

Proposal to Establish PACINET



This proposal was prepared at the LOOP Formulation Workshop, convened and hosted by the South Pacific Commission (SPC) at Nadi, Fiji on 12th - 16th February 1996

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1. PREFACE

This **Formal Proposal for the Establishment and Operation of a Pacific LOOP of BioNET-INTERNATIONAL**, known as **PACINET**, is the outcome of a LOOP Formulation Workshop convened and hosted by the South Pacific Commission (SPC) at Nadi, Fiji on 12th - 16th February 1996.

The Workshop which was sponsored by the UNDP Special Unit for Technical Cooperation between Developing Countries (UNDP/TCDC/SU), was the second step in the procedure for establishing a Technical Cooperation Network (TCN) as prescribed by UNDP (see Fig 2). As such it followed an earlier and positive Feasibility Study conducted at the 8th Regional Meeting on Plant Protection of the SPC, convened at Noumea, New Caledonia on 21st - 24th February 1994, which recommended:-

"That the concept of BioNET be endorsed as a means of meeting biosystematic needs of the Pacific region, including the provision of an identification service for plant pests, it is recommended that donor funding be sought for a workshop to be held in late 1994, prior to the BioNET-INTERNATIONAL Workshop for LOOP/Donor interface, to define the mission, objectives, work programme and indicative budget for a Pacific BioNET LOOP."

This recommendation was subsequently endorsed by the SPC Meeting of the Permanent Heads of Agriculture and Livestock Production (PHALPS), which followed immediately on the 8th Regional Technical Meeting, and the Committee of Representatives of Governments and Administrations.

OBJECTIVES

- To mobilise, pool, and co-ordinate the Pacific region's resources of biosystematics capabilities through the transfer of skills, knowledge, scientific expertise, and other resources to assist with sustainable development relating to agriculture and environment protection.
- To ensure requisite investment in biosystematics to support programmes for sustainable agriculture development, the environment, and biodiversity through credible and measured scientific advice and services to member countries and territories.

PRIORITIES

- Provision of a regional identification service of pest and disease organisms and specimens from environmental studies, initially based upon existing Pacific disease and insect collections in regional institutes.
- Institutional strengthening in biosystematics for PICs through establishment of biodiversity collections, enhancing of identification skills, transfer of technology, knowledge and training of PIC experts.
- Update existing pest information from surveys conducted in the late 1970s and to conduct new surveys of invertebrates, weeds and microorganisms not previously studied to assist with plant quarantine decision making and general pest control in the Pacific Islands.

- Enhance regional and world knowledge of the diversity of living organisms in the PICs through taxonomic studies and surveys and make this information available through the South Pacific Commission (SPC) and South Pacific Regional Environment Programme (SPREP) in printed forms, interactive CD-ROMS and on electronic mail linkages.

In accordance with the recommendations endorsed by the 11th Conference of Permanent Heads of Agriculture and Livestock Production Services (PHALPS 11) a funding proposal for sponsorship of a Workshop to establish PACINET was drafted jointly by the Local Steering Committee for PACINET and the Technical Secretariat of BioNET-INTERNATIONAL (TECSEC). The final proposal was agreed at a special meeting of the Steering Committee comprised of representatives of SPC (Mr Semisi Pone); the South Pacific Regional Environmental Programme SPREP (Mr Leslie Ward); CSIRO (Dr Ebbe Nielsen); and Landcare Research New Zealand (Dr John Longworth). This proposal was submitted by SPC to the UNDP/TCDC/SU in New York through the UNDP Regional Office in Suva, Fiji in late 1994.

The UNDP/TCDC/SU response in June 1995 was the allocation of a grant of US\$ 109,000 to cover the cost of attendance of national representatives of all Pacific Island and Mainland States of SPC and resource persons from CSIRO, Landcare New Zealand, Bishop Museum Hawaii and the Technical Secretariat of BioNET-INTERNATIONAL.

In making this award the UNDP Special Unit in recording UNDP's endorsement and support for the PACINET initiative and in welcoming the strengthening of Technical Cooperation between Developing Countries (TCDC) within the PIC emphasised that UNDP Funding and support for PACINET was conditional upon:-

- PACINET being established in response to the needs and requirements of the member countries involved.
- Member countries taking the lead in determining their priorities.
- National and regional institutions have an interest in and are substantially involved in defining the workshop's agenda.

The UNDP/TCDC/SU also indicated that it would like PACINET to take into account and link up with the GEF-funded South Pacific Biodiversity Conservation Programme of SPREP where appropriate as well as the Capacity 21-funded Programme of Capacity Building on National Environmental Strategies.

Also, to the extent that PACINET would be developing an information network, this should at the time it is formulated also link up, as appropriate, with existing information networks at the national and regional levels, including the network for small island developing states (SIDSNET). SIDSNET is the proposed information network designed to provide connectivity between its central node and existing national, regional and global databases, through INTERNET, covering a host of development areas. Once fully established, SIDSNET would be particularly relevant to PACINET.

Finally, UNDP/TCDC would appreciate if the outcomes of the Workshop provide for clear follow-up activities with responsibilities assigned to participating member institutions. It

would also be informative if the workshop reached consensus on common priority areas of focus for PACINET, the types of activity/service which it should provide, an outline of its institutional arrangements, including its management, a Programme for the remainder of 1995 and for 1996, and an indication of funding requirements for its proposed activities.

The Formal Proposal presented as Section 5 of the document, is the workshop's response to the directions of the PHALPS 11 Meeting at Noumea of February 1994. In accordance with SPC protocol it is submitted to the 12th Meeting of PHALPS to be convened in the Cook Islands in March 1996 and subject to endorsement by that body, onward transmission to the Committee of Representatives of Governments and Administrations (CRGA) and the South Pacific Conference.

Endorsement by the highest body of SPC will signify the establishment of PACINET and will enable the implementation of the Work Programmes in SPC countries.

2. SUMMARY

The special PACINET Formulation Workshop, designed to draft a Formal Proposal to Establish and Operate a PIC (SPC) LOOP of BioNET-INTERNATIONAL, for approval of SPC Member Governments was; convened by SPC at Nadi on 12th -16th February 1996; and sponsored by the United Nations Development Program Special Unit for Technical Cooperation between Developing Countries(UNDP/TCDC/SU).

Scientific and technical representatives, nominated by the governments of the following SPC countries participated; **American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, New Caledonia, Niue, Papua New Guinea, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis & Futuna and Western Samoa**, together with representatives of SPC and resource persons from the Technical Secretariat (TECSEC) of BioNET-INTERNATIONAL, Australian National Insect Collection (ANIC), Australian Quarantine and Inspection Service (AQIS), Bishop Museum, CRC for Tropical Pest Management, Hortresearch, Landcare Research, Pacific Concerns Resource Centre Inc, Pacific Regional Agricultural Programme (PRAP), South Pacific Regional Environment Programme (SPREP), and the University of the South Pacific (USP).

All the decisions and recommendations of the Workshop were made by the SPC country representatives.

National statements on the biosystematic situations, highlighting strengths, deficiencies and needs, presented by country delegates, and the sub-regional synthesis by SPC, emphasised the vital role of biosystematics in support of national and sub-regional aspirations for sustainable agriculture development, conservation and sustainable use of biodiversity. They focused on acute deficiencies and urgent needs in terms of information and communications; trained professional and technical personnel; effective identification services; reference collections for identification of organisms and as resources of biological and ecological data; and new technologies, especially as aids for identification.

National representatives were convinced that very substantial development and enhancement of biosystematic resources was urgently needed in the sub-region to support national and sub-regional programmes in biology. They welcomed the establishment of a technical cooperation network within SPC, as a LOOP of BioNET-INTERNATIONAL to pool, share and optimise the use of existing resources for the benefit of all member countries, and subsequently for the implementation of donor-funded Work Programmes to enhance these resources through capacity building and human resource development.

They attached urgency to this approach, especially in view of the current favourable donor climate for such initiatives under BioNET-INTERNATIONAL, and towards this end they devised an organisational and management structure for a BioNET LOOP in SPC, to be known as PACINET, with designated memberships and delegated mandates and responsibilities.

PACINET's purpose was seen as providing the vital biosystematic tools needed by national scientists and technicians. The special needs of agriculture, horticulture, forestry, crop protection and quarantine were recognised, together with those of environmentalists, and the essential role of biosystematics in sustainable use of the genetic resources of biodiversity was acknowledged.

PACINET's immediate objective should be to establish and sustain within the SPC sub-region, realistic self-reliance in biosystematics, with special reference to the crucially important organisms which comprise the invertebrates, weeds and microorganisms.

National delegates agreed that, all public and private sector organisations so designated by SPC governments, should be full reciprocating members of PACINET. The activities of national institutes (NIs), which collectively constitute a national net, should be coordinated by a nominated National Coordinating Institute (NACI) and the activities of PACINET should be coordinated by a special office of SPC designated as the Network Coordinating Institute (NECI). As in other BioNET LOOP's PACINET should be managed by the LOOP Coordinating Committee (LCC) comprised of all NACIs, the NECI and other elected bodies and representatives. The LCC may elect a smaller Executive Committee.

The activities of PACINET should include core-programmes designed to enable the mobilisation and sharing of existing resources, and the provision of appropriate biosystematic support to member countries through reciprocal services between institutions as appropriate, and the exchange of information and materials, pest surveys, the transfer of skills and technologies and joint ventures. Additionally, substantial donor-funded Work Programmes should be initiated to establish and enhance information and communication services, train new biosystematists, upgrade present expertise and expand biosystematic capabilities downstream through transfer of skills to practitioners in conservation programmes, plant protection, IPM and biological control systems, plant quarantine, and to skilled staff; rehabilitate collections and records and to develop and use new technologies.

Under the principles of Technical Cooperation Networks core-activities of PACINET's Do-It-Yourself core-programmes and reciprocal services should be undertaken within existing core-budgets of the participating institutes, which contribute in cash or kind to initiatives for the common good and for mutual benefit. But for the enhancement of sub-regional resources of trained personnel, information services, collections and records and new technologies, substantial donor-funding would be necessary, and PACINET should devise costed programmes for this purpose. Donor support was also essential to enable effective funding of the NECI at SPC.

It was unanimously agreed and so recommended by the National Delegates at the PACINET Formulation Workshop that:-

SPC Member Governments, through the established SPC protocols should be invited to endorse and authorise the establishment and operation of a Pacific (SPC) LOOP of BioNET-INTERNATIONAL to be known as PACINET, and to pledge their support to sustain this LOOP as a sub-regional Technical Cooperation Network and an integral part of their national development programmes.

The Formal Proposal submitted to SPC Member Governments through this document, seeks authority for the institutions listed in the Proposal to establish and operate PACINET. It also seeks endorsement of governments in principle of the Work Programmes outlined in the Proposal, so that PACINET may proceed to draft costed programmes for submission through accepted SPC channels to donors for funding consideration.

3. ACKNOWLEDGEMENTS

The PACINET Formulation Workshop was made possible through the generous assistance of the UNDP Special Unit for Technical Cooperation between Developing Countries (UNDP/TCDC/SU) which provided a grant of US\$ 109,000 to underwrite the costs of participation of the delegates from SPC countries, the staff of SPC and the resource persons from BioNET-INTERNATIONAL Technical Secretariat, Professor Tecwyn Jones and Mr Simon Gallagher; CSIRO (Australia), Dr Ebbe Nielsen; Landcare Research (New Zealand), Dr David Penman; and the Bishop Museum (Hawaii), Dr Scott Miller. The UNDP grant also enabled the production and distribution of this Formal Proposal (and the Proceedings of the PACINET Formulation Workshop which will follow). Special gratitude is recorded to the UNDP and especially to its Senior Regional Advisor Dr Bernabé Garcia for his keen interest and support.

The workshop was kindly hosted at Nadi by the South Pacific Commission/European Union Pacific Plant Protection Service Project (SPC/EU PPPS) which provided an excellent venue, transport and local services.

Mr Semisi Pone, Project Manager of the SPC/EU PPPS, who undertook responsibility for convening the Workshop, and staff of the SPC/EU PPPS are thanked for their valuable assistance.

Gratitude is recorded to the national delegates from the 27 countries represented at the Workshop for their contributions, in the form of presentations of National Statements, and for their deliberations which led to the drafting of the Formal Proposal and the outline Work Programmes accompanying it.

The delegates in turn acknowledge the assistance of, CRC for Tropical Pest Management Australia, Dr David Yeates; AQIS, Dr Robert Ikin; Pacific Concerns Resource Centre (Fiji), Mr Lopeti Senituli and Mr Clark Peteru; and Mr Sam Sesega (SPC Sustainable Development Network Programme Adviser) and a special vote of thanks is recorded for the staff of the SPC Suva, who manned the Workshop Secretariat especially Mr Albert Peters (Biological Control Advisor), Mr Bernard Pilon (Plant Protection Training Officer, Suva), Mr Iwan Erichsson (Information Officer), Mrs Keresi Morris (Project Assistant/Plant Protection Service), Mrs Susana Taufa (Information Assistant), Ms Lorna Mosese (Project Assistant/Sustainable Development Network) and Ms Tarai Cama, and for the simultaneous translation services provided so efficiently by the SPC team of Mr Roy Benyon (SPC Head Translation/Interpretation), Ms Marie Bayle, Mrs Elizabeth Auger, Mrs Anne Chaumelle, Ms Anne Dubois and Mr Phill Hardstaff (Technician).

4. INTRODUCTION

The Situation

Most South Pacific Commission (SPC) member countries are heavily reliant on agriculture for subsistence and generation of their GNP, and sustainable agricultural development is crucial for the health and welfare of their peoples. The environment in the form of scenic beauty and unique and varied flora and fauna is an important source of foreign exchange from tourism in many member States. Throughout SPC the conservation of managed and natural habitats is vital to support life, provide food and sustain good health. Nowhere is sustainable development, conservation and sustainable use of biodiversity so imperative, and so eagerly sought, than in the South Pacific sub-region.

The small-island nature of the vast majority of the SPC States makes the South Pacific a sub-region of particular concern in terms of sustainable agricultural development and conservation and sustainable use of the environment. Limited biological diversity in many small islands, susceptibility to ravages by alien organisms, and the lack of indigenous resources to replenish degraded habitats, are problems of critical dimensions. Any imbalance in agro-ecosystems or the natural environment can have drastic and irreversible consequences, and with very limited variety of subsistence and cash crops available to them, the Pacific Island States are particularly concerned with sustainable agricultural systems - including plant protection regimes and effective quarantine.

Sustainable agricultural development, conservation and sustainable use of the environment and biodiversity are management issues, and as in all such management exercises, a critical requirement is to know the nature and properties of the resources to be managed. Where scientific knowledge is to be the basis of managers, the vital prerequisite for success is knowing the exact identity and relationships of the organisms involved, i.e. sound biosystematics is essential.

Biosystematics, the discipline dedicated to discovering, identifying, classifying and elucidating phylogenetic relationships of organisms, is one of the languages of biology and the foundations on which biological science derives. It is particularly concerned with names as name are the keys to what is known about organisms.

In the Pacific, as elsewhere, most organisms that are known to science, but the same is not true of the far more numerous but less fashionable forms of life. In step with the rest of the world perhaps, it is safe to say that less than 10% of all the invertebrates (insects, mites, spiders, worms, snails, crustacea and other arthropods etc.), fungi, bacteria, and viruses have been named classified and documented. Yet it is these which, through their sheer numbers, play crucial roles in the maintenance of ecosystems and the functioning of the earth's geochemical cycles. There are at least six times as many fungi as there are flowering plants. There are at least an estimated 2.7 million species of free-living and parasitic nematode worms and between 6-10 million species of insects on Earth.

It is these unfashionable organisms - the invertebrates and the microorganisms of the plant world, that are the source of the pests and diseases and of the natural enemies for controlling them. They are the cause of plant quarantine problems. They are also the means by which the state of our environment can be assessed and its changes monitored i.e. these organisms are valuable bio-indicators. They are also a rich resource of; pharmaceutical drugs,

antibiotics and other beneficial products, and have the potential as genetic resources for use in the engineering of green products.

These invertebrates and microorganisms need to be managed in a wise way. As pests they must be controlled through cost-effective and environmentally acceptable ways - preferably through the use of their own natural enemies. As contributors to soil-fertility, the balance of nature, and the maintenance and evolution of the environment, they need to be safe-guarded and conserved i.e. like all components of biodiversity they need to be managed in a wise and sustainable way.

The Problem

Their management depends on their recognition as discrete living entities, and on an understanding of their interrelationships, (and in scientific terms this means having the necessary biosystematic capabilities) and these are grossly deficient in the PIC sub-region.

National and regional capabilities in biosystematics are totally inadequate to support national programmes in the fields of conservation and sustainable agricultural development, including biological and integrated pest control programmes and plant quarantine. Furthermore, access to needed biosystematic services, available on payment, from the major expert centres of developed countries, is precluded by costs and foreign exchange problems.

In brief, the scientists of the PIC sub-region who have been charged by their governments to achieve sustainable agricultural development, conservation and wise-use of the environment, are constrained from effective response by the **biosystematic impediment** to their scientific endeavours.

Few, if any Pacific Island States (PICs) have effective biosystematic capabilities at the present time, and those centres that are in operation are usually narrow in scope and local in nature. However, PICs have the corporate potential to be a much more effective resource which, through mutual self-help capacity building and human resource development programmes, could provide valuable and essential services.

The lack of adequate biosystematics capabilities in the sub-region is a constraint to national programmes for environmentally acceptable pest management, international trade and quarantine and monitoring biodiversity and developing sound management systems. The inadequacy of national biosystematic capabilities, which is a common feature of all PICs, is a critical constraint to the achievement of national objectives for sustainable agricultural development and sustainable use of environmental and biodiversity resources in these countries.

The Solution

It is the conviction of the PICs that this common biosystematic problem can most cost-effectively, and technically best, be resolved by means of a Technical Cooperation Network (TCN) designed to pool the biosystematic resources of the region and enable them to be shared by all the network members. It is further considered that such a network would stimulate and catalyse capacity building and human resource development in biosystematics in member countries, as the quantifiable benefits of sharing resources become apparent through regional identification services.

BioNET-INTERNATIONAL (BI), as a TCN, was conceived especially, to provide the mechanism and the means **to enable developing country sub-regions to establish and sustain, realistic self-reliance in biosystematics to support national programmes for sustainable agricultural development, conservation and sustainable use of biodiversity.** It is an enabling mechanism to support the wide range of national and international interventions needed to assist developing countries to achieve full implementation of the Convention on Biological Diversity.

BI is a global network in the making, comprised of a series of inter-linked sub-regional LOOPS (Locally Organised and Operated Partnerships) in developing countries, supported by consortia of expert centres, (known collectively as BIOCON), and by a central Technical Secretariat (TECSEC) at CAB-INTERNATIONAL. It is the function of BIOCON to provide technical support through donor-funded programmes, assisted by the TECSEC, which also coordinates BI development and activities.

BI is managed by its Consultative Group (BICG) through its Coordinating Committee (BICC) and TECSEC, and SPC is a founder member of both BICG and BICC through its regional representative at the SPC at Suva in Fiji. The SPC representative played a major role at the BI Global Workshop held in Cardiff in August 1995, where action plans for the implementation and strategies for funding BI were developed.

BioNET-INTERNATIONAL, without prejudice to its ultimate scope, is concerned particularly with biosystematics of invertebrates and microorganisms.

Like all Technical Cooperation Networks, a BI LOOP is an institutional mechanism for cooperation between developing countries, with longevity and permanency being assured by enduring commitment by its member governments to sustain it. It serves to mobilise and pool existing resources to be shared for the benefit of all member institutions, under the principle of reciprocity as appropriate. LOOPS have their own core-programmes supported from within existing institutional budgets and manpower resources, with special Working Groups and Task Forces as necessary.

As a permanent collaborative structure, with clear long-term objectives to be achieved through enduring programmes, into which finite projects may be assimilated, BI LOOPS are effective mechanisms for donor inputs and for optimising their value and use.

BI LOOPS have formal structures, management systems and accountability. Management resides with a LOOP Coordinating Committee (LCC) comprised of nominated National Coordinating Institutes (NACIs) and other elected organisations, and LOOP activities are coordinated by a dedicated Network Coordinating Institute (NECI), assisted as necessary by the TECSEC. Responsibilities of National Institutes (NIs), NACIs and the NECI and the LCC are prescribed by agreed mandates.

Action

The Pacific region has two key regional organisations; SPC focusing upon sustainable agricultural development, and the South Pacific Regional Environmental Programme (SPREP) concerned with conservation of the biodiversity and wise use of the region's natural environment. Biosystematics, the reliable identification of organisms, is fundamental to all aspects of pure and applied biology, and is an essential basis for effective crop protection, quarantine, utilisation of genetic resources, the development of sustainable systems, and the conservation and wise use of the environment and biodiversity.

The establishment of a Pacific LOOP of BioNET-INTERNATIONAL was recommended by the 8th Regional Technical Meeting on Plant Protection of SPC held at Noumea, New Caledonia on 20th - 24th February 1994 and was endorsed by PHALPS in the following week. PHALPS furthermore directed that a donor-funded LOOP Formulation Workshop should be convened to prepare the Formal Proposal for the establishment of this LOOP - to be known as PACINET.

This Workshop was convened by the SPC, under UNDP/TCDC/SU sponsorship at Nadi on 12th - 16th February 1996 and the Formal Proposal for PACINET was compiled, together with work Programmes designed for donor funding.

This Proposal which constitutes Section 5 of the document is respectively submitted through SPC Suva to the higher organs of SPC for endorsement.

Implementation of PACINET

1. Advantages

PACINET is potentially of equal benefit to plant protection and primary production. It has unique potential advantages in having the infrastructure of SPC (in agriculture and plant protection) and of SPREP (in the natural environment and conservation of biodiversity) to provide the basis for its establishment and success. Both organisations have mandates from member governments in their specific areas, and are committed to PACINET as a result of their involvement in the Noumea Meeting of 1994 and their support for PACINET at subsequent meetings of the Committee of Regional Governments and Administration of the SPC Conference.

PACINET is envisaged by PICs as being dedicated to satisfying the biosystematics needs of its member countries through Work Programmes defining PIC's aims, objectives, needs and priorities, which would, from the outset, focus upon plant protection and agricultural biodiversity in the sub-region.

PACINET will also address a common, specific, and critical problem currently limiting progress towards sustainable agriculture, and wise use of the environments and biodiversity of PICs. Complementarity, rather than duplication, will be sought by developing different areas of expertise in different institutions spread throughout PICs supporting each other through true reciprocity and exchange of services.

2. Sub-Regional Relationships

In terms of plant protection and biodiversity in the Pacific, it is important that potential developments like PACINET recognize, work closely with, and complement the key roles already played by organisations like SPC and SPREP.

In the Pacific, SPC will play a central coordinating role in PACINET. It would, in fact, be a logical step for SPC (with the assistance of SPREP) to be the NECI of PACINET. SPC would, in this capacity, provide a link between the PACINET LOOP and the Technical Secretariat of BioNET, and through it all, other LOOPS of BioNET and members of BIOCON.

SPC, through its Plant Protection Services, has an acknowledged role in:

- coordination of expertise and information in quarantine and plant protection in the region, including databases, publications, and library services.
- training, workshops, policy meetings.
- communication.
- bibliographic reference services.
- external institutional linkages.
- advice on pest control, including Integrated Pest Management (IPM).
- advice and assistance on biological control.

With the formation of PACINET, the following additional benefits would result for the South Pacific:

- a framework for definition of country and regional plant protection needs and priorities relevant to biosystematics, as a basis for obtaining TCN and donor funding. PACINET and BioNET would develop strategies for funding proposals for agreed priority activities determined by the LOOP.
- a focal point for donor funding for plant protection and biosystematics for PICs.
- institutional strengthening in biosystematics in collections, training and transfer of skills and knowledge.
- an identification service based on Pacific and other collections, as such services are no longer freely available as user-pays is now the basis of operating.
- access to worldwide biosystematic skills through BioNET and BIOCON.
- a potential to apply all of the above concepts to biodiversity needs of SPC members.

SPREP has facilitated, for biodiversity issues, the development of a National Environment Management Strategy (NEMS) for some PIC. This has provided clear priorities for donor funding.

Similarly, National Plant Protection Management Strategies may need to be closely linked to PACINET. These could provide the basis for a regional plant protection plan, which would also be useful when seeking donor funds. Such a plan would enable effective deployment of donor funds to agreed common priority problems.

It is envisaged that PACINET will coordinate its activities closely with other initiatives such as the SPREP GEF-funded South Pacific Biodiversity Conservation Programme and the Pacific Sustainable Development Networking Programme.

NOTE:-

Concerning SPREP's involvement in PACINET, the SPREP delegate at the Workshop and country representatives, indicated that this was a matter that needed to be referred to the SPREP Conference. Biosystematic needs for the wider issues of conservation and sustainable use of biodiversity requires a country-driven needs assessment and feasibility study in order to define priority work areas. This process needs to be completed and presented for discussion at the SPREP intergovernmental meeting. An opportunity to do so would arise in September 1996. Meanwhile, SPREP's potential participation is not accommodated within the current budget.

SECTION 5

**THE PACINET
PROPOSAL**

1. **GENERAL DESCRIPTION**(ii)

2. **MEMBERSHIP & RESPONSIBILITIES**(vi)

3. **MANAGEMENT STRUCTURE & GOVERNANCE OF PACINET**(x)

4. **MANDATES**.....(xi)

APPENDIX I: OUTLINE WORK PROGRAMMES.....(xiv)

1. GENERAL DESCRIPTION

1. NAME:-

In accordance with the accepted nomenclature of the global networks of BioNET-INTERNATIONAL for developing country sub-regional LOOPS, the Pacific LOOP shall be designated and known as PACINET.

2. MISSION STATEMENT:-

- Promote the critical role of biosystematics in sustainable primary production and stem the continuing decline in the quality and extent of professional biosystematic knowledge and services.
- To develop, strengthen and provide the essential biosystematic support for sustainable primary production.

3. NATURE:-

PACINET shall be established and function as a Technical Cooperation Network (TCN) in accordance with the principles of Technical Cooperation between Developing Countries (TCDC) as prescribed by UNDP, and as such shall be supported and sustained by SPC member Governments, and accorded due priority in national development programmes.

4. OBJECTIVES:-

- To mobilise, pool and co-ordinate the Pacific region's resources of biosystematics capabilities through the transfer of skills, knowledge, scientific expertise, and other resources, to assist with sustainable development relating to agriculture and environment protection
- To ensure requisite investment in biosystematics to support programmes for sustainable agriculture development, the environment, and biodiversity through credible and measured scientific advice and services to member countries and territories.

5. PRIORITIES:-

- Provision of a regional identification service of pest and disease organisms and specimens from environmental studies, initially based upon existing Pacific disease and insect collections in regional institutes.
- Institutional strengthening in biosystematics for PICs through establishment of biodiversity collections, enhancing of identification skills, transfer of technology, knowledge and training of PIC experts.
- Update existing pest information from surveys conducted in the late 1970s and to conduct new surveys of nematodes, insects and microorganisms not previously studied to assist with plant quarantine decision making and general pest control in the Pacific Islands.

- Enhance regional and world knowledge of the diversity of living organisms in the PICs through taxonomic studies and surveys and make this information available through the South Pacific Commission (SPC) and South Pacific Regional Environment Programme (SPREP) in printed forms, interactive CD-ROMS and on electronic mail linkages.

6. APPROACH:-

Realistic self-reliance shall be achieved through two simultaneous initiatives *viz:-*

- Mobilisation, pooling and sharing of existing sub-regional resources of experience, expertise, information, technologies and technical know-how, professional and technical skills, materials (collections and records) and infra-structures under the principle of reciprocity wherever appropriate, and in the true spirit of a TCN, DO-IT-YOURSELF sub-regional approach.
- Implementation of donor-funded Work Programmes to enhance existing resources to the requisite level through capacity building and human resource development initiatives.

7. PROJECTION:-

PACINET, given the requisite commitment and support of SPC and its Member Governments in sustaining it, and effective and enduring partnerships with donors, shall, through rationally phased programmes, achieve realistic self-reliance in biosystematics of invertebrates and microorganisms within medium term time horizons.

8. MEMBERSHIP:-

PACINET shall embrace all SPC countries (and membership shall include all institutions designated by member countries, such as public and private sector organisations, NGO's, IGO's and other relevant bodies) who shall, as appropriate, be full reciprocating members.

Membership shall include all Pacific Island Countries (PICs) and any other countries and/or organisations invited to membership by the PICs, and members shall be fully reciprocating, or not as decreed by the PIC members.

9. STRUCTURE & ORGANISATION:-

National Level:-

Those national organisations and other bodies within individual countries, which are identified by national representatives as being appropriate and desirable member institutes, and designated as National Institutes (NIs), shall form a national net to facilitate cooperation and collaboration, and the single National Institute selected to coordinate this net shall be designated the, National Coordinating Institute (NACI).

(iv)

Sub-Region level:-

The activities of PACINET shall be coordinated by SPC (pending SPREP's decision) through a special office designated as the Network Coordinating Institute (NECI), with a dedicated coordinator and support staff, and located at an appropriate biosystematic institute in a member country. It shall function as the centre for receipt and dissemination of information, and as the direct link with the Technical Secretariat of BioNET-INTERNATIONAL, and with the NECIs of other BioNET LOOPS. It shall be the first point of contact for all external bodies.

Governance:-

PACINET shall be wholly owned by its members on behalf of their governments, and all decisions concerning PACINET shall be theirs, PACINET shall be managed by a LOOP Coordinating Committee (LCC) comprised of all NACIs, the NECI and any other duly elected members, and the NECI shall serve as its executive body. The LCC shall meet biennially to review progress, devise programmes and action plans and liaise with donors and other supporting bodies. The LCC may elect a smaller Executive Committee for particular purposes.

10. RESPONSIBILITIES:-

National Institutes, National Coordinating Institutes, the Network Coordinating Institute, and the LOOP Coordinating Committee shall function in accordance with the Mandates provided in this Proposal.

11. WORK PROGRAMMES:-

Under the principles of TCDC, PACINET members shall immediately initiate from within their own resources the exchange of information, and other joint ventures to enable the pooling of resources for the common good through the PACINET Coordinating Office at SPC (pending SPREP's decision).

Major Work Programmes requiring external funding demand for institutional strengthening, capacity building and human resource development with Needs Assessment Exercises as necessary shall be submitted to donors for funding consideration in the following areas of endeavour:

- the establishment/enhancement of information and communications
- training of personnel
- rehabilitation of resources
- the development and use of new technologies

PACINET driven *ad hoc* Working Groups and Task Forces shall be created to tackle specific problems, and undertake sharply focused initiatives, as and when necessary.

(v)

12. FUNDING:-

Core-programmes as described in 11 above will be resourced from within existing institutional budgets and/or member governments.

The major capacity building and human resource development programmes listed under 11 above will only be possible with donor support.

Donor funding shall be sought to support the human resources and operational costs of the PACINET Coordinating Office (NECI) at SPC (pending SPREP's decision) for an initial period of three years, to enable it to catalyse and enable core activities and joint ventures pertaining to the mobilisation and sharing of existing resources, including information, and to commission and manage Need Assessment Exercises and to negotiate and implement donor funded programmes.

The NECI should therefore be self-supporting, through financial provisions within those programmes for its managerial and coordinating functions.

The ultimate goal is to promote significant self-sufficiency in biosystematics in PICs in collaboration with other centres of biosystematics.

(vi)

4. MANDATES

i. THE LOOP COORDINATING COMMITTEE (LCC)

This shall be composed of the NACIs and other members in the LOOP structure and the NECI which shall also serve as its executive office. Thus, there will be one representative from each country and from each of the other elected bodies. The LCC's responsibilities shall be to:-

- Promote, maintain and sustain the sub-regional LOOP and its activities by, securing the necessary commitment and financial support of LOOP-Member Governments, the funding for core activities and Work Programmes from donor agencies and through good management of resources.
- Serve as a sub-regional advisory body on biosystematics, providing the best possible advice to LOOP-Member Governments, international organisations and donors and others, on relevant biosystematic matters in the sub-region.
- Appoint and oversee the activities of the NECI and enable it to serve as an effective and executive office of the LCC.
- Prescribe the mandates of all coordinating institutes within the LOOP (NECI and NACIs), and terms of reference for Working Groups and Task Forces.
- Ensure that all intellectual property rights and native rights of all LOOP-member countries are recognised and adequately projected into the operation of the LOOP:
 - (1) intellectual property rights
 - (2) farmers rights (land, races, species)
 - (3) community property rights
 - (4) breeders rights
 - (5) indigenous people's knowledge
 - (6) national sovereignty
- Devise and enable the implementation of Work Programmes and other activities designed to achieve LOOP objectives,
- Draw up the Network Budget for core activities and work Programmes and oversee use of allocated resources.
- Resource this BUDGET and specific programmes from member-country contributions and donors.
- Meet at least biennially for the purpose of conducting LOOP business, especially to evaluate progress and outputs in relation to inputs and to identify needs, (with rotational venues if practical).
- Represent the sub-region on the BioNET-INTERNATIONAL Consultative Group (BICG) and its Coordinating Committee (BICC).
- May elect to convene a smaller Executive Committee for particular purposes.

ii. THE NETWORK COORDINATING INSTITUTE (NECI)

This is the very heart of the LOOP and carries substantial responsibilities. It is the centre for receipt, collation and distribution of information. It is the executive office of the LOOP Coordinating Committee (LCC), and its work horse. It is the link between the NACIs and the direct link between the LOOP and the central BioNET-INTERNATIONAL Technical Secretariat (TECSEC) and the link through this TECSEC with all other BioNET LOOPS and with BIOCON. The responsibilities of the NECI shall be to:-

- Coordinate the activities of the network in accordance with the instruction and directions of the LCC.
- Prepare programmes of work and budgets for approval by the LCC.
- Draft reports on activities and the Annual Report of the network as required by the LCC.
- Serve as, and provide an effective link between, the NACIs and the Technical Secretariat.
- Collect, collate and disseminate information; issue Newsletter.
- Organise network meetings.
- Serve as the repository of literature, documents and papers relating to the network.
- Liaise with and facilitate the operation of Working Groups and Task Forces.
- Generally function as the executive office of the LCC.
- Process funding proposals for donors on behalf of the LCC.
- Liaise on behalf of the LCC with the BioNET-INTERNATIONAL Consultative Group (BICG) and serve as local Secretariat for the Consultative Group Coordinating Committee (BICC).

iii. THE NATIONAL COORDINATING INSTITUTES (NACIs)

The NACI is the lynch-pin of national LOOP activities and has within it one person designated as the National LOOP Coordinator to whom responsibility for LOOP affairs is delegated. The responsibilities of the NACI shall be to:-

- Nominate a National Coordinator (person and post) and allocate time within the post's schedule to allow for the proper execution of NACI responsibilities.
- Coordinate national LOOP activities and programmes.
- Serve as the national representative on the LCC.
- Liaise with and exchange information with other NACIs and the NECI.

(xiii)

- Implement the decisions and recommendations of the LCC at national level.

- Provide, as delegated, leadership and/or support for Working Groups and Task Forces and other programmes.
- Provide feed-back to and from National Institutes.

iv. NATIONAL INSTITUTES

These are those national institutes, organisations, including NGOs services and other private and public sector bodies which have something to offer to LOOP activities, or who have need of LOOP services (i.e. providers and users of biosystematic services). They corporately constitute the National NET with which the National Coordinator works. Their responsibilities shall be to:-

1. Assist the NACI in the implementation of decisions and recommendations of the LCC at national level.
2. Contribute expertise, resources, information, research findings etc. to the LOOP through the NACI and NECI.
3. Actively participate in all feedback systems of the LOOP (e.g. identification needs, achievements, problems, solutions, new knowledge, technologies, new records etc.).
4. Lead, support and facilitate, as delegated, and otherwise contribute to Working Groups, Task Forces and other LOOP programmes.

v. WORKING GROUPS AND TASK FORCES

Working Groups and Task Forces should deal with specific problems in the sub-region. Working Groups may be permanent, addressing matters that need constant attention such as training, or may be temporary e.g. to deal with problems of difficult taxonomic groups. Task Forces may be appointed on an *ad hoc* basis to deal with special problems such as emergency identification needs - suspected exotic introductions etc.

The members of Working Groups and Task Forces consist of specialists appointed by the LOOP Coordinating Committee. The size of these Groups may vary according to the work load. The Committee may change members or size of the various Groups, or modify their Terms of Reference from time to time, if necessary or useful. One member of each Group should function as the Focal Point for that Group, and be responsible for maintaining the necessary contacts between the Group, other Groups and the NECI.

Each Working Group and Task Force should submit a Technical Report on their activities, conclusions and recommendations to the NECI, to be presented at the LCC and discussed by all the LOOP members. The Technical Report and its recommendations should, if adopted, be included in the report and recommendations of the LOOP to member Governments and donors.

**OUTLINE
WORK PROGRAMMES
OF
PACINET**

PACINET WORK PROGRAMME FOR SUSTAINABLE PRIMARY PRODUCTION (3 YRS)	
SUMMARY OF COSTS PHASE 1 (US\$)	
1. Information and Communication Services	1,630,000
2. Training in Biosystematics	2,980,500
3. Rehabilitation of Resources (Phase I)	1,900,000
4. Development and Application of New Technologies	430,000
SUB-TOTAL	6,940,500
5. Establishment and Operation of the NECI	716,127
Operation of NACIs (3 years)	660,000
GRAND TOTAL	8,316,127

WORK PROGRAMME 1

INFORMATION AND COMMUNICATION SERVICES

1. RATIONALE

Biosystematics deals with the identification, naming and classification of organisms and the elucidation of their relationships, and for its effective and efficient execution by specialists and practitioners access to biosystematic information is vital. A major constraint to biosystematic capabilities and services to support sustainable primary production within PICs is the lack of information which is available and lack of infrastructure to share the information that is available.

This work programme will:

- improve infrastructures that support identifications
- provide identification services
- provide INTERNET linked communication facilities
- develop local libraries and access to library systems
- provide a list of species of economic importance occurring in PACINET countries
- develop and maintain the SPC Pacific Plant Protection Information System (PPPIS)
- develop and maintain specimen record database system
- allow research on the biosystematics of priority groups

The underlying principle in PACINET's workplan in this programme is to develop local capacity, facilitate effective access to information and develop new information in priority areas and ensure the maintenance of key information sources.

2. BACKGROUND

With few exceptions there is relatively little expertise within the Pacific Island Countries (PICs) and cost of identifications provided by third parties combined with uncertainty regarding providers of identification and the time involved in obtaining identifications are major constraints.

Significant components of biodiversity critical to sustainable primary production have not been subject to study and maintained information systems are urgently required for identification and information retrieval of organisms of economic and environmental importance. Existing information systems need to be maintained up-to-date.

3. NEEDS

(i) Infrastructure Requirements for Identification

The infrastructure and equipment available vary greatly between PICs. A postal survey will be conducted for available equipment and an agreed minimum set of equipment decided (this will include stereo microscope, teaching quality compound microscope, light sources etc. Computer and climate controlled environment equipment if provided under other projects).

Existing equipment will be serviced and upgraded when possible and new equipment provided so that agreed threshold standard is met.

(ii) Identification Service and Clearinghouse

The objective of this project is to provide an affordable and timely high-quality identification service. This is of great importance to success of integrated pest management and quarantine services. The identification service will be provided through:-

1. a directory to taxonomic experts available for identification requests from PACINET countries, list of PIC collections, key international collections and key advisers;
2. establishing a clearinghouse to serve PACINET when species in question cannot be placed to an appropriate group; the clearinghouse is the key contact for all identification needs;
3. funds to fund identifications provided by third party providers;
4. support for research required for correct identification (less than 30% of the organisms of concern to PACINET are named from the region) and contingency.

(iii) INTERNET Linkable Computer Communication System

This project will provide information management and communications infrastructure to allow PACINET to communicate to share information and gain access to technical information required to strengthen biosystematics work. The aim is to establish a communications infrastructure, a set of tools to use it and a series of standard procedures and protocols for management and data exchange. The recommendation is to achieve this through establishing INTERNET capable systems in each PACINET country. To begin with INTERNET will be emulated locally and provide a national e-mail system through providing a computer acting as server in each country connected to at least one client computer and share high quality and volume printer and software. As the INTERNET reaches PICs the system will be connected and users will already know user protocols. The system will be established through training of one communication facilitator from each PACINET country who at a workshop will learn to establish and manage the server and client computers and load various databases.

For each country one client computer, one printer, one scanner, electrical back-up system and networking equipment and software licenses and application will be provided.

The setting up of the proposed computer communication system should be carried out in close collaboration with and where appropriate, build on existing networks established through the Pacific Sustainable Development Networking Programme.

(xviii)

(iv) Library Access and Development

Access to library services will be provided through INTERNET links and services that can be provided through national servers (see (iii) above). A postal survey will be conducted of existing library resources and baseline libraries to be available in each PACINET country established. This will include books as well as interactive identification CD-ROMS.

Following the survey of agreed baseline libraries, the libraries will be established by the end of the first year, for subsequent years about US\$ 1,000 is available for acquisition of additional and new titles as per agreed list.

(v) Inventory of Organisms of Economic Importance in PACINET Countries.

The outcome of this project will be an up-to-date account of the organisms of economic importance (as defined in (viii) below) occurring in PACINET countries or threatening invasion of the PACINET area. It will contain correct names, images, identification information, distribution and biological information (closely linked to (vi) below). When first completed it will be fully maintained and reissued when required. Pending the vehicles available it will be delivered in print, CD-ROM or WWW.

(vi) Maintenance and Enhancement of the Pacific Plant Pest Information System (PPPIS)

PPPIS was developed from the extensive collection of Pacific insects and diseases currently held within Landcare Research in New Zealand. Full compilation of the database, particularly for insects, remains to be completed. New technologies, particularly CD-ROM, provides the opportunity to complete photographic recording of the insects and diseases known to occur within each country. Investment is required to complete the inputting of distributional data into the database, linking the pest and disease database to the wider Pacific biodiversity collection of invertebrates held by other institutions and collections, and to provide photographic images on CD-ROM to each country which will illustrate their key invertebrates and microorganisms.

(vii) Specimen Database System

The project will provide a database infrastructure that allows PACINET countries to capture specimen records into a high quality, reliable databases and retrieve and interrogate this database. User friendly entry, clear field specifications and analytical tools will encourage entry and use of the database. The database could be maintained by the clearinghouse ((ii) above) and distributed through the national servers ((iii) above) pending INTERNET connection.

(viii) Biosystematics of Priority Groups

Less than 10% of the invertebrates, fungi and other microorganisms of the area are known. This project provides the capacity to facilitate acquisition of new knowledge on little-studied groups of significance to PACINET's objectives.

INFORMATION AND COMMUNICATION SERVICES	
COSTED WORK PROGRAMME (US\$)	
(i) Infrastructure requirements for identification (Stereo microscope, compound microscope, light source, miscellaneous supplies (or repairs and maintenance) \$ 15,000 x 20 countries)	300,000
(ii) Identification service and clearinghouse Directory and clearinghouse 20k/y 60k Identification charges 30k/y 90k Support and contingency 50k/y 150k	300,000
(iii) INTERNET linkable computer communication system (Equipment as detailed above, \$ 15,000 x 20 countries)	300,000
(iv) Library access and development Baseline libraries (\$ 5,000 x 20 countries) 100k Annual acquisitions (\$ 1,000 x 20 countries) 50k	150,000
(v) Inventory of organisms of economic importance in PACINET countries	130,000
(vi) Maintain and develop the PPPIS	100,000
(vii) Develop and maintain specimen database system	150,000
(viii) Biosystematics of priority groups	200,000
TOTAL (for 3 year programme)	1,630,000

WORK PROGRAMME 2

CAPACITY BUILDING IN BIOSYSTEMATICS

1. PREAMBLE

In the PACINET region, the workshop accepts that a primary function of the LOOP is to build the capacity within the countries of the region to address their biosystematics needs with particular reference to the biodiversity of invertebrates and microorganisms of agricultural importance.

In accepting this function, the workshop recognises the following:

- that countries must determine:
 - current capacity in human resources;
 - projected requirements for biosystematics services;
 - status of collection, libraries and information services;
 - levels and number of training opportunities required.
- that training requirements will be at varying levels and encompass retraining of existing staff and training of new staff.
- that training be offered in relation to individual country requirements but would generally have the following priority:
 - training in the isolation and identification of agricultural pests (species level);
 - training in the conduct of general crop surveys (family level);
 - curation and collection management for reference collections;
 - communication system establishment and operation (information technology);
 - sampling and data handling.
- that these priority areas for training may be accessed at different levels. For example one country may require a short course in pest insect identification, while another may work to train to a higher level of specialisation to prepare identification keys for a group of insects or pathogens.
- that training should be practically based wherever possible and that the full range of 'hands on', distance learning and field experience approaches be exploited.
- that staff trained in agricultural pest identification may be of considerable value in meeting other national objectives such as the characterisation of natural biodiversity.
- that in the University of the South Pacific, the region possess a regional university to facilitate the delivery of many training needs.

The outcomes of a targeted training programme should include:

- an increasing number of invertebrates and microorganisms identified to a high degree of accuracy within the resources available within each country.
- experts trained with a common programme being able to communicate with specialists in other countries using modern communication and analytical tools.
- reference collections curated and maintained to a high standard for use by quarantine, environmental and biodiversity interests.
- a reduction in the costs of obtaining external confirmatory identifications.

2. TRAINING REQUIREMENTS

Training likely to be needed at a range of levels:

a) Field Assessor: training in soil, crop and other vegetation sampling techniques; identification of key organisms, their biology and pest damage symptoms using field guides (short courses involving 'hands on' field practices).

b) Technical assistance: training in correct sorting, isolating, processing, labeling and storage of field-collected specimens; simple use of keys for identification; curation and maintenance of reference collections.
(Short courses within recognised regional institutions).

c) Technical Officer: training in the operation of local and regional identification services; data handling, storage and retrieval; operation of information systems, including libraries; operation of reference collections, including activities associated with the provision of identification services.
(Courses that may provide a formal qualification from regional institutions and institutions within the technical supporting consortium (BIOCON)).

d) Scientific Officer: training in the management of plant quarantine services; planning and operation of field surveys; identification of key pest groups to species level; management of information systems; development of information products to key users (Largely formal courses taught either within an institution or by distance learning. MSc-level of training is appropriate).

e). Biosystematist: training in formal systematics to produce taxonomic treatments at priority groups.
(MSc and PhD level of training required at internationally recognised centres of excellence in biosystematics with projects of relevance to Pacific needs).

3. NEEDS

Country reports have provided limited information on specific training needs. This work programme is based on the estimate of needs to address the requirements of agricultural biodiversity. However, a final programme allocating training opportunities to specific countries will require completion of a more comprehensive and uniform needs assessment, including resources outside of the region.

The draft Work Programme is based on a collective understanding of needs within the training categories in 2(a) and 2(e).

(a) Field Assessor:

An average of 6 trained Assessors per country is anticipated to deliver advice to farmers on pest and disease occurrence, and encourage community participation in identifying target organisms (132 persons).

(b) Technical Assistant:

Such staff will be employed in central laboratories or institutes. An average of three technical assistants per country is required (66 persons).

(c) Technical Officer:

Technical officers will be employed within existing national institutions. An average of three trained persons per country would be required (there is a need for training in operating library and information services) (66 persons).

(d) Scientific Officer:

These more specialised people will be located in key regional institutions. Given the principles of reciprocity, it is not necessary to have specialist group knowledge in each country. An average of two persons per each country trained at this level would give significant benefits (44 persons).

(e) Biosystematist:

There is a need to increase the regional capability in formal biosystematics and to provide confirmatory identifications. However training to a high level of biosystematics is not a regional priority. Most training should be at the MSc level (12 persons) with provision for a few (3 persons) to be trained to the PhD level (15 persons).

4. COSTED WORK PROGRAMME

Training will have different timing requirements. Immediate gains will come from training at field assessor and technical assistant levels. Longer term investment is required for training at higher levels:

- (a) Field Assessor: Six one-week programmes offered at key regional locations (20 - 22 participants in each programme).

ITEMS		USD
Airfares	1500 X 132	188,000
Tuition	1000 X 132	132,000
DSA	1000 X 132	132,000
Equipment*		65,000
TOTAL		517,000

* Basic field equipment and field guides will be supplied to each participant at USD 500 per person.

- (b) Technical Assistant: Three two week courses offered at regional or BIOCON institutions. (20 - 22 participants in each course).

ITEMS		USD
Airfares	1500 X 66	94,000
Tuition	2000 X 66	132,000
DSA	2000 X 66	132,000
TOTAL		358,000

- (c) Technical Officer: Training is to be divided into two types:

- (i) Short courses: two one-month intensive course at a key supporting institution (20 - 22 participants).

ITEMS		USD
Airfares	1500 X 44	66,000
Tuition	2000 X 44	88,000
DSA	4000 X 44	176,000
TOTAL		330,000

(xxiv)

(ii) Formal training: 6 months - 1 year programme at BICON and other supporting institutions (22 participants).

ITEMS		USD
Airfares	1500 X 22	33,000
Tuition	10,000 X 22	220,000
Living Costs	12,000 X 22	264,000
TOTAL		517,000

(d) Scientific Officers: MSc training for over 1 - 2 years at (half would be for one year and half would be for two years) at BIOCON and other supporting institutions. (24 participants).

ITEMS		USD
Airfares	1,500 X 12	18,000
Tuition	10,000 X 12, 20,000 X 12	360,000
Living Costs	12,000 X 12	144,000
TOTAL		522,000

(e) Biosystematists:

(i) MSc training on two years (12 participants).

ITEMS		USD
Airfares	1500 X 12	18,000
Tuition	10,000 X 12 X 2	240,000
Living Costs	12,000 X 12 X 2	288,000
TOTAL		546,000

(xxv)

(ii) PhD training over 3 years (3 participants)

ITEMS		USD
Airfares	1500 X 3 X 3 trips	13,500
Tuition	15,000 X 3	45,000
Living Costs	36,000 X 3	72,000
TOTAL		130,500

Budgetary provision must also be made for continuing education. This would include funding for:

- * Policy and advocacy
- * Management and competency
- * Outreach and community involvement.

USD 60,000

Note:

Training for Field Assessors will be completed over 2 years; Technical Assistants and Technical Officers will be trained within 3 years; and Scientific Officer training will commence for at least half of the trainees within 2 years and be complete within 5 years. Training of Biosystematists will be complete within 10 years.

CAPACITY BUILDING IN BIOSYSTEMATICS SUMMARY OF COSTS (US\$)	
a. Field Assessor (complete over 2 years)	517,000
b. Technical Assistant (complete over 3 years)	358,000
c. Technical Officer (complete over 3 years)	847,000
d. Scientific Officer (complete over 5 years)	522,000
e. Biosystematists (complete over 10 years)	676,500
f. Continuing Education Programme	60,000
TOTAL	2,980,500

WORK PROGRAMME 3**REHABILITATION OF COLLECTIONS AND ESTABLISHMENT
OF NEW RESOURCES****1. PREAMBLE**

Over the past 20 years, surveys of Pacific Island pests and diseases have been conducted. Most insect (>1 million) and disease (>6000) specimens are currently housed at Landcare Research facilities in Auckland, New Zealand. Other institutions have significant collections. PICs possess small reference collections but there are concerns about the reliability of identifications, curation and housing of these collections.

In establishing this work programme the workshop recognises that building in-country capacity to meet biosystematic needs requires investment in rebuilding or establishing reference collections and provide quality housing for such collections.

Locating collections within each country (or group of neighbouring countries) will provide the facility for: confirmatory identifications; adding to distributional data; preserving distinct biota; and training for local personnel. Such collections also provide additional material for specialist biosystematic revisions of priority groups.

2. NEEDS**(i) Current Status of Collections**

While existing reference collections are limited, it is important that their current status of curation and housing is assessed. A postal survey will obtain information on the current scope of collections, allocation of staff resources and current housing. An on-site review of selected key collections will follow involving external and local expertise. A few insect collections exist but fungal collections are thought to be non-existent.

(ii) Rehabilitation of Existing Collections

The review will identify specific needs for each existing collection. Requirements are likely to include:

• Capital		USD
Infrastructure Enhancement	20,000	
Cabinets	45,000	
Building renovations	20,000	
Climate control	15,000	
Database systems		
		100,000

• Operational		USD
Collection Enhancement		
Confirmatory identifications	75,000	
Materials and supplies	25,000	
Field collections, photographs	50,000	
		150,000

(iii) Establishment of New Reference Collections

New collections will require the development of an infrastructure to house each collection. This will include:-

• Infrastructure		USD
Cabinets	220,000	
Buildings	300,000	
Climate control	50,000	
Database systems	30,000	
		600,000
• Collection Establishment		
Confirmatory identifications	100,000	
Materials and supplies	75,000	
Field collections, photographs	225,000	
		400,000

Staff trained under Work Programme 2 will require operational funding to develop the collections and cooperation from BIOCON members is expected to assist in the establishment phase. Equipment supplied under Work Programme 1 will be essential to support the operation of each collection.

Collections will be established in a staged process which will reflect priority crops. Three crop surveys per year across the sub-region are proposed with specimens housed in the appropriate reference collection.

Working collections will require curated specimens plus other material such as damaged plants and photographic records to assist in identification. In establishing collections, expert involvement will be necessary to provide confirmed identifications for the reference material.

(iv) Complete Crop Pest Inventories

Work Programme 1 will complete a review of existing databases and collections to identify gaps in our knowledge of invertebrate and microorganism distributions. In Work Programme 4, inventories of crop invertebrate and microorganism biodiversity will be completed in identified priority areas to establish more comprehensive reference collections. It is proposed that three inventories will be completed per year over a three year period. The surveys will be conducted according to protocols prescribing the sampling, crops, ethics and property rights and will be conducted with locally based staff and specialists.

3. REHABILITATION OF COLLECTIONS AND ESTABLISHMENT OF NEW RESOURCES	
SUMMARY OF COSTS (US\$)	
(i) Current Status of Collections Postal survey and on-site review	50,000
(ii) Rehabilitation of Existing Collections Infrastructure enhancement Collection enhancement	100,000 150,000
(iii) Establishment of New Reference Collections Infrastructure Collection establishment	600,000 400,000
(iv) Complete Crop Pest Inventories 3 inventory programmes per year	600,000
TOTAL (for a 3 year programme)	1,900,000

WORK PROGRAMME 4

DEVELOPMENT AND APPLICATION OF NEW BIOSYSTEMATIC TECHNOLOGIES

1. RATIONALE

New technologies developed in biosystematics have the potential to increase the efficiency and effectiveness of the PACINET initiative. Molecular and electronic technologies are specifically targeted in the work plan below. Modern electronic methods are beginning to replace traditional paper-based methods and can make identifications faster, simpler and more accurate. When developed intelligently, these new technologies can also make biosystematic information available to a broad spectrum of personnel not expert in identification such as plant protection personnel, quarantine staff, ecologists and biodiversity workers.

Development of computer-based methods of identification require more resources than the paper-based methods. Once developed, they can easily be updated and expanded. Because of the increased ability of these new methods to transfer knowledge their development pays handsome dividends in the long-term.

Modern personal computer systems can deliver information as text, still images of high quality, video sequences and sound. When combined effectively these capabilities can be used to develop computer information systems which enhance the transfer of knowledge. These packages can never entirely replace the workshop environment for training of personnel, but can be used in conjunction with these methods and at remote sites.

Modern molecular and biochemical methods of identification are extremely useful in specific contexts. These methods assess genetic identity at the level of the DNA strand, and therefore have the potential to be far more accurate than traditional morphological methods. They may be used when particular behavioural or ecological differences are found between populations of organisms that are morphologically identical. A genetic DNA difference between the two populations may indicate that the two groups do not interbreed in nature and are separate species.

Molecular methods of identification require a larger initial input of resources than traditional methods. Their use is justified in particular cases where biological problems have defied traditional methods.

2. NEEDS

- (i) To develop a single, electronic identification package targeted to the needs of PACINET in plant protection.
- (ii) To develop multimedia training packages in three areas: the preparation of biological specimens for identification and storage; methods of collecting and providing field inventories of arthropods and other invertebrates, and using the SPC PPP's database.

- (iii) To develop molecular-based probes for a particular pest organism of relevance to PACINET. Once developed, support for the continued use of this molecular tool in a PACINET BIOCON.

3. ACTIONS

Submit costed programmes for the production of an electronic key, identification package, three multimedia training tools, and a molecular identification tool.

4. DEVELOPMENT AND APPLICATION OF NEW BIOSYSTEMATIC TECHNOLOGIES		
SUMMARY OF COSTS (US\$)		
(i)	Production and supply to PACINET centres of a single electronic identification package	120,000
(ii)	Production of three multimedia information and education packages @ 50,000 each	150,000
(iii)	Funds for development and use of molecular diagnostic services	160,000
TOTAL		430,000

WORK PROGRAMME 5

ESTABLISHMENT AND OPERATION OF THE NECI UNDER SPC (Located at Suva SPC Campus, Suva)

1. RATIONALE

A recommendation of the PACINET Formulation Workshop states that, it was unanimously agreed that:

SPC should serve as the Network Coordinating Institute (NECI) of PACINET for the first phase (3 years). In order to enable it to fulfil its role effectively, SPC should identify a suitable coordinator and prepare a budget to support this post and its activities, for submission to donors for funding consideration.

The mandate of this office is to:

- Coordinate the activities of the network in accordance with the instruction and directions of the LOOP Coordinating Committee (LCC) and its Executive Committee.
- Prepare programmes of work and budgets for approval by the LCC.
- Draft reports on activities and the Annual Report of the network as required by the LCC.
- Serve as, and provide an effective link between, the National Coordinating Institutes (NACIs) and the Technical Secretariat of BioNET-INTERNATIONAL.
- Collect, collate and disseminate information; issue Newsletter.
- Organise network meetings.
- Serve as the repository of literature, documents and papers relating to the network.
- Liaise with, and facilitate the operation of, Working Groups and Task Forces.
- Generally function as the executive office of the LCC.
- Process funding proposals for donors on behalf of the LCC.
- Liaise on behalf of the LCC with the BioNET-INTERNATIONAL Consultative Group (BICG) and serve as local Secretariat for the Consultative Group Coordinating Committee (BICC).

2. NEEDS

SPC currently has the personnel and some resources to help run the NECI effectively. However, it is foreseen that a full time co-ordinator and Secretary are still required to effectively man the office. This entails operation costs for the office to operate efficiently.

3. ACTIONS

Submit to donors a request for funding of the NECI budget for the first 3 years from PACINET's inception.

4. ESTABLISHMENT OF NECI SUMMARY OF COSTS (US\$)

	Coordinator US\$	Secretary US\$	Year 1 Total US\$	Year 2 Total US\$	Year 3 Total US\$
Personal Emoluments					
a. Salary	42,947	10,522	53,469	58,816	64,697
b. Education Allowance	4,200	0	4,200	4,200	4,200
c. Medical Aid	700	700	1,400	1,400	1,400
d. Gratuity	5,153	1,262	6,415	6,415	6,415
	53,000	12,484	65,484	70,831	76,712
Travel					
a. Airfares (3 yrs) 1 trip per country @ \$1431 per trip = 1 x 22 x 1431			10,494	10,494	10,494
b. Subsistence Per diem 7 days per trip @ \$200 per day = 7 x 1 x 22 x 200			11,000	11,000	11,000
			21,494	21,494	21,494
Rent					
Housing			8,500	9,500	10,500
General Operations					
a. Stationery			3,000	4,100	4,700
b. Office Sundries			4,000	5,150	5,803
			7,000	9,250	10,503
Repairs & Maintenance					
a. Office Equipment			5,000	0	0
b. Furniture & Fittings			1,000	0	0
			6,000	0	0
Communications					
a. Telephones/Telexes			15,000	15,000	15,000
b. Air Mail			5,000	5,000	5,000
			20,000	20,000	20,000
Financial Expenses					
a. Financial Expenses			450	473	496
b. Bank Charges			300	315	331
			750	788	827
Meetings					
a. Executive Committee 8 x 3500			28,000	28,000	28,000
b. LCC 3500 x 66					231,000
SUB-TOTALS			157,978	159,863	399,036
TOTAL					716,127

ESTABLISHMENT OF NATIONAL COORDINATING INSTITUTIONS (NACIs)					
SUMMARY OF COSTS (US\$)					
			Year 1	Year 2	Year 3
Part time staff			110,000	110,000	110,000
22 x 5000					
Operational cost					
22 x 5000			110,000	110,000	110,000
SUB-TOTALS			220,000	220,000	220,000
TOTALS					660,000