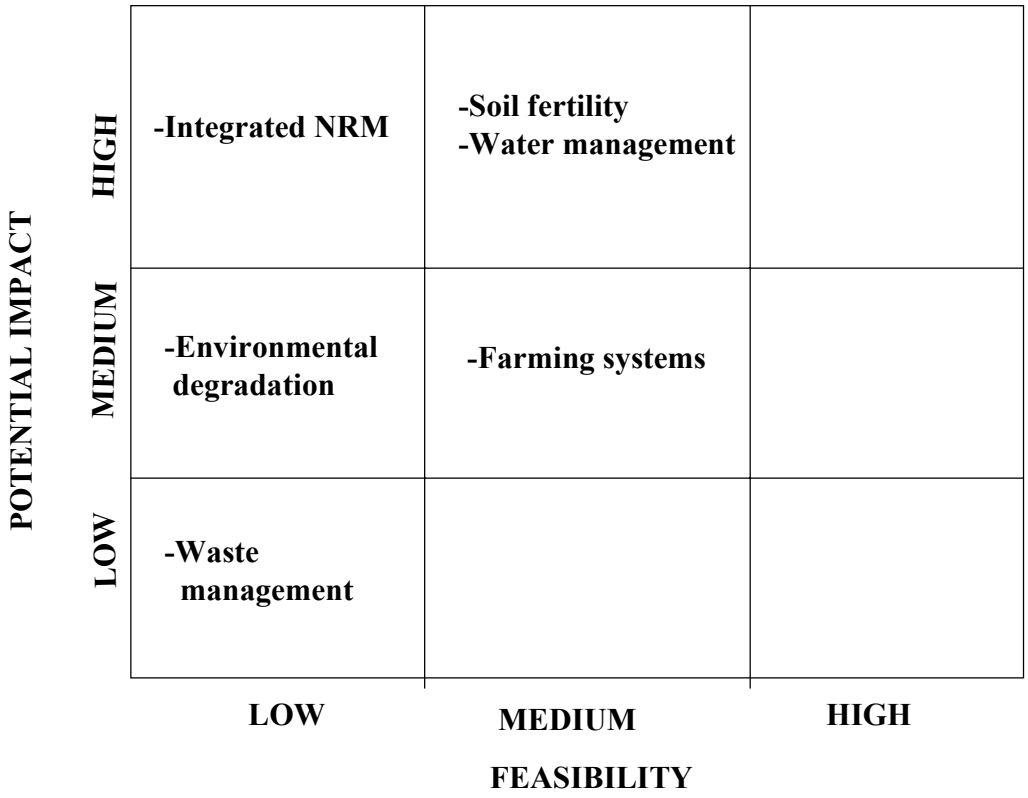
Forestry



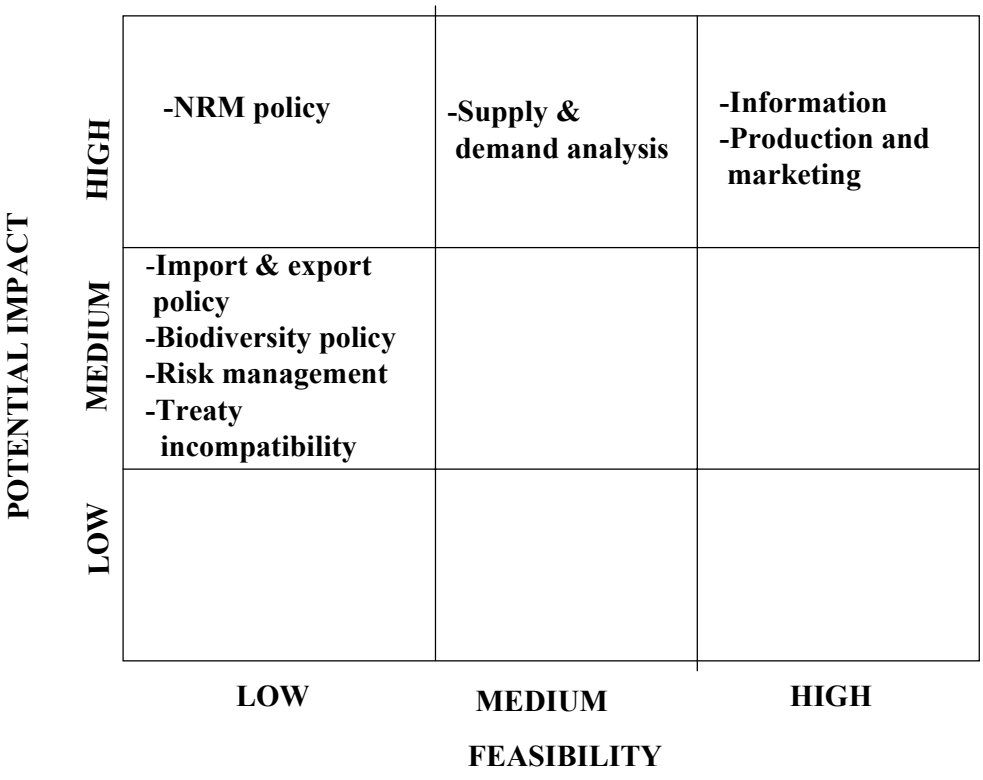
Fisheries



Natural Resources Management



Cross-cutting Issues



5.4 Sector Implementation Strategies

Small working groups briefly considered principle focus and objectives and looked at some implementation strategies in each of the areas. A brief interpretation of the priority assessment and a summary of the principle objectives for each sector follows.

5.4.1 Crops

The priority assessment indicates that **value adding** and **markets/marketing** are the two issues warranting strongest emphasis in research. The high potential impact but moderate feasibility of **plant genetic resources** and **pests and diseases suggest** that ways of increasing research capacity in these areas should be examined. Selective emphasis should be accorded to **drought and salinity tolerance** and **accessibility and utilization** because of their low feasibility, arising by low likelihood of adoption**. Integrated crop and livestock** faired moderately and need objective consideration.

The principle objectives for work in the crops sector are the development of higher nutritional value crops to provide more balanced diet/nutrition and the production of high quality and valued (value added) produce/ by-produce. Other objectives include increased yields and productivity per unit of time and resources; off-season or prolonged crop production for vegetables, fruits, breadfruit; plant varieties resistance/tolerant to various environmental stresses, especially rice and breadfruit; biological control and management of pests and diseases and minimal use of chemical; a better understanding of the status of pests and diseases in the Pacific; and rat control, especially in Tuvalu, Tokelau and Kiribati (particularly atolls), and an objective consideration of crop-livestock integrated systems, especially in PNG.

5.4.2 Livestock

The assessment suggests that **feed formulation** and **animal waste management** received the strongest emphasis. The feasibility of making progress in the control of **livestock diseases** was assessed as being relatively high though only with moderate potential impact. The assessment of high potential impact from **livestock improvement** needs to be quantified, as there are unlikely to be significant gains from research into genetic improvement in the Pacific. The high potential impact of **zoonoses** was recognised although the feasibility was assessed as low. **Human resources, husbandry practices and integrated systems** faired only moderately on both impact and feasibility criteria.

The principle objectives for livestock research are to improve nutrition (animal and human) and productivity using locally available feed ingredients and reduce the impact of animal wastes on the environment and integrate animal wastes into crop production systems. Other objectives include establishing the disease status in the PICTs; identifying the role of livestock in integrated farming systems and developing management and husbandry models suitable to various PICTs; quantifying the prevalence and distribution of zoonoses; and building capacity for livestock research, ensuring that results are published and disseminated.

5.4.3 Forestry

Timber utilisation and management felling and cutting cycles are the issues requiring the strongest research emphasis, having high potential impact and feasibility. **Forest health, agro-forestry for atoll environments** and **integrated land use** were all assessed to have high potential impact but with concerns for the feasibility of making progress. **Non-timber forest products** (NTFP) appeared with modest impact but high feasibility. **Reforestation and forest product marketing** faired moderately on both the accounts.

The overall goal for research in the forestry sector is to provide benefits to PICTs from improved forest management and conservation. The principle objectives of forestry research in the Pacific region are to enhance profitability of forest production through better understanding of the properties and market potential of lesser-known species (LKS) and through effective technology to meet quarantine export requirements.

Other objectives are to assist communities to re-establish forests to meet their needs with special emphasis on indigenous species; improve forest productivity through the management of pests and diseases present in countries and through prevention of pest and disease incursions; develop the potential of known NTFPs through better understanding of their properties, their uses and their economic significance; develop more effective production and marketing systems; develop appropriate agro-forestry systems especially for atoll environments and to integrate forestry with other land uses; and support sustainable natural forest management through development of soundly based inventory, growth and yield models.

5.4.4 Fisheries

Aquaculture feeds and feeding was assessed as having high potential impact and feasibility for the fisheries sector. **Reef fisheries status assessment** was regarded as having the highest potential impact but there are concerns about the feasibility of making progress. The feasibility of developing **"turnkey" aquaculture systems** is high although the potential impact on the fisheries sector is moderate. The feasibility of determining **sustainable catch rates,** developing **standards assurance** and affecting the **integration of reef management with government systems** were assessed as being low. **Aquatic bio-security** faired only moderately on both the counts.

The principles objective for research in the fisheries sector is to develop local alternative feeds and feeding systems, which can fatten fish with minimal by-products. Other objectives include developing appropriate aquaculture for the Pacific sub-region; providing information for communities and Governments on the exploitation and potential of natural reef fishery resources; certifying quality for sustainable export markets, especially in Asia; developing the capacity and policies to handle the potential threat of disease transfer and assess the impact and mitigate the effect of introduced species; integrate the separate community and government systems of traditional and national laws; and set reference points for setting targets for maximum catches in reef fisheries.

5.4.5 Natural resources management

The likelihood of making progress for all the NRM issues was assessed as either medium or low, the region being limited research capacity in this area. **Soil fertility, water management** and **integrated NRM** were all assessed as having high potential impact. **Farming systems research** appeared to be moderately fairing. It is interesting to note the relatively high importance accorded to waste management among the livestock issues as opposed to other NRM issues.

The principles objectives for the NRM sector are to establish an integration mechanism and develop sustainable integration between bio-physical, economic and social cultural factors/environmental; develop soil, fertility, water (including irrigation) management practices especially for atolls; provide policy assistance for waste management; and develop a strong regional network of experts in soil fertility and water management. Management of nutrients, soil physical degradation, soil and water pollution, restoration of depleted nutrients, increased bio-diversity are the other areas of focus.

5.4.6 Cross cutting issues

Information packaging, access and use and **production and marketing economics** were both assessed as having high potential impact and feasibility. While **NRM policy, supply and demand analysis** were assessed as having high potential impact with the feasibility of making progress was thought to be lower to moderate. Other research issues such as **policy research into import-export, biodiversity, risk management and treaty incompatibility** emerged as having only moderate impact and low feasibility of accomplishment.

The principal objective for research on the cross-cutting issues are to build capacity to assemble, access and use information and overcome the lack of information on the economics of production and marketing, and understanding of markets and supply and demand responses. Other objectives are to formulate and implement biodiversity policy; develop and implement import and export policies in PICTs as well as standards for domestic trade; and research and develop proper management principles for natural resources management in forestry, agriculture and fisheries.

5.5 Some Observations

1. Lack of or inadequate research capacity was found to be the most constraining factor under the feasibility criterion while scientific potential was not an important consideration.

2. Under the criterion of impact, both potential benefits and likelihood of adoption appeared to have reasonably contributed in determining the impact.

3. Human resources highlighted as the constraint in the livestock area, and also appeared to be the consideration with regard to capacity and adoption likelihood rather than research issues *per se*.

4. Issue such as “integration” appeared under a number of research areas with different emphasis, as this issue is seen in different contexts/perspectives within these different research areas. It is interesting to see where this issue sits in comparison with other issues in each of the research areas.

5. Agricultural engineering and mechanisation were not considered; this omission should be corrected during future deliberations on priorities.

6. The deliberations did not list high priority research issues for individual countries, as this was a sub-regional priority setting exercise. It would be desirable to revisit the country papers and to have further consultation with the country participants, and to link country priorities to the regional priorities established at the workshop.

7. Limited time did not allow intensive synthesis of published material though the some of the participants were familiar with the published material and have had drawn on that to reach their conclusions. An annotated bibliography of this material is given in Appendix 3 and, that will provide a valuable reference point for future work.

8. The terms “Food Security” and “Sustainability were used with subjective meaning and connotation, reflecting a general lack of awareness within the region of global understanding and consensus on these issues.

9. Priorities emerging from this exercise will provide broad strategic directions that can be followed in the short to medium terms for developing and implementing research

projects. The framework established may also be used as a basis for improving analysis at regional and country level.

10. However, further analysis will be needed to decide on long-term implementation plan and directions. Such analyses should include developing research capacity in order to attend to high potential impact research areas and issues, which cannot be attended to in immediate future because of the limited research capacity.

5.6 Follow-up Actions Arising from the Pacific Workshop

5.6.1 Main follow-up actions

The main follow-up actions to the Workshop include:

1 Presentation of the methodology and results of the workshop to the next APAARI meeting to be held in November 2001(Dr R. Ghodake);

2 Providing feedback to the participants from the APAARI meeting and keeping them informed of the progress made by APAARI in advocating the importance of agricultural, forestry and fisheries research for the Pacific region (Dr R. Ghodake and other APAARI members from the Pacific);

3 Providing the country papers and workshop report to national stakeholders and donors to improve commitment to the identified priorities (country participants);

4 Using existing networks and the workshop taskforces to initiate regional activities where it is sensible to do so (existing Net Works and SPC);

5 Rebuilding the information network and initiate training of librarians for the region (Librarian with SPC); and

6 Providing the workshop outcomes to APAFRI and promote the outcomes to the forestry network (Forestry Task Force in SPC).

5.6.2 Individual actions by participants

The individual participants committed themselves to individual actions that would assist with the sub-regional research effort. These included:

1. Developing project proposal for funding,
2. Write up research projects in relevant field
3. Ensure that there is feedback from APAARI on possibility of establishing projects via APAARI contacts to donors,
4. Review and re-examine outputs,
5. Discuss deliberations among peers,
6. Support further concept,
7. Identify gap between on-going regional activities and what was proposed in crops,
8. Develop project proposal on rat control,
9. Raise and support submission to APAARI,
10. Communicate regional priorities to national stakeholders,
11. Continue working on regionally identified plant protection priorities,
12. Promote sustainable forest management,
13. Recommend to SPC Fisheries Heads Meeting,

14. Convince (my) government for us to proceed with the activities which have prioritised at the workshop especially in research,
15. Develop project proposals for zoo noses,
16. Relay results to bosses,
17. Help in the documentation,
18. Apply the priority setting in (my) area of expertise,
19. Get more funding,
20. Synthesis of workshop deliberations,
21. Develop a further short list of priorities,
22. Assist projects that implement a forestry priority,
23. Implement sustainable forest management systems,
24. Provide support at national level for regional programmes,
25. Explore possibilities for donor funding, and
26. Collect data on pond farmers in the highlands,

5.7 Assessment of the Workshop Achievements

Table 4. Main expectations of the workshop participants and their assessment of progress made

Expectation	Progress		
	Little	**Some**	**A lot**
▪ Priorities and Strategic Directions		**√ XXX**	
▪ Basis for networks, partnership, funding	**√XXX**		
▪ National directions and priorities		**√XXX**	
▪ Systematic approach			**√XXX**
▪ Open and constructive sharing			**√XXX**
▪ Priorities that address needs		**√XXX**	
▪ Implementation post workshop	**√XXX**		
▪ Good use of time			**√XXX**
▪ Realistic priorities			**√XXX**
▪ Not re-invent the wheel		**√XXX**	

6 Feedback from the APAARI Meeting

The above methodology and results were presented at the Sixth Executive Committee Meeting of APAARI and Expert Consultation on ARD Priority Setting, held from 12 to 14 November, 2001 in Bangkok, Thailand. A small working group comprised of Dr Fernando Chaparro - Executive Secretary of GFAR, Dr Stein Bie - Director-General of ISNAR, Dr S. Appanah of APAFRI, Dr Ramanath Rao of IPGRI, Dr. Ian Bevege of ACIAR, Dr R. Ghodake of PNG-NARI, Mr. Jainendra Kumar of Fiji, and Mr Albert Peters of Samoa further synthesised priorities arrived at the Pacific workshop. It may be noted that most of the participants have had considerable experience and knowledge of the Pacific sub-region. The

working group came out with the following refinements, which were presented, to the plenary session of the APAARI meeting.

6.1 High Priority Research Areas and Issues

The working group unanimously agreed and supported the strong emphasis placed by the Pacific workshop on the research areas of natural resource management and crops, and further agreed and put the selective emphasis on the research areas of livestock, forestry and fisheries.

The working group considered the priorities assigned by the Pacific workshop and decided to select high priority research issues that have high impact and high feasibility and that have high impact and medium feasibility. Some issues were reassessed and reassigned as high priority issues as explained in the parentheses. The results are presented in Table 5.

Table 5. High priority research issues for the Pacific region identified by the Pacific working group at the APAARI meeting

Research Area	High priority research Issue
1. Crops	11. Value adding 12. Markets and marketing 13. Plant genetic resources 14. Pest and diseases
2. Livestock	1. Feed formulation and development 2. Animal waste Management Livestock improvement (introduction and selection, excluding breeding) 3. Zoo-noses (research issue with high impact but low feasibility was reassessed as high priority)
3. Forestry	1. Timber utilisation 2. Felling/cutting cycles in natural forest management 3. Forest plantation health 4. Agro-forestry for atoll environments
4. Fisheries	1. Aquaculture systems management (high feasibility aquaculture area was merged with aquaculture systems management) 2. Reef fishery systems management
5.Natural Resource management	1. Land management and soil fertility 2. Watershed management 3. Integrated NRM (research issue high impact but low feasibility was reassessed to be of high priority)
6. Cross Cutting Issues	1. Information packaging, access and use Production and marketing economic analysis (micro analysis at firm level) 3. Supply and demand analysis (macro analysis at industry level) 4. Natural resource management policy (Research issue with medium impact and low feasibility was reassessed as high priority issue)

6.2 Suggested Follow-up Actions

The working group suggested the following follow-up action and implementation strategy.

1. The synthesis paper be modified and refined by incorporating the suggestions of the working group and deliberations of the APAARI Meeting.

2. The synthesis paper be circulated to SPC, country participants, FAO, USP, ACIAR, ISNAR, IPGRI, CIP (Delhi and Bogor offices), APAFRI, IWMI, CIFOR, ICRAF (Bogor), for their comments to be received by 14th of December 2001.

3. Finalization of the synthesis paper by the end of this year and submission to the APAARI Secretariat for further synthesis at the Asia-Pacific regional level.

4. With respect to NARS and NARS collaboration, NARS in the Pacific sub-region should continue their collaboration activities through SPC in developing and implementing projects and networks, such as TAROGEN, SPRIG, SPYN, Fruit Flies, etc.

5. With respect to NARS Collaborations with IARCs, it was suggested to continue and strengthen the current activities as follows:
   - IPGRI – Pacific PGR with support from Australia/ New Zealand funding
   - INIBAP/COGENT – Commodity linkage in Banana/ Coconuts
   - ICLARM – Implementation of the SPC Aquaculture Strategy
   - CIP – Potato/Sweet potato research and development
   - IRRI – Rice and farming systems integration
   - CIMMYT – Maize introduction and improvement
   - IWMI (IBSRAM Pacific Land Network) – land, water management
   - AVRDC – Introduced and traditional vegetables
   - ICRAF – Agro-forestry on atolls
   - ICRISAT -Peanuts and Pigeonpeas
   - ISNAR – Capacity building – research managers and senior scientists

6. It was further suggested to ensure effective co-ordination among IARCs and NARS so as to be cost efficient (reduced transaction cost).

7. Most national research and development programmes in the Pacific have limited involvement of NGOs and private sectors. It is necessary to involve all development partners as extension activities are highly dependent on NGOs and civil society (churches and women groups).

6.3 From Priorities to Proposals ($)

The following steps were suggested to move from priorities to research proposals:

1. Analyze the current research and development portfolios and identify gaps (i.e. priorities not being worked on).

2. Determine whether research area is currently covered by existing projects/networks, etc. and explore possibility of strengthening these existing activities better to meet the priority needs.

3. For new proposals, identify most appropriate R and D providers among NARS, regional organizations and IARCs and establish collaborative partnerships.

4. Identify likely funding sources within the Sub-region and donors.

5. Develop proposals following potential funders' guidelines and submit proposals.

6.4 Common Research Concerns and Issues in the APAARI Region

Another working group comprised of two select representatives from each of the three sub-regions (South-West Asia, South-East Asia and the Pacific) facilitated by Dr Fernando Chaparro of GFAR was formed to deliberate on and identify common areas of research opportunities /research issues and action plan for the Asia-Pacific region.

The working group, besides Dr Fernando Chaparro, was comprised of Dr S. Pal and Dr Jill Lenne from the South-West Asia sub-region, Dr P.S. Faylon and Dr G. Padolina from the South-East Asia sub-region, and Dr R. Ghodake and Dr. Ian Bevege from the Pacific sub-region. The results obtained were then presented at the plenary session and were accepted as agreed priorities for synthesis and follow-up actions.

6.4.1 Common areas of research opportunities in the Asia-Pacific Region

The common areas of research opportunity agreed were:

1. Natural Resource Management
2. Genetic Resources
3. Commodity Chain Development
4. Meeting Protein Demand (through Animals and Plants)
5. Tree and Forest Management
6. Cross Cutting – Information
7. Cross Cutting - Capacity Development

6.4.2 Common research issues within research areas

Table 6. High priority research issues for the Asia- Pacific region identified by the plenary working group at the APAARI meeting

Research Area	High priority research issue in the Asia-Pacific region
1. Natural Resource Management	1. Integrated NRM and ICM/IPM 2. Policy development and institutional issuers 3. Watershed management 4. Land and soil fertility management 5. Rehabilitation of degraded and marginal lands
2. Genetic Resources and Agro-biodiversity Conservation	1. PGR conservation and improvement 2. Livestock – selection and improvement 3. Bio-safety issues/ policy/GMOs/IPR
3. Commodity Chain Development (Linking Products and Markets)	1. Commercialisation, marketing and trade 2. Policy – international agreements 3. Supply and demand analysis (Industry and Macro Level) 4. Production and marketing economic analysis (firm and micro Level) 5. Value adding – post harvest, processing, quality, transportation, packaging 6. Competitiveness - quality 7. Quality improvement and standards

	8. Quarantine and bio-safety
4. Meeting the Protein Demand (Animal)	1. Livestock feed resources – fish, poultry, ruminants and non ruminants (forage, pasture, fodder, grain crop and crop residues) 2. Animal disease management – (poultry, ruminants non-ruminants, aquaculture) 3. Production systems (Crop/livestock, aquaculture, mariculture, by-product utilization) 4. Waste management
5. Meeting the Protein Demand (Plant)	1. Grain legume productivity improvement 2. Quality and nutrition (human) 3. Food Safety – Aflatoxins and Anti-nutrition Factors 4. Legumes in farming systems
6. Tree and Forest Management for Landholders	1. Natural forest management - Harvesting regime and regeneration - Cutting cycle analysis 2. Forest plantation health 3. Agro-forestry in production systems
7. Cross Cutting Issues – Information	1. Management of information for agricultural Development Packaging, access and use of information – research, methodologies and modalities
8. Cross Cutting Issues – Capacity Building	1. Human resources development 2. Institutional development – research management, stakeholder management 3. Research policy development 4. Food insecurity and poverty mapping

Appendix 1. Structure and programme of the Pacific Workshop

Sunday	28 October 2001	Speaker/ Facilitator	Time in Minutes
17.00	**Session 1 – Opening Session** *Purpose: clarify workshop purpose and structure, make sure participants understand who is there, clarify individual expectations*		
	Welcome and purpose by Deputy Director General of SPC	Dr Jimmie Rodgers	10
	Opening Statement by Vice Chairman of APPARI	Dr Jay Kumar	15
	Workshop Briefing • Objectives o Provide research priorities and strategic research directions for the Pacific sub-region to contribute to priorities for Asia-Pacific region o Provide basis for developing networks, partnership and funding arrangements o Provide national research directions and priorities for participating countries o Develop a systematic approach to deciding research priorities for countries in the sub-region • Structure • Facilitator role • Working in groups	Tim Healy	10
	Participants to be seated in small groups of 5-6 people to mix countries and expertise – assuming around 30 participants this means 5-6 groups Participant introduction • Participants introduce themselves by name, indicating role, affiliation interests (1/2 min each)	Plenary	15
	Participants expectations Each participant record on cards • What I want to happen at this workshop • What I don't want to happen at this workshop Facilitator to post and group cards	Groups	15
	Workshop structure Brief presentation on priority setting principles Discuss / modify / agree workshop structure in light of expectations	Plenary	20
1900	*Dinner Hosted by SPC*		

Monday	**29th October 2001**		
08.30	**Session 2 – Understanding the region** *Purpose: develop a shared understanding of the main features of the region*		
	Country presentations outline • The main development issues for the agricultural, fisheries and forestry sectors • National aspirations for these sectors • Most important drivers influencing the achievement of these national aspirations o External to the country o Internal to the country		
	Format Presentations in pairs – 15 min for each country Table buzz following each pair – 10 min • What struck us as particularly significant about these sectors in these countries *Record observations on cards (no feedback)*		40
08.30	Countries 1, 2	Countries	40
09.10	Countries 3, 4	Countries	40
09.50	Countries 5, 6	Countries	40
10.30	*Coffee*		
11.00	Countries 7, 8	Countries	40
11.40	Country 9, 10	Countries	25
12.05	Consolidation- 25 min • What are the most important features of the agricultural, fisheries and forestry sectors in the region • What are the main regional aspirations • What are the most important drivers for the sectors in the region • Is there a common development pathway for all countries in the region	Groups	25
12.30	*Lunch*		
13.30	Report back using cards – 20 min		20

13.50	**Session 3 – Distilling regional issues**		
	1. Using country papers, already available material in the region prepared by SPC, AusAID, FAO, and others as primary information source, synthesise the regional research issues for crops, livestock, NRM, forestry, fisheries, cross-cutting and group into: • Issues important for most countries • Issues important for several countries (say 2 or 3) 2. For each category, choose the 5 most important issues for the region; and record the basis for deciding importance *Participants to work in 6 groups*	Groups	60
15.00	Report back – 6 x 10 min	Leaders	60
15.30	*Coffee*		
16.30	Discussion and distillation of issues within each of the six categories into lists amenable for priority setting i.e. mutually exclusive, collectively exhaustive, consistently grouped, forward looking, manageable in number.	Plenary	60
17.30	*Close*		
19.00	*Dinner Hosted by APAARI*		

Tuesday	**30 October 2001**		
08.30	**Session 4 – Assessing regional priorities** *Purpose: Assess relative priorities of research issues within each of the six categories*		
	Suggested process For major areas o Table discussion and rating of each area using two criteria: o Importance to the region; and Potential contribution from research o Issues to be rated using HML scale o Table discussion (6 areas x 5 min) followed by plenary reporting and discussion (15 min) For research issues o Table discussion and rating of issues within each area using two criteria: o Potential impact; and Feasibility o Issues to be rated using HML scale o Table discussion (30 min) followed by plenary reporting and discussion (10 min) (*This process will probably need to be adapted to take account of the actual number and nature of issues identified; also need discussion on whether fisheries and forestry are handled separately, as assumed below. Also need to discuss whether time should actually be spent discussing relative importance to the region of each of the six areas using the criteria suggested)*		
08.30	Briefing and agreement on process	Tim Healy	15
08.45	Discussion and rating of major areas	Groups	45
09.15	Field crops issues		40
09.55	Livestock issues		30
10.25	*Coffee*		
10.50	Livestock issues (continued)		
11.00	Natural Resources Management issues		
11.40	Cross-cutting issues		30
12.20	Presentation of results of fisheries and forestry discussion – each 15 min		30
12.50	*Lunch*		
14.00	**Session 5 – Developing implementation strategies** *Purpose: develop the main elements of the sub-regional research and outreach strategy for each area*		
	Small teams (one per area) develop outline of an implementation strategy for each area of research – the what, where, how and who. Could include: ***Overview:*** *main issues to be addressed; focus of the work; priority assessment* ***Principle objectives:*** *what will be achieved for the region through the use of research outputs; main deliverables required from the research* ***Country focus:*** *the principle countries where the research will be conducted so as to maximize its impact for the region* ***Teams:*** *which countries need to be involved and the main*	Groups	60

	skills they will contribute to successfully complete and deliver research outputs ***Communication****: outreach and extension strategies for creating awareness and facilitating uptake by targeted customers* ***Funding strategy****: possible ways in which the research might be financed*		
15.00	Report back Six areas – say 15 min each (10 min presentation and 5 min plenary comment)	Group Leaders	90
15.30	*Coffee*		
16.00	Report back (continued)		
17.00	**Session 6 - Wrap-up** *Purpose: Identify and allocate responsibilities for follow-up action*		
	Documentation • What happens next • Steps / action needed to complete the report • Outstanding issues • Communication • Who needs to tell what to whom by when • Evaluation • Have we made the progress we wanted can we actually do what we have said we would	Plenary	20
17.20	Close: Closing Statements by - Agricultural Adviser - SPC and - Workshop Co-ordinator - APAARI	Dr Tom Osborn Dr R. Ghodake	20

Appendix 2: List of participants

Regional Workshop on "Research Priority Setting" for the Agriculture, Forestry and Fisheries Sectors in the Pacific Region (Nadi, Fiji, 28 October – 30 October 2001)

I. AGRICULTURE

Fiji

Mr. Samisoni Ulitu
Deputy Permanent Secretary
Ministry of Agriculture, Sugar and Land Resettlement
Private Mail Bag
Raiwaqa
Tel: (679) 384233
Fax: (679) 385048

Mr Jainendra Kumar
Director Research
Ministry of Agriculture, Sugar and Land Resettlement
Koronivia Research Station
Nausori
Tel: (679) 470077
Fax: (679) 400262
Email: jkumar@is.com.fj

Kiribati

Mr Manate Tenang
Chief Agricultural Officer
Division of Agriculture
Ministry of Natural Resources and Development
PO Box 267
Tanaea
Tarawa
Kiribati
Tel: (686) 28096/28108
Fax: (686) 28121
Email: agriculture@tskl.net.ki/manateT2@mnrd.gov.ki

PAPUA NEW GUINEA

Dr. Nahiuwo Garry Ahai
Director Research
National Agricultural Research Institute (NARI)
Vele Rumana
P O Box 4415
LAE 411
Morobe Province
Papua New Guinea
Tel: (675) 472 1751
Fax: (675) 472 2242
Email: nariddg@online.net.pg

Samoa

Mr Albert Peters
Assistant Director of Research and Extension
Ministry of Agriculture,Forests,Fisheries and Meterology
PO Box 1874
Apia

	Samoa Tel: (685) 26841/22561 Fax: (685) 223996 Email: apeters@lesamoa.net
Solomon Islands	Mr. Martin Mata Permanent Secretary Email: martinmata@hotmail.com Mr Jimi Saelea Director of Research (Acting) Ministry of Agriculture and Primary Industries PO Box G 13 Honiara Solomon Islands Tel: (677) 21327 Fax: (677) 21955 Email: **dor@solomon.com.sb**
Tonga	Dr Siosiua Halavatau Chief Soil Scientist and Chief Executive Extension Ministry of Agriculture and Forestry Vuna Road PO Box 14 Nuku'alofa Kingdom of Tonga Tel: (676) 32 125 Fax: (676) 23 892 Email: vizo@kalianet.to
Tuvalu	Mr Tavau Teii Director of Agriculture Department of Agriculture Ministry of Natural Resources, Energy and Environment Private Mail Bag Vaiakau Funafuti Tuvalu Tel: (688) 20825 Fax: (688) 20826
Vanuatu	Ms Dorosday Kenneth Director Department of Agriculture & Rural Development Private Mail Bag 040 PORT VILA Tel: (678) 22525 Fax: (678) 25265 **Email: ncvanuatu@vanuatu.com.vu**

II. FORESTRY

FIJI

Mr. Inoke Wainiqolo
Acting Principal Silviculturist
Silviculture Research Division
Forestry Department
P O Box 2218
Government Buildings
Suva
Tel: (679) 322311/322389
Fax: (679) 322380

PALAU

Mr Kashgar Rengulbhai
Forester
Ministry of Resources & Development
PO Box 460
Koror
Palau 96940
Tel: (680) 488 2504/5804
Fax: (680) 488 1725
Email: DAMR@PALAUNET.COM

SAMOA

Mr Sami Lemalu
Acting Assistant Director (Forestry)
Department of Agriculture, Fisheries & Forests
PO Box 1874
Apia
Samoa
Tel: (685) 22561
Fax: (685) 22565/24576

VANUATU

Mr Hannington Tate
Principal Forest Officer
Department of Forestry
PMB 064
Port Vila
Vanuatu
Tel: (678) 23856
Fax: (678) 25051
Email: forestry@vanuatu.gov.vu

III. FISHERIES

FIJI

Mr Malakai Tuiloa
Principal Fisheries Officer (T/S)
Manager Capture Fisheries Development Programme
Fisheries Division
Ministry of Fisheries and Forests
Box 3165
Suva
Tel: (679) 361122
Fax: (679) 361184
Email: mtuiloa@fisheries.gov.fj

PAPUA NEW GUINEA

Mr Havini Vira
Scientist-in-charge

	Aiyura Aquaculture National Fisheries Authority Papua New Guinea Tel: (675) 737 3526 Fax: (675) 737 3513 Email: pioneer@daltron.com.pg
VANUATU	Mr Moses Amos Director of Fisheries Department of Fisheries Port Vila Vanuatu Tel: (678) 23119 / 23621 Fax: (678) 23641 Email: Fishery@vanuatu.com.vu

REGIONAL ORGANISATION

Centre de coopération **internationale en recherche agronomique pour le développement (CIRAD)**	**Mr Thierry Menesson** Directeur General de l'Insitut agronomique néo-calédonien Institut agronomique néo-calédonien (IAC)/CIRAD B.P. 35 Paita Nouvelle – Calédonie Tel: (687) 43.74.15 Fax: (687) 43 74 16 Email: t.mennesson@iac.nc
Food and Agricultural Organisation Of the United Nations (FAO)	Mr Francis Mangila Policy Officer Office of the FAO Sub-Regional Representative For the Pacific Private Mail Bag Apia Samoa Tel: (685) 20710/22127 Fax: (685) 22126 Email: Francis.Mangila@fao.org
Australian Centre for International Agricultural Research	Dr. John Fryer Program Manager Forestry Program GPO Box 1571 Canberra ACT 2601 Australia Tel: (61-2) 6217 0500 Fax: (61-2) 6217 0501 Email: Fryer@ACIAR.GOV.AU

RESOURCE PERSON

Asia Pacific Association of Agricultural Research Institutions (APAARI)

Dr. Raghunath D. Ghodake
Deputy Director General
National Agricultural Research Institute
Vele Rumana
P O Box 4415
LAE 411
Morobe Province
Papua New Guinea
Tel: (675) 472 1751
Fax: (675) 472 2242
Email: nariddg@online.net.pg

WORKSHOP FACILIATOR

Mr. Tim Healy
Planning & Evaluation Consultant
PO Box 225
Dickson ACT 2602
Australia
Tel: (61-2) 6276 6026 (w) / 6253 1622 (h)
Fax: (61-2) 6276 6335 (w)/ 6253 6253 (h)
Mobile: 61 (0)419 430 483
E-mail: Tim.Healy@csiro.au

SECRETARIAT OF SPC

Land Resources Division

Private Mail Bag
Suva
Fiji
Tel: (679) 370733
Fax: (679) 370021
Email: spc@spc.int

Dr. Jimmie Rodgers
Senior Deputy Director General
Email: jimmier@spc.int

Headquarters (Noumea)

B.P.D5
98848 Noumea Cedex
New Caledonia
Tel: (687) 26.20.00
Fax: (687) 263818
Email: spc@spc.int

Dr. Tim Adams
Director
Marine Resources Division
Email: tima@spc.int

Mr Tom Osborn
Agriculture Adviser
Email: tomo@spc.int

Mr Kanawi Pouru
Forest & Trees Adviser
Pacific Islands Forest and Trees Support Programme
Email: Kanawip@spc.int

Ms. Evelyn Reighber
Team Leader
SPC/German Pacific Regional Forestry Project
Email: evelyn@spc.int

Dr. Peter Saville

Animal Health Adviser
Email: PeterS@spc.int

Mr. Reg Sanday
Resource Economist and Agricultural Information Adviser
Agriculture Programme
Email: regs@spc.int

Dr. Stephen Angus
Veterinary Epidemiologist
Email: stephena@spc.int

Mr. Peter Manueli
Animal Health & Production Training Specialist
Email: peterm@spc.int

Dr. Guenther Rapp
Entomologist
Email: Guentherr@spc.int

Dr.Jacqueline Wright
Plant Pathologist
Email: Jacquiw@spc.int

Mrs Ema Tora Vueti
Assistant Entomologist
Email: Emat@spc.int

Mr. Peni Qioniwasa
Community Education Office
SPC/GTZ Forestry/PGRFP
Email: PeniQ@spc.int

Ms. Christina Tuitubou
Rapportuer
Email: christinat@spc.int

Mr. Stephen Hazelman
Rapportuer
Email: stephenh@spc.int

Ms. Agnes Rigamoto
Workshop Secretariat
Email: agnesr@spc.int

Ms. Laisa Tigarea
Programme Secretary (Agriculture)
Email: laisat@spc.int

Appendix 3: Bibliography

ACIAR. 2001. Food Security for Papua New Guinea, (eds) Bourke, R.M., Allen, M.G., and Salisbury J.G. 2001, ACIAR Proceedings No. 99, Proceedings of Papua New Guinea Food and Nutrition Conference, PNG University of Technology, Lae 26-30 June 2000.

Asia-Pacific Association of Agricultural Research Institutions (APAARI). 1996. *Proceedings of the Expert Consultation on Research Priority Setting by NARS in the Asia-Pacific Region and Fourth General Assembly of APAARI*, 25-26 November 1996, New Delhi, India.

Asia-Pacific Association of Agricultural Research Institutions (APAARI). 1999. *Proceedings of the Expert Consultation to Develop APAARI Vision 2025 and Fifth Executive Committee Meeting of APAARI*, November 8- December 1, 1999, Bangkok, Thailand.

Asia-Pacific Association of Agricultural Research Institutions (APAARI). 2000a. *APAARI Vision 2025: Agricultural Research for Development*, April 2000.

APAARI. 2000b. *Proceedings of the Sixth General Assembly of APAARI and Expert Consultation on Strategies for Implementing APAARI Vision 2025: Agricultural Research for Development in the Asia-Pacific Region*, 8-10 November 2000, Chaing Rai, Thailand.

APAARI/ISNAR/ICLARM. 2001. Second Meeting of Asia Pacific Group of Fisheries and Aquatic research (GoFAR) and Expert Consultation on Research Priority Setting 26-29 March, Penang, Malaysia.

APAFRI. 1999. Asia Pacific Forestry Research - Vision 2010. *Proceedings of the Regional Seminar*, 26-27 March 1999, Kuala Lumpur, Malaysia.

APAFRI 1999. Asia Pacific Forestry Research - Vision 2010. *Report of the Regional Research Priorities Workshop*, 26-27 March 1999, Kuala Lumpur, Malaysia.

Braunschweig, T. 2000. Priority Setting in Agricultural Biotechnology Research: Supporting Public Decisions in Developing Countries with the Analytic Hierarchy Process. *Research Report No. 16*. The Hague: International Service for International Agricultural Research.

Davis, J.S., Oram, P.A. and Ryan, J.R. 1987. Assessment of Agricultural Research Priorities: An International Perspective. *ACIAR Monograph No. 4. 85pp.*

FAO/SAPA. 1999. *Linking Market Development to Farming Systems in the Pacific Islands. FAO/SAPA,* Apia, Samoa 48 pp.

FAO/RAP. 2000. *Asia Pacific Forestry Commission: the First Fifty Years.* FAO, Bangkok 87pp.

Ghodake, R., T. Healy, I. Bevege, and A. Nahiuwo. 2001. Agricultural Research Priority Setting for the Pacific Sub-Region: A Framework, National Agricultural Research Institute, Lae, Papua New Guinea.

Gijsbers, G., Janssen, W., Hambly Odame, H. and Meijerink, G. (Eds.). 2001. *Planning Agricultural Research: A Sourcebook, CABI Publishing in association with the International Service for National Agricultural Research*, The Hague, The Netherlands.

Janssen, W. and Kissi, A. 1997. Planning and Priority setting for Regional Research : A Practical Approach to Combine Natural Resource Management and Productivity Concerns. *Research Management Guidelines No. 4*. The Hague: International Service for International Agricultural Research.

Kearney, R AND Hundloe, T. 1998. *Review of ACIAR/ICLARM Research on the Culture of Commercially Important Coral Reef Invertebrates in the Pacific Island Region.* 9-20 February 1998. ACIAR, Canberra, Australia.

Mills, B. (ed). 1998. Agricultural Research Priority Setting: Information Investments for Improved Use of Resources. The Hague: International Service for International Agricultural Research.

SPC. 2000. *Collected Papers from Heads of Forestry Meeting*. 8-12 May 2000, Nadi Fiji.

SPC. 2000. *Framework for Plant Genetic Resources Conservation, Management and Use in Pacific Agriculture.* Prepared by PGR Working Group – R. Kambuou, A. Turagakula and M.Taylor. October 2000.

SPC. 2001. *Collected Papers from 14th Regional Conference of Permanent Heads of Agriculture and Livestock Production Services (PHALPS)*, 30 April - 4 May 2001, Nadi, Fiji.

SPC. 2001. *Collected Papers from Second SPC Heads of Fisheries Meeting*. 23-27 July 2001, Noumea, New Caledonia.

SPC 2001. *Regional Aquaculture Priorities for Pacific Island Nations.* SPC Marine Resources Division, New Caledonia, Project proposal to ACIAR., July 2001.

SPC. 2001. *Collected Papers from Workshop on Agricultural PGR in the Pacific: Formation of a Regional Network for Conservation, Management and Use.* 10-13 September, 2001, Suva, Fiji.

SPC. 2001. *Regional Forestry Strategic Plan 2000-2003.* SPC Regional Forestry Programme, Suva, Fiji.

SPC. 2001. *Agricultural Programme Strategic Plan 2001-2005.* SPC agriculture Programme Suva, Fiji.

SPC/IPGRI. 2001. *Pacific-Regional Plant Genetic Resources Network Strategy.* 2001

UNDP. 1999. *Disasters and Agriculture in the Pacific Islands.* UNDMP-SPO, 116pp.

UNCTAD 2001. *Collected papers from Constraints, Challenges and Prospects for the Commodity-based Development and Diversification in the Pacific Island Countries.* Regional Workshop, Nadi, Fiji 18-20 September 2001.

Wells, K.F. and Eldridge, K.G. (ed). 2001. Plant Genetic Resources in the Pacific: towards regional co-operation in conservation and management. A report based on an ACIAR-

NARI Workshop, Lae, Papua New Guinea, 30-31 March 1999. *ACIAR Monograph76. 99pp.*

Country Papers/Notes Presented at the Pacific Workshop

Kumar, J. 2001. Research priority setting in agriculture, forestry and fisheries sectors in the pacific region.

Wainigolo, I. 2001. Corporate Plan of the Fiji Fisheries Department

Tenang, M. 2001. Kiribati Country Statement

Naihuwo, A. 2001. Agricultural research priorities for Papua New Guinea

Havini, V. 2001. Papua New Guinea country report fisheries sub-sector (aquaculture)

Peters, A. 2001. Samoa country statement agriculture sector.

Saelea, J. 2001. Solomon Islands country paper - agriculture sector.

Halavatau, S.M. and Felemi, M. 2001. Research priority in agriculture and forestry in the Kingdom of Tonga.

Teiitavau, T. 2001. Statement summary of research priorities in Tuvalu.

Amos, M. 2001. Research priorities for the fisheries sector of the republic of Vanuatu - country report.

Lebot, V. and Kenneth, D. 2001. Research priorities for agriculture development in Vanuatu.

Tate, H. 2001. Research priorities for the forestry sector of Vanuatu.

Appendix 4: Opening statement by Vice-Chair of APAARI – Mr Jainendra Kumar

Dr. Jimmie Rogers, Senior Deputy Director-General, SPC, Dr. R. Ghodake Coordinator, APAARI, Dr. Ian Bevege, ACIAR, Dr. Tim Healy, Workshop Facilitator, Mr. S. Ulitu DPS (S), Country Representatives in Agriculture, Forestry and Fisheries, SPC Advisors, FAO and USP Representatives, Ladies and Gentleman.

It is indeed a great privilege and honour for me to make an Opening Statement at this important workshop on Research Priorities of our Pacific Sub-Region. As Vice-Chairman, I on behalf of the Executive Committee, The Asia-Pacific Association of Agricultural Research Institutes welcomes you all at this important exercise.

Ladies and gentlemen, before I embark on stating the purpose of this workshop, allow me please to take this opportunity to extend to you a very warm welcome to this workshop and to Fiji. I am hopeful that the workshop participants, the members and the representatives of the regional organisation, resource people, supporting institutions and invited persons will find this exercise very fruitful and beneficial.

Let us look at the purpose of this two days meeting here at the Tanoa International Hotel, on the Research Priority Setting in Agriculture, Forestry and Fisheries in the Pacific Sub-Region.

Generally, research discipline is an integral part of planning and its outcome can contribute to policy development and socio-economic progress of a nation or nations. The Pacific Island Countries and Territories have been exposed to this exercise in the past. Many relevant research activities have had their impact in enhancing growth in agriculture, forestry and the fisheries sector. The adaptable technologies when properly transferred and worked together in partnership with various stakeholders had brought immense benefit in terms of increasing production and maintaining productivity, without endangering its natural resources. Invariably this has been the cornerstone in the progress elevating the subsistence status of a farming system and its integrated approach into a semi-commercial enterprise. The overall benefit of food security, employment creation and income generation for the well being of the nation and its people. These accrued benefits simultaneously are faced with huge challenges. The scarcity of resources, increase in population, climate change and globalisation have brought a paradigm shift. More than ever before, there is an urgent need to address issues in agriculture, forestry and fisheries with care and vigilance. At this juncture, it is pertinent that the national prosperity can largely benefit with a collaborative approach and partnership of national, regional and international institutions.

The island nations and territories of the Pacific sub-Region are fortunate to be surrounded with strength and capacity of Institutions of excellence in the Asia-Pacific Region of the globe. Three of these bodies are briefly mentioned of their untiring effort to assist the region in the progress of agriculture, forestry and fisheries sectors.

The Secretariat of the Pacific Community (SPC), through its regular Regional Technical Meetings for the respective heads of agriculture, forestry and fisheries namely Permanent Heads of Agriculture and Livestock Production Services (PHALPS); the Heads of Forestry Services (HOFS) and the Heads of Fisheries (HoF) responds to the priority research and development needs of the region in these three sectors.

The Australian Centre for International Agriculture Research (ACIAR), has accorded priority to and funded many research projects in Agriculture, Forestry and Fisheries at both the national and the regional levels in the region.

The Asia-Pacific Association of Agricultural Research Institutions (APAARI) is a regional body, which strengthens partnership in Agricultural Research and Development (ARD) and works with National Agricultural Research Systems (NARS) and other key players in ARD. Its major focus is to strengthen agricultural research and development in the region to meet food security, self-sufficiency and sustainability, through facilitation of intra-regional, inter-institutional and international cooperation. APAARI as per its objectives facilitates the exchange of scientific and technical know-how and information in agricultural research and other activities in accordance with identified regional bilateral or national needs and priorities.

APAARI during its Sixth General Assembly Meeting, in November 2000, resolved to revisit the regional and sub-regional research priorities that were formulated in their 1996 meeting with particular focus on the need to integrate additional considerations, and systemically undertake the research priority setting exercise by incorporating needs of the key stakeholders and nations within various sub-regions of the Asia-Pacific region. Consequently, APAARI accorded high priority for the research priority setting exercise to synthesize, refine and develop priorities for the Asia-Pacific region.

In addition, the meeting of the Global Forum on Agricultural Research (GFAR), held in October 2000 and attended by a number of leaders of National Agricultural Research Services (NARS), as well as the meeting of the International Agricultural Research Centers under their Consultative group meeting (CGIAR) in the same year, agreed to pursue a new vision and strategy that promote collaboration with national and regional partners and the adoption of a regional approach to research planning, priority setting and implementation.

The purpose of this workshop on priority setting is to synthesize relevant information as a basis for assessing strategic direction, and developing research priorities in agriculture, forestry and fisheries sectors for the Pacific countries and territories. Important research outcomes can then flow into the respective country and territory for national policy and development interventions. It will also assist in formulation of the work program of regional organisations such as SPC and the prioritisation process for project assistance from regional and international research institutions such as ACIAR and APAARI and various CG Centres. Finally, this will be assistance in devising program for other stakeholders and development partners for these sectors in the Pacific Sub-Region.

I hope you all will find this exercise to be beneficial and useful in your centres to implement research in your respective countries and to develop regional and international research programmes and resources.

At this juncture, Ladies and gentlemen, let me recognize the contribution of Dr. R. S. Paroda. Dr. Paroda as the Executive Secretary, APAARI, and the Chairman of Global Forum on Agricultural Research has proactively initiated this process in all the three Sub-Regions, namely South West Asia, East Asia and the Pacific.

With these words, I wish you all a very useful and beneficial exercise.

Thank you.