Countries: Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Project Title: Pacific PestNet: Meeting Plant Protection Needs in the 21st century

Project Number: TCP/RAS/2909 (T)

Starting Date: 1 October 2003

Completion Date: 30 September 2005

Agency responsible for project execution: Pacific PestNet

FAO Contribution: US$298 000

Signed: ……………………….. Signed: ………………………..

(on behalf of the Government) (on behalf of FAO)

Jacques Diouf
Director General
(on behalf of FAO)

Date of signature: ……………… Date of signature: ………………
I. BACKGROUND AND JUSTIFICATION

Farmers in Pacific Island countries find difficulty in accessing information on pests and diseases. Much information exists from surveys, many problems have been researched and control strategies developed, but the geographic isolation of countries, poor internal communication and inadequately resourced extension services prevent information reaching farmers. Pacific Island countries realise that new approaches are needed, (first critical gap) and several (Fiji, Kiribati, Niue, Marshall Islands and Samoa) have approached FAO SAPA to see if information and advice, such as provided regionally through the e-mail services of Pacific PestNet, can be used to assist farmers.

Pacific PestNet is a free service, run by volunteers each of whom has worked in the region for 20-30 years. It was launched in December 1999, and has 452 members (as of 30th May 2003) half of whom are from Pacific islands. To date, more than 1700 messages have been posted. PestNet was registered as an NGO in Fiji on 21 June 2000.

PestNet complements the work of regional agencies involved in quarantine and plant protection. It assists national programmes, NGOs, universities, schools, the private sector that is any individual, group or organisation that has access to e-mail. Since PestNet was established many issues have been addressed. Topics have ranged from biological control introductions, warnings of pest outbreaks, quarantine concerns, sources of laboratory equipment and supplies, chemical and cultural control measures and questions that can best described as “what’s this, and how can I get rid of it?”

Where photographs of pests have been attached to e-mails, identifications have been given on-line accompanied by offers from taxonomists to receive specimens for critical examination without cost. At present, because Pacific Island countries lack taxonomic expertise, pest and disease specimens are sent overseas to specialist institutions where identifications take time and are costly. This is the second critical gap among FAO member countries in the Pacific. As a consequence, pests mostly go unidentified and farmers cannot obtain proper advice on control measures, so pests are not controlled or pesticides are used inappropriately, jeopardising human health and the environment. In addition, quarantine services are handicapped (third critical gap) in that they do not have the confidence that comes from being backstopped by staff able to identify organisms encountered in trade in agricultural products. And pest-monitoring and emergency response schemes make little sense unless the target organisms can be identified quickly and accurately.

FAO Pacific member countries can obtain some assistance from Internet databases containing information on pests and diseases of the region, such as EcoPort. PestNet can support this by supplying photographs and text for the pests listed. So far, Pacific Island countries have not used EcoPort as much as its potential might suggest. This is because access to the Internet remains limited in some countries and expensive, and in others, where access is routine, there is limited knowledge about the database. There have been thoughts of recreating databases that have been subsumed by EcoPort and delivering the content on CD-ROM. However, this denies the interactive features of EcoPort, and those countries with access to the Internet see improvements to the Pacific content and familiarisation with its use through training a more constructive strategy.
National plant protection services also see the need to raise awareness and use of PestNet. Although all countries of the region are members, most postings come from government and regional institutions, involving trade and problems of commercial growers. Important as these are, 75 percent of growers in Pacific Island countries are semi-subsistence farmers, producing mainly traditional crops and selling surplus to immediate needs on domestic markets.

There are considerable difficulties involved in assisting these farmers due to the number of people involved, their relative isolation and their varied needs. But PestNet believes that it can help: first an assessment of farmers’ perceptions of plant protection problems and then building local capacity at different levels (government research, extension and quarantine services, NGOs, farmer groups, churches and educational establishments) to deliver the information and advice required. Above all, ensuring easy access, accuracy and speed.

Many Pacific Island members and organisations have acknowledged the impact of PestNet and support its further development. A review of the SPC/EU Pacific Plant Protection Service Project in 2001 concluded that Pacific PestNet was being used by many national experts in Pacific Island countries, and recommended that SPC collaborates with it. Bionet International, which is promoting the establishment of PACINET a regional biodiversity network (SPREP administered), also endorses PestNet and encourages its development. The Fourth FAO Meeting of South West Pacific Ministers of Agriculture, Port Vila, Vanuatu, 23 – 24 July 2001, recognised the importance and potential of PestNet. The Ministers acknowledged the need for access to information as a means of reducing poverty and improving food security in the region, the difficulties that farmers experience in accessing information on plant protection, and the potential of PestNet to help. They stressed that identification of pest problems remains a constraint and that PestNet has gone a long way in providing a cheap, fast and sustainable way of overcoming the difficulty.

FAO TCP assistance is requested to support the expansion of PestNet, principally to provide improved services and training to farmers, directly and through national extension and research services. The project will first accurately identify farmers’ perceptions and needs in several countries, and based on the results, create awareness amongst farmers and farmer groups, including NGOs and women groups. The project will also foster the development and use of global databases of plant protection information, in the process providing the opportunity for countries to develop photographic libraries of their main crop pests and diseases to assist identification and control. The outcomes will be a service for farmers better adapted to their needs and consequently more sustainable. Ultimately, the project will enhance food security of rural communities in the region.

There are two aspects of sustainability in this instance: institutional continuity and the continued use of the service by farmers. The sustainability of PestNet services is assured. Its operation costs little, and as long as the Internet facility exists, there are volunteers to run it, and demand is maintained, it will continue. PestNet has established itself as a fast, reliable and easily accessible service that provides relevant information on plant protection in the Pacific region. The service has been recognised, endorsed and commended by governments and regional organisations. Its success has been noted also by working groups within the Asia-Pacific Economic Cooperation forum, which in October 2002 led to AusAID providing funds for a collaborative project with Agriculture, Forestry and Fisheries Australia (AFFA) to expand PestNet
services to Southeast Asia. This project includes the initial development of a website (www.pestnet.org) as a portal for plant protection information, its hosting for three years, and the development of promotional materials to increase exposure of PestNet to target audiences in Pacific and SE Asian countries. The project targets to increase participation from research, quarantine and extension services, to contribute knowledge, skills and experience to PestNet and thereby strengthen the resource base of PestNet. The AusAID project will therefore complement this TCP, as the latter will enable PestNet to do much more: it can improve its services to rural communities by first critically analysing needs, creating greater awareness of its potential to assist, and then building on-line resources that meet the needs identified. The sustainability of PestNet is not in doubt, the important consideration is it use by farmers.

Creating a greater awareness of PestNet and its potential among NGOs, extension services and the rural population is important but it is only a means to an end: there is need to ensure what is being offered is relevant to target audiences and there is also the need to provide access to PestNet. Relevance is crucial to sustainability, and the project aims to ensure that through discussions with farmers PestNet services deliver advice and information in a form that is useful to them. Seeing the problem through the eyes of farmers is difficult but essential. NGOs and extension services will play a vital role in this project promoting the linkage between farmers and PestNet and taking the services offered by PestNet closer to the farming community than before.

In Solomon Islands, Pest Net is working with several NGO’s and farmers are using email with local NGO staff interpreting and transmitting their queries to the relevant people for answer. In Vanuatu, communication will be established through secondary schools having free access to email during school times. In Papua New Guinea, the National Agricultural Research Institute is working closely with NGO’s, village groups and churches to improve links with farmers.

The direct involvement of extension services and NGOs in this project will allow these organisations to participate in the acquisition and delivery of information. These organisations generally appear to have a greater accessibility and internet connectivity even in remote areas, and farmers in these areas could access PestNet and the internet through their field offices or through so-called ‘tele-centres’ that provide internet access in rural and remote areas for a low fee. Such facilities will allow end-users to utilise the PestNet service and access the wealth of information that is available from its resources. This, again, enhances its outreach and sustainability.

Access to PestNet through NGOs and government organizations within the Pacific is improving as communication technologies become more widespread and affordable. This is not something that PestNet cannot easily influence, except by creating awareness of the potential that it offers. The experience in Asia and Africa, is that PestNet-type services can play a vital role in allowing people to make informed decisions and so lead to better livelihoods. After all, it is well acknowledged that access to information is a key ingredient in the reduction of poverty.

III. OBJECTIVES OF THE ASSISTANCE

Development Objective: To develop and promote an effective e-mail network through the use of "Pacific PestNet" among Pacific Island countries for the transfer of plant protection and quarantine information and advice to farmers.
Immediate Objectives:

1. To determine how to effectively address farmers’ plant protection needs
2. To use digital technologies to enhance delivery of pest diagnoses to farmers

IV. PROJECT OUTPUTS (RESULTS)

Output 1.1:
Farmers’ plant protection perceptions and needs determined

Output 2.1:
On-line Pacific plant protection information resources and assistance to farmers improved

V. WORK PLAN

Output 1.1: Farmers’ plant protection perceptions and needs determined.

Activities:

1.1.1 PRA Survey / Inception Meeting: During the inception meeting the following topics will be discussed: Work Plan – planning of activities in relation to farmer’s plant protection perceptions and needs. PRAs (Participatory Rural Appraisals) survey will be done with semi-subsistence farmers to identify their plant protection problems and explore ways that PestNet can help to bring solutions. The inception meeting will take place in Fiji at which a TCDC PRA specialist and national experts (public and private sectors) will ensure that the objectives are understood and that a similar approach is used in all countries by national coordinators (public and private). Following this workshop national coordinators will conduct PRAs in their countries applying the approved approach.

1.1.2 Reporting the results of the surveys: The results from the PRAs will be analysed by PestNet staff and national staff that implemented the PRAs, and presented at workshop 2 prior to presenting to a wider audience: government officials, NGOs, schools, churches and farmers representatives in each country. Recommendations will be circulated via PestNet to all members for further discussion. They will also be presented at regional meetings of stakeholders (for instance, FAO agriculture ministers meetings, PIANGO, PHALPS, PPPO, RBM IRETA).

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1 It is assumed here that government experts will be technical persons involved in plant protection (research or quarantine) and that the non-government representatives will be PRA specialists. This is likely to be so for most countries, although some, e.g. Fiji do have scientists trained in PRA and the project will take advantage of their skills.
Output 2.1: On-line Pacific plant protection information resources and assistance to farmers improved

Activities:

2.1.1 EcoPort database workshop: Plant protection/agriculture personnel from fourteen Pacific Island countries (Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu and intending members Tuvalu and FSM) will attend a one-week training in the use of EcoPort, to see first hand how to use the database as a resource for pest identification, control measures, and IRAs. The workshop will be held in Fiji. An EcoPort specialist will be in charge, with the assistance of PestNet moderators.

2.1.2 Pest identification: This component supports the provision of at least one digital camera and software to each of the fourteen Pacific Island countries to test whether PestNet can be used for the fast and accurate identification of pests. In-country training in pest identification is preferred to a regional workshop, as this will ensure more people are trained under familiar conditions (i.e. local pests as examples), and that the equipment is adequate for the purpose.

Training will be given in the use of digital cameras, the manipulation of the images to a size appropriate for attachment to e-mails. Storage of the images on Internet web sites for ease of access will also be demonstrated so that country catalogues of pests will be accessible to all who wish to use them.

Confirmation of the identifications made from the photographs is essential and training will be given in the collection and preservation of pest and disease specimens as well as how to send them to PestNet taxonomists. There are quarantine implications in sending specimens for identification and, to ensure compliance, an illustrated manual will be developed that describes how to collect and process specimens. The workshops will also be used to create awareness of other identification contacts.

2.1.3 Database development: A considerable amount of pest data has been recorded over the years and included in the PPPIS database. In recent months, this has been transferred to EcoPort to become part of a more comprehensive worldwide database of plant and animal diversity. However, there is still much information from the Pacific region that needs to be added to EcoPort, e.g.:

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2 PestNet has already begun to catalogue photos sent for identification on Yahoo!Photos. Each country will have a set of its most important pests of economic importance with notes attached on recognition and control. These catalogues can be added to by national plant protection (and other) personnel as new pests are found, and they will be accessible to other countries of the region. As such they will be an enduring resource for government organisations, NGOs, farmers groups, universities, schools and private individuals for diagnostic and pest management purposes. A decision will be made to either continue with this mode of representation or transfer the photos to the PestNet web site or to the slide show feature of EcoPort.

3 FAO, the University of Florida and the National Museum of Natural History of the Smithsonian Institute are founders of EcoPort. FAO’s statement on the EcoPort web site (http://www.EcoPort.org/EP.exe5Page?ID=100014) states that “FAO views the attainment of food security as a moral imperative — an outcome that is heavily dependent on harnessing knowledge more effectively. A central FAO strategy is to work through strategic alliances such as EcoPort, as documented in FAO's Strategic Framework - approved by the FAO Conference at its 30th session in
• Results from recent pests surveys in Fiji, Cook Islands, Niue, Solomon Islands and Vanuatu;
• Descriptions and/or illustrations of Pacific pests and diseases of economic importance (up to 100 pest and disease descriptions with illustrations)

In addition, there is a need to train people in Pacific Island countries in the use of the database. This training will be carried out at the same workshop as the training in the use of digital photographs referred to above. Government personnel in quarantine and plant protection departments, teachers of agriculture colleges, universities, schools, NGOs, and retailers of agricultural supplies will be invited to attend.

### Schedule for implementation

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<th>2003</th>
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<td>1</td>
<td>Recruit PRA TCDC consultant</td>
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<td></td>
<td>Inception meeting / Regional PRA methodolgy, Fiji</td>
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<td></td>
<td>PRAs in 14 PICs., etc</td>
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<td></td>
<td>Workshop: Analysis of PRA results, Fiji</td>
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<td>Report to PPPO, PHALPS, Forum etc</td>
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<tr>
<td>2</td>
<td>Recruit EcoPort/plant protection experts</td>
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<tr>
<td></td>
<td>Workshop: EcoPort, Fiji</td>
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<tr>
<td></td>
<td>Manual: Pest processing/digital photography</td>
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<tr>
<td></td>
<td>Workshops: Pest identification (in-country):</td>
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<td></td>
<td>EcoPort development: Pest data entry</td>
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<td></td>
<td>Collections of photos of national pests</td>
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<tr>
<td></td>
<td>Articles on PestNet/ brochure(AUS AID funding / Partnership – active already)</td>
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<td></td>
<td>Monitoring use of Pestnet by farmers etc</td>
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November 1999”: In adding to the resources of EcoPort and exposing people to its great potential, PestNet believes it is in complying with FAO’s expressed intent.
VI. **CAPACITY BUILDING**

Foremost, the project will build the capacity of member country trainers / farmers and help PestNet respond to the requests from end-users in Pacific Island countries for rapid advice on plant protection issues including those of quarantine. In the first instance, this support will benefit government agencies. The potential of EcoPort will be introduced to the region, the database will be brought up to date with the results from recent pest surveys, and illustrated descriptions of important pests and pathogens will be added. Government services will also become more alert to the needs of the farming communities by carrying out PRAs that will uncover farmers’ perceptions of pests and diseases, seeing problems through their eyes. The analysis will be useful to governments when planning agricultural services to rural communities for some time to come.

In addition to the importance of the project to government agencies, regional universities and organization, it is the effect of the TCP on NGOs and other civil society groups in close contact with farmers that is seen as having the greatest potential to bring about fundamental change. Traditionally, donor assistance to the sector has been through government agencies, mostly those dealing with agricultural research and extension. Often the assistance has not reached the farming communities as intended. In recent years, deteriorating economic conditions in Pacific Island countries (due in part to lower commodity prices) have resulted in structural adjustment programmes that have exacerbated the problem. A shift in approach where the vast expertise within PestNet is made available to groups and organizations in close contact with farmers (and to farmers themselves) is likely to be of considerable benefit. The project will create a greater awareness of PestNet among extensionists, civil society groups and farmers, leading to increased usage of the service by these end-users. It will not only provide information and advice rapidly, but also monitor pest and disease outbreaks, providing rapid backstopping that is rarely available from government services.

VII. **INPUTS TO BE PROVIDED BY FAO**

**Personnel services**

- One International Consultant - Specialist for the EcoPort database, with extensive experience in database development, and with special knowledge of EcoPort, to assist at a regional workshop in Fiji with national plant protection/agriculture experts, to introduce the database to Pacific Island countries – ten person/days in one mission (see TOR in Annex 2).

- One TCDC Consultant – PRA specialist, to assist at a regional workshop in Fiji with national staff to develop consistent approaches when investigating farmers’ plant protection perceptions and needs as well as taking part in a de-briefing exercise to analyze the results - one person month in two missions.

- Supervisory Technical Services from the FAO SAPA Plant Protection Officer – two person weeks in two missions (see TOR in Annex 6).
Contracts

A Letter of Agreement for up to US$80 000 will be established with PestNet

- to develop training materials that will assist farmers to expand their knowledge and information exchange skills via PestNet e-mail systems and
- to provide training on pest identification/electronic media and photography in 14 participating countries

(see outline for LoA in Annex 5).

Duty travel others (up to US$5 000)

A provision is made for in-country travel of FAO staff and consultants to trial sites/PRA sampling during the first workshop in Fiji and for car/canoe hire in some countries, e.g. Solomon Islands where government services have been seriously depleted by recent civil disorder, or in Vanuatu where the infrastructure is poorly developed and lengthy canoe journeys are a necessity.

Materials and supplies (up to US$8 400)

Software for web site enhancement (e.g. Macromedia Dreamweaver) and copies of the ‘light’ version of Adobe Photoshop (for each country) to manipulate digital photographs, are included in this allocation.

Equipment (up to US$16 300) (see details in Annex 7)

Digital cameras and some small items for the workshops and PRA surveys will be required. The digital cameras will come equipped with macro lenses in order to take close-up photographs of insects and fungal structures (e.g. Nikon Coolpix 880); a rechargeable battery, charger, and a 64MB flash card for each camera. Included are also two laptop computers and accessories for Ecoport training and for PestNet to facilitate in-country training activities to Pacific Island FAO member countries in Ecoport and Pests identification demonstrations.

General operating expenses (up to US$14 903)

In addition to small costs for communications, reporting, etc funds will be needed to cover the costs of the PRAs in each of the 14 countries (maximum US$1 000 for each).

These funds will be used to assist data collecting, fuel costs and PRA survey in-country after return of officers from PRA Workshop 1 and for the preparation of their terminal reports to be ready for Workshop 2.

Direct operating expenses (up to US$19 495)

To cover FAO expenses related to project implementation

Training (up to US$114 520) (see details in Annex 8)
Workshop 1:
Inception meeting + PRA workshop to ensure uniformity of methodology for the farmer perception and needs supply, data collection, field trip with test-run training in one of the selected farming communities in Fiji.

A PestNet moderator will assist with local arrangements, without cost to the project.

Duration: five days
Location: Nadi, Fiji
Participants: 28 (two from each member country, one plant protection/agriculture staff from the government and one non-government participant with PRA experience)

After the workshop the participants return to their countries to carry out the survey. The results will be presented and discussed during Workshop 2.

Workshop 2:
This workshop will involve a combined training of:

- Presentation and analysis of results of PRA survey, discussion of conclusions and recommendations, preparation of a combined report
- EcoPort database workshop: use of the database as a resource for pest identification, control measures, and Import Risk Analysis.
- Pest Identification/Digital Photography: The workshop will introduce participants to the use of digital cameras, the manipulations of images, the reporting of pest problems and the collection, processing and packaging of insects and plant disease specimens for identification overseas.

Duration: nine days
Location: Fiji
Participants: 28 (two from each member country, one plant protection/agriculture staff from the government and one non-government participant with PRA experience)

The workshop will be held under the leadership of an EcoPort specialist, with the assistance from at least two PestNet moderators.

VIII. REPORTING

- The EcoPort Specialist will submit a report at the end of his mission, specifying the main findings and recommendations;
- PestNet will provide the necessary reports as stated in the Letter of Agreement. (Plant Protection/Electronic Media specialists (Entomologist / Plant Pathologist)
- The TCDC PRA Consultant will submit a report at the end of each mission specifying the findings and follow up activities to enhance the project. The final report will include the in-country PRA reports of the national experts.
- In addition to the Workshop reports, PestNet will prepare reports on:
- The results of the PRAs, for submission to regional agricultural meetings, (including the FAO Agriculture Ministers meeting in the Cook Islands in 2005);
- 6-monthly progress reports, summarising the development and use of the service following the awareness creation activities of the project;
- A terminal report summarising all activities and their outcomes.

- The Plant Protection Officer (SAPA) will prepare short reports of his missions to Fiji and PestNet headquarters, and to any of the project workshops attended. The SAPA officer will also prepare the Terminal Statement based on all documents and reports of the project, according to TCP procedures for further submission to the Governments of FAO member countries.

IX. MEMBER COUNTRY AND PESTNET CONTRIBUTION

1. FAO Pacific Island Member Governments will provide:
   - One plant protection PRA staff member (as National Project Co-ordinator) NPC and one representative from a non-government organisation involved in agricultural development; these selected nationals will carry out the PRA survey on their return from Workshop1.

   Where possible provide:
   - Transport to assist with PRAs;
   - Computers and Internet access, for EcoPort and PestNet linking and trainings;
   - Conference rooms for in-country pest ID training workshops;
   - Secretarial assistance to the Consultants and project activities;
   - Office space and utilities.

2. PestNet will maintain its service run by five volunteers and manage and co-ordinate the project overall, as it serves FAO member countries in the region.
**PROJECT BUDGET**

**Countries:** Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu

**Project title:** Pacific PestNet: Meeting plant protection needs in the 21st century

**Project symbol:** TCP/RAS/2909 (T)

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<td><strong>Grand Total</strong></td>
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Annex 1

**ABBREVIATIONS**

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<th>Abbreviation</th>
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<tr>
<td>AGPP</td>
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<td>ATS/STS</td>
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<tr>
<td>DSA</td>
<td>Daily subsistence allowance</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agricultural Organization of the United Nations</td>
</tr>
<tr>
<td>Forum Secretariat</td>
<td>Pacific Island Forum Secretariat</td>
</tr>
<tr>
<td>GPPIS</td>
<td>Global plant protection information system</td>
</tr>
<tr>
<td>IRA</td>
<td>Import risk analysis</td>
</tr>
<tr>
<td>RETA</td>
<td>Institute for Research, Extension and Training in Agriculture</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-government organisation</td>
</tr>
<tr>
<td>NPC</td>
<td>National Project Coordinator</td>
</tr>
<tr>
<td>PHALPS</td>
<td>Permanent Heads of Agriculture and Livestock Production Services in the Pacific</td>
</tr>
<tr>
<td>PIANGO</td>
<td>Pacific Islands Association of Non-Government Organisations,</td>
</tr>
<tr>
<td>PPPIS</td>
<td>Pacific Plant Protection Information System</td>
</tr>
<tr>
<td>PPPO</td>
<td>Pacific Plant Protection Organisation</td>
</tr>
<tr>
<td>PRA</td>
<td>Participatory rural appraisal</td>
</tr>
<tr>
<td>RAPR</td>
<td>Regional office for Asia Pacific Region</td>
</tr>
<tr>
<td>RBM</td>
<td>Regional Management Board (IRETA)</td>
</tr>
<tr>
<td>SAPA</td>
<td>Sub-regional Office for the Pacific Islands in Apia, Samoa</td>
</tr>
<tr>
<td>SPC</td>
<td>Secretariat of the Pacific Community</td>
</tr>
<tr>
<td>SPREP</td>
<td>South Pacific Regional Environment Programme</td>
</tr>
<tr>
<td>TCDC</td>
<td>Technical cooperation among developing countries</td>
</tr>
<tr>
<td>TCP</td>
<td>Technical Cooperation Programme</td>
</tr>
</tbody>
</table>
Annex 2

TERMS OF REFERENCE

EcoPort Database Specialist

International Consultant

Duration of assignment: ten person days in one mission

Duty Station: Fiji

Language: English

Under the general supervision of the Chief Operation Group in RAPR, and the technical supervision of the chief AGPP, in close collaboration with the Plant Protection Officer based at the FAO Sub-regional Office for the Pacific Islands, Apia, Samoa, and together with the Ministry of Agriculture of FAO member countries in the Pacific that routine use the information services of the Internet, the International Consultant will undertake the following:

Duties:

As integral part of the second workshop which will be held in Fiji in collaboration with the Ministry of Agriculture, Fisheries and Forestry, five days are dedicated to EcoPort: Its operation and potential for farmers of Pacific Island countries. One aim of the workshop is to introduce EcoPort to the Pacific Island countries, to government quarantine personnel and to non-government organisations involved in agriculture. The workshop will ensure that countries know of the vast resource on Pacific plant and animal diversity contained within EcoPort, and how to manipulate the data for plant protection and other purposes.

The specific duties of the EcoPort specialist / consultant are:

• Outline the development of EcoPort, its founders, their missions, and how the database operates;
• Outline the development of information now stored on EcoPort, from surveys of Pacific Island pests and the PPPIS;
• Introduce participants to the resources of EcoPort, how to navigate the web site, the pest profiles, bibliographies, photographs, slide shows, taxonomic keys, etc;
• Demonstrate how to manipulate the information by, e.g. making country pest comparisons;
• Describe how countries can contribute to the development of EcoPort;
• Demonstrate the use of other databases supported by EcoPort;
• Write a report on the Workshop proceedings, indicating for each country the probable use of the database in the foreseeable future, and providing recommendations for follow up actions by PestNet, and/or other regional organisations.

Qualifications:
To ensure greatest impact the workshop requires the presence of an International Consultant – Ecoport Specialist with post graduate degree and with extensive experience with EcoPort to conduct the training. This person requires a detailed knowledge of plant protection surveys in the Pacific (and agriculture of the region) and the databases developed by FAO, firstly PPIS, and then the GPPIS, and finally now integrated into EcoPort.
Annex 3

TERMS OF REFERENCE

Participatory Rural Appraisal Specialist

TCDC Consultant

Duration: four person weeks in two missions
Duty Station: Fiji
Language: English

Under the general supervision of the Chief Operation Group in RAPR, under the technical supervision of the chief AGPP, in close collaboration with the Plant Protection Officer based at the FAO Sub-regional Office for the Pacific Islands, Apia, Samoa, and together with the Ministry of Agriculture of FAO member countries in the Pacific, the TCDC consultant will undertake the following:

Duties:
The Consultant will be the primary resources person and team leader at two workshops, both held in Fiji. At the first workshop participants from 14 Pacific Island countries, representatives from the government agriculture service and NGOs involved in agriculture will agree on a methodology to carry out PRAs in two locations in each country. The PRAs will elicit farmers’ perceptions of pests and diseases, the control measures used for major problems, and how to overcome the problems they have identified. The second Workshop at the completion of the PRAs will be to discuss and analyse the results and help the participants write a report on the findings.

The specific duties of the consultant are:
Mission 1
• survey literature of previous Pacific PRAs dealing with plant protection issues;
• discuss methodology for carrying out PRAs with national experts so that approaches are comparable in all countries;
• undertake pilot PRAs in Fiji to test strategies;
• write a report summarising the workshop activities and the pilot exercises.

Mission 2
• discuss the results from the PRAs with the national experts;
• assist national experts write country reports describing the PRAs and the conclusions reached;
• identify areas where farmers’ perceptions, control measures and needs are similar, and where there are differences between countries;
• relate the perceptions of farmers, their control practices and needs to the services that PestNet offers the region;
• on the basis of the analysis, consider ways that PestNet can respond to the needs of farmers, and write a report based on the findings (which includes the country reports).

Qualifications:
The PRA specialist/team leader will have a minimum of ten years experience in working with rural communities (not necessarily in plant protection), and will have experience of Pacific Island countries. Preferable a person with an Agricultural Science Post Graduate Degree and with field experience.
TERMS OF REFERENCE

National Project Co-ordinators (Agriculture/Plant Protection)

(14 positions, one from each member country—four wks each)

at no cost to FAO

The national experts taking part in the farmer perceptions and needs PRAs and workshops on Ecoport and identification of Pests will be staff members of Ministry of Agriculture or NGO’s with Agriculture/Plant Protection background. It is expected that those chosen by their respective Government / Ministry of Agriculture will attend both workshops. The specific duties of the national experts are:

Farmers’ perceptions/needs survey

- Attend the PRA methodology development and testing workshop in Fiji (workshop 1)
- Undertake PRAs in two locations in each country: obtained information on farmers’ opinion of the most important pests and diseases, the control measures practiced (if any), and the effectiveness of the measures. Compare farmers’ perceptions on pests and diseases with those of the extension services operating in the area surveyed;
- Write a report on the PRAs, summarising the information obtained;
- Attend the second workshop in Fiji and report findings from country surveys, and help develop a regional strategy for PestNet intervention to provide farmers with information and advice on the pests and diseases identified as most important.

Introduction to EcoPort workshop (combined as part of workshop 2)

- Attend the introduction to EcoPort workshop in Fiji;
- Once familiar with the potential of EcoPort, make use of the resources to obtain plant protection information on a routine basis;
- Make available photographs of pests and diseases (taken with digital cameras supplied under this project) to illustrate descriptions of pests and diseases on EcoPort as well as to develop slide shows of country pests for electronic display (on EcoPort or on the PestNet web site).

Introduction to Pest identification workshop (combined as part of workshop 2)

- Attend training workshop on Pest collecting, preserving, identification, etc.
- Describe the results of the PRA farmers’ perception/needs surveys;
- Use PestNet for information and advice on a routine basis, and when opportunities arise inform other organisations, agencies and individuals about PestNet and encourage farmers to become members and promote information exchange among themselves.

Qualifications:
The national experts are expected to hold tertiary qualifications in agriculture and to have an interest in plant protection as part of duties providing advice to farmers in either the public or private sector. It is important that the national experts have access to the Internet either at their place of work or without cost through other local institutions (universities, regional organisation, schools, etc).
Terms of Reference

Outline for a Contractual Service Agreement

A Letter of Agreement will be established with PestNet for up to US$80,000 to develop training materials that will assist farmers expand their knowledge and information exchange skills via PestNet e-mail systems and to provide training on pest identification/electronic media and photography.

Specifically, the Letter of Agreement will include the following:

(1) To prepare and provide training brochures and illustration manuals.
   - Illustrated manuals: a) on taking photographs and attaching them to e-mails; and b) on collecting, preserving and sending pest and disease specimens for identification;
   - The addition of recent pest survey data from Cook Islands, Fiji, Niue, Solomon Islands and Vanuatu to EcoPort;
   - Descriptions (with illustrations) of important pests and diseases (up to 50 of each) of the Pacific according to EcoPort format;
   - Digitized photographs from *Diseases of Cultivated Crops in Pacific Island Countries* will be presented to EcoPort; including captions (copyright clearances will be obtained).

Up to US$8,000

(2) To conduct in 14 countries a two-day in-country training workshop on Pest Identification/Electronic Media and Photography.

PestNet will provide two trainers:
One entomologist to cover insect pest and the identification of common insects of economic importance, their processing for identification, and Internet resources for entomologists.

One expert in plant diseases to cover plant diseases and the identification of common pathogens of economic importance, the processing of plant material so that the pathogens can be identified, and Internet resources for plant pathologists.

The training will cover the following topics:
- Collecting, processing and dispatching insect and disease specimens for identification overseas;
- Plant protection resource on Internet (Including EcoPort);
- The Plant Protection services available to growers (a questionnaire will be developed to standardize the evaluation across the region);
- Use of digital cameras for photographing pests and diseases;
- Manipulation of images so that they can be easily downloaded by members of PestNet;
- Sending images electronically to PestNet taxonomists;
- Building photographic libraries on specialist web sites.

A report of the training workshops will be written within 30 days of completion of the training. The report will cover the following aspects:

- An introduction, summarizing plant protection activities in each country, in particular, the diagnostic services available;
- An assessment on the effectiveness on information exchange to-date by government and the private sector, and the potential for PestNet to assist all sectors in providing on-line identification of pests as well as the provision of information and advice;
- Recommendations for further farmers training and assistance.

Training will be given in all fourteen countries, but first priority will be given to Least Developed Countries (LDCs) due to their poor economic productions, poor human resources, lower farming production, least developed in modern technologies, etc. Therefore, training will begin with in Kiribati, Solomon Island, Vanuatu, Tuvalu.

Number of participants: 20 – 25 including selected outer islands where possible. (DSA for these participants from outer islands will be covered by the respective member country)
Tentative cost breakdown:
US$2,300 per country to cover miscellaneous costs of training, including transport of selected participants from outer islands to the main islands, field visits, photocopying etc.

US$2,300 x 14 countries = US$32,200

Travel of trainers to 13 countries (excluding Fiji):
2 trainers to 7 countries at ticket cost of US$900 = US$12,600
2 trainers to 4 countries at ticket cost of US$1,300 = US$10,400
2 trainers to 2 countries at ticket cost of US$1,800 = US$7,200

DSA for trainers:
2 trainers for 3 days each in 13 countries
(average DSA is US$115) = US$8,970

TOTAL = US$71,370
TERMS OF REFERENCE

Supervisory Technical Services from the FAO SAPA Plant Protection Officer

The Plant Protection Officer will carry out two STS missions of one week each.

Mission one – one person week - to

1. Coordinate the inception meeting, work plan, etc, on the execution of project activities;
2. Assist TCDC expert in PRA during methodology sessions;
3. Prepare recording forms for participants to lists priority and important pests affecting crops in their country and pre-assessment lists;
4. Discuss with member country’s participants on their contribution to PRA data collecting on their return to their individual countries;
5. Assist and collaborate with PestNet in ensuring smooth implementation of the project;
6. Evaluate the progress of the information exchange with particular reference to the use of PestNet and digital photographs for pest identification;
7. Negotiate and assist with documentation of visits by consultants to selected member countries in the region;
8. Prepare a mission report.

Mission two – one person week – to

1. Attend and assist with PRA training workshops in Fiji;
2. Assist as resource person at the Ecoport training workshop and in selected countries on introducing PestNet, and follow up on the results of the training in both the use of EcoPort and PestNet for the identifications and control of pests and diseases using digital technology;
3. Prepare a mission report describing activities undertaken, findings, conclusions and recommendations;
4. Prepare draft terminal statement for finalizing later at FAO SAPA before clearance by AGPP.
### Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Digital Cameras, one per member country – US$450 x 14</td>
<td>= US$6,300</td>
</tr>
<tr>
<td>(Nikon Coolpix 880)</td>
<td></td>
</tr>
<tr>
<td>2 Laptops plus accessories, software, etc; - UD$2,500 x 2</td>
<td>= US$5,000</td>
</tr>
<tr>
<td>(Compact (Contura) or the Toshiba Brand with CD reader)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
<tr>
<td>Lenses, re-charger batteries, chargers, 64MB flash cards, etc</td>
<td>= US$5,000</td>
</tr>
</tbody>
</table>

**Total** = **US$16,300**
Annex 8

Cost breakdown for training activities

**Workshop 1**: PRA survey/ Inception meeting: Nadi, Fiji

Location: Nadi, Fiji

Duration: 5 days plus 1 day travel

Participants: 28 (2 participants from each member country)

DSA: 6 days x US$109 x 26 participants (less two from Fiji) = US$17 004

Local travel for 2 Fiji participants (travel from Suva to Nadi) US$54.50 x 2 x 5 days = US$545

International travel:

14 participants - 1 return travel each, est. US$900 = US$12 600

8 participants – 1 return travel each, est. US$1 300 = US$10 400

4 participants – 1 return travel each, est. US$1 800 = US$7 200

Internal travel to PRA trial sites, data collection = US$1 000

**Subtotal:** US$48 749

**Workshop 2**: PRA survey results, EcoPort database and Pest Identification

Location: Nadi, Fiji

Duration: 9 days plus 1 day travel

Participants: 28 (2 participants from each member country)

DSA: 10 days x US$109 x 26 participants (less two from Fiji) = US$28 340

Local travel for 2 Fiji Participants (travel from Suva to Nadi) US$54.50 x 2 x 9 days = US$981
International travel:
14 participants - 1 return travel each, est. $900  US$12 600
8 participants – 1 return travel each, est $1 300  US$10 400
4 participants – 1 return travel each, est $1 800  US$ 7 200

**Subtotal:**  US$59 521

**Other expenses:**
Hire of 10 computers for EcoPort training  US$1 000
Multimedia  US$1 500
Hire of conference room for two workshops  US$1 250
Network connecting  US$2 500

**Subtotal:**  US$6 250

**TOTAL**  US$114 520