

## Fairtrade ANZ's Sustainability and Biodiversity Training Module

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### ABSTRACT

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This document contains suggested training activities to address the subjects of sustainability and biodiversity conservation from the perspective of Fairtrade's environmental standards. The trainer will find proposed strategies to develop the different sections, and he/she should select the sections and their activities according to the needs of the audience. The document's exercises and tools are suitable for cocoa producer organisations in Papua New Guinea, being based on their needs and using examples from them. However, the basic text applies to all producers around the world. The trainer should make sure that the corresponding activities are adapted to focus on the relevant producers' organizational structure, product, and regional circumstances.

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## List of abbreviations

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Biodiversity and Agricultural Commodities Program	BACP
Community Action Planning	CAP
Contract Production	CP
Fairtrade International	FLO
International Fund for Agricultural Development	IFAD
Liaison Officer	LO
Land Use Management Plan	LUMP
New Zealand Aid Programme	NZAID
Papua New Guinea	PNG
Producer Executive Body	PEB
Producer Network	PN
Promoting Body	PB
Producer Services and Relations Unit	PSR
Small Producer Organisation	SPO

## Information for trainers

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International trade has a significant impact on all of our lives. Most of the products consumed by the general public on a daily basis are produced overseas - i.e., we wear cotton from India, we eat chocolate made with cocoa from Papua New Guinea, we eat rice from Thailand, among many others.

For consumers in Australia and New Zealand, the increased range of products available in the market through international trade has had a positive impact on everyone's lives.

According to most economists, international trade entails a higher income for everyone participating in trade. In reality though, while international trade has raised the overall global income, such benefits are not equally shared amongst the world's population. Under the current world trading system, increased prosperity and mass poverty live side by side.

The fair trade movement was developed in response to the plight of producers in poor countries who are excluded from the benefits of international trade. Through fair prices and investment in local community development, Fairtrade ensures that these producers have the opportunity to build a better future through trade.

Feedback on Fairtrade labeled sales suggests that Australian and New Zealand consumers are particularly interested in supporting producers within their immediate region - from South East Asia and the Pacific. Thus, Fairtrade ANZ's Producer Support and Relations Project has the mandate to support producers in the Pacific region to achieve and maintain Fairtrade certification.

Outcomes related to the use of these activities will include enhancing information and skills on fair trading standards and creating and bolstering producers' capacities through proper pre-certification and/or post-certification training.

It is essential that producers - whether small producer organizations seeking or working to maintain Fairtrade certification - understand the Fairtrade environmental standards.

Training can deliver the information necessary to create an even level of understanding about Fairtrade. Training can also ensure that the right people receive the knowledge and tools necessary to achieve change.

### ***Target group***

This training programme on Fairtrade is aimed at cocoa producer organisations in Papua New Guinea participating in the BACP project 'Promoting biodiversity-friendly production of cocoa in Papua New Guinea through Fairtrade certification', who are marginalized by conventional trading structures, their local support organizations, and their trading partners.

### ***Activities' purpose***

These activities aim to help the target producer groups and other producer groups to understand the Fairtrade environmental standards, achieve long-term planning, and develop sustainable, biodiversity-friendly production practices that comply with the relevant PNG national legislation.

## Training content

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The module is divided into 2 sections:

### **A. Fairtrade Generic Environmental Standards**

- Environmental management
- Soil and water
- Waste
- Genetically Modified Organisms
- Biodiversity

### **B. Biodiversity Friendly Practices**

- National Legislation Covering Community Agricultural Land Use in Papua New Guinea
- Protecting High Conservation Areas in Papua New Guinea
- Participatory Land Use and Management Planning
- Conservation Area Planning

### **Learning outcomes**

- Enhancing awareness of and improving information on Fairtrade certification
- Building capacity around incorporating the Fairtrade Generic Environmental Standards into producers' day-to-day activities, and understanding links to the relevant legislation in Papua New Guinea

### **Tips for Trainers**

This course is built on the practical experience of the participants, who make an essential contribution to its content. This, together with an action plan, is designed to remove the “barriers” of the classroom so as to put the skills that participants acquire into effect.

The material for this course is presented in a suggested sequential order. Exercises and visual aids are embedded in the text and explained through the “*Proposed Training Strategy*”. Hand-out versions are available for participants.

Activities are intended to open the door to discussion and discovery. The “right” answer is not provided because solutions are often context-specific and it would be misleading to suggest that there are instant answers. Rather, participants are to be encouraged to share their own experiences and ideas, and to become aware of the need for creative problem-solving. However, trainers can make reference to the basic text of the course when resolving the proposed activities.

Trainers will find various training materials at the end of each teaching section:

- PowerPoint slides
- Posters
- Board games
- Case studies
- Readings
- Templates
- Extracts of relevant legislation or guidelines
- Individual hand-outs for workshop activities

At the end of the document there is a list of the relevant texts that have been compiled and quoted to develop the basic text. There are also a number of bibliographies, website addresses, and references to international legal instruments, for participants' future reference.

The time plan should be managed on the basis of the proposed training strategy for each section of the course, but with consideration for the overall time constraints, the target group's main interests and the trainer's own assessment of priorities.

It is important for the trainer to be well-versed in the subject matter. Therefore, the entire course should be regarded as essential preparation material, making sure that the objectives, content, structure, suggested methods and training media are fully grasped.

The course is designed to be completed in 3 days.

## **A. Fairtrade Generic Environmental Standards**

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- **General objectives**

By the end of this section, Fairtrade Generic Environmental Standards, participants should:

- have a basic understanding of the Fairtrade Environmental Standards related to pest management, soil and waste

- **Specific objectives**

In particular, participants should:

- outline the Fairtrade Environmental Standards.
- understand Core and Major Fairtrade Environmental Standards years 0, 1 and 3.
- identify potential non-compliance with the Fairtrade Environmental Standards.

### ***Proposed training activities***

<b><i>Activity 1: Introduction to Fairtrade Environmental Standards</i></b>		
<p><u>Method:</u> Group discussion</p> <p>Brainstorm</p> <p>Feedback</p> <p>Lecture</p>	<p><u>Media:</u> Fairtrade Environmental Standards Poster and Checklist for Fairtrade SPO Standards</p> <p>Fairtrade Environmental Standards Individual Handout 1</p>	<p><u>Duration:</u> 90 min.</p>
<p><u>Proceeding</u></p>	<p>The trainer will present the Fairtrade Environmental Standards according to the section below on background information related to the Fairtrade Environmental Standards for trainer support.</p> <p>S/he will then answer questions – if necessary the trainer can always refer the questions to anyone else in the room who s/he feels may give a more accurate answer.</p> <p>The trainer will ask participants to break into groups of no more than 6 people (groups will work together for the next 3 activities) and then s/he will distribute one Fairtrade Environmental Poster per group.</p> <p>The trainer will ask participants to analyse each one of the strips on the poster and to discuss the situations presented in each illustration. Participants will be given 10 minutes for group discussion for each strip.</p> <p>Groups will choose a spokesperson to present the group’s thoughts and conclusions to the rest of the participants.</p> <p>The trainer will ask participants to present one strip at a time, and will summarise the group’s main ideas and introduce the corresponding Fairtrade environmental intent addressed in each strip at the end of each round of interventions. The trainer will further develop each topic based on the corresponding PowerPoint slides and the Checklist for Fairtrade SPO Standards.</p> <p>Trainer will close the activity by reading and sharing the Fairtrade Environmental Standards Individual Handout 1.</p>	

**Activity 2: Fairtrade Environmental Standards Core and Major Years 0, 1 and 3**

<p><u>Method:</u> Group discussion</p> <p>Brainstorm</p> <p>Feedback</p> <p>Lecture</p>	<p><u>Media:</u></p> <p>Fairtrade Environmental Standards Board Game</p> <p>Fairtrade Environmental Standards Board Game Answer Sheet</p>	<p><u>Duration:</u> 120 min.</p>
<p><u>Proceeding</u></p>	<p>The trainer will ask participants to break into groups of no more than 6 people and then s/he will distribute one Environmental Standards Board Game per group.</p> <p><i>How to play:</i> With a counter, participants will move through the spaces with the aim of finishing the game before the other participants.</p> <p>To move through the board, participants will throw the provided dice (with 6 colours instead of numbers) and move to the next space matching the colour of the dice. If the participant lands on one of the actions, s/he must identify if the action is positive or negative and move accordingly: forward if the action is positive, backwards if the action is negative.</p> <p>Players will choose a captain for the game who will be in charge of the Answer Sheet which indicates if actions are positive or negative.</p> <p>Participants will be given 40 minutes to play the game.</p> <p>When the game is over, the trainer will bring attention to each action in the game, making reference to Fairtrade Environmental Standards Board Game Answer Sheet and facilitating discussion about environmental risks. Trainers will fill in The Fairtrade Environmental Standards Checklist with the information gathered from the discussion.</p>	

**Activity 3: Identifying potential environmental non-compliances**

<p><u>Method:</u> Group discussion</p> <p>Brainstorm</p> <p>Feedback</p> <p>Lecture</p>	<p><u>Media:</u></p> <p>Butcher paper, markers.</p> <p>Handout 2</p>	<p><u>Duration:</u> 60 min.</p>
<p><u>Proceeding</u></p>	<p>The trainer will distribute 2 sheets of butcher paper per group and ask participants to draft a map of their community. On the map, participants will identify the areas which they consider to be at risk of not complying with the Fairtrade Environmental Standards. Participants will use the completed Handout 2 Fairtrade Environmental Standards Checklist as reference to identify risk areas.</p>	

<b>Activity 1: Pests and damage caused</b>	
<u>Method:</u> Breakout Group Brainstorm Feedback	<u>Media:</u> PowerPoint Slides 1- 4 Pests and Pesticides Template
<u>Duration:</u> 30 min.	
<u>Proceeding</u>	<p>The trainer will ask participants to break out into groups of 4 and will pose the question:</p> <p><i>“What are the main pests you encounter and the types of damage these pests cause?”</i></p> <p>The groups will brainstorm by making a list of the pests that occur in the area and the type of damage they cause. Participants may also suggest the actions they have undertaken to combat these pests.</p> <p>The trainer will close this activity with the PowerPoint presentation on PNG’s common cocoa and coffee pests and natural ways to eradicate them.</p>

<b>Activity 2: Choice of Pesticides Used</b>	
<u>Method:</u> Lecture Feedback Practical session	<u>Media:</u> Handout 4 Butcher paper Fairtrade Prohibited Materials List Pests and Pesticides Template
<u>Duration:</u> 60 min.	
<u>Proceeding</u>	<p>The trainer will present Handout 4 Pesticides available in PNG, and then will facilitate discussions with participants on their own use of pesticides, volume and personal protective equipment (PPE).</p> <p>Then, the trainer will write on the butcher paper the list of pesticides or herbicides producers are using, always making reference to the list of pesticides available in PNG (the trainer should customise the list per country or region of work). When finished, trainers will compare both lists with the Fairtrade International Prohibited Materials List (PML) Red List looking for a potential match.</p> <p>Findings will be documented in the Pests and Pesticides Template.</p>



**Activity 3: Proper use and handling of pesticides and other hazardous chemicals**

<u>Method:</u>	<u>Media:</u>	<u>Duration:</u>
Lecture Simple demonstrations Group discussions Feedback	Empty pesticide container with intact label  Water, Dirt, Sawdust  Personal Protective Equipment  Handout 5	20 min
<u>Proceeding</u>	<p>The trainer will give practical guidance on how to comply with the Fairtrade Environmental Standards below. To introduce the subject the trainers will use relevant illustrations from the Answer Sheet of Environmental Standards board game (see the game), asking participants what they thought was the message of the illustration.</p> <p><b>3.2.4</b> <i>You must provide training to members and workers who handle pesticides and other hazardous chemicals. They need to be made aware of the risks of handling these materials and how to handle them properly.</i></p> <p><b>3.2.5</b> <i>You must implement measures to ensure that all people, including members and workers, wear appropriate personal protective equipment (PPE) when handling pesticides or hazardous chemicals.</i></p> <p><b>3.2.11</b> <i>Your members must have all pesticides and hazardous chemicals clearly labeled.</i></p> <p>Using a good variety of empty and clean pesticide containers (depending on what is available), the trainer will explain information given in the Basic Text: Proper use and handling of pesticides and other hazardous chemicals.</p> <p>The trainer should give opportunity for participants to share their experiences during the demonstrations.</p> <p>Trainer will distribute and explain Handout 5 Warning and Toxicity Symbols, and will open the floor for questions.</p>	

#### **Activity 4: Proper use and handling of pesticides and other hazardous chemicals**

<p><u>Method:</u></p> <p>Lecture</p> <p>Simple demonstrations</p> <p>Group discussions</p> <p>Feedback</p>	<p><u>Media:</u></p> <p>Water, Dirt, Sawdust</p> <p>Personal Protective Equipment</p> <p>Answer Sheet of Environmental Standards board game</p>	<p><u>Duration:</u></p> <p>40 min.</p>
<p><u>Proceeding</u></p>	<p>The trainer will give practical guidance on how to comply with the Fairtrade Environmental Standards below. To introduce the subject the trainers will use relevant illustrations from the Answer Sheet of Environmental Standards board game asking participants what they thought was the message of the illustration.</p> <p><b>3.2.9</b> <i>You must maintain a central storage area for pesticides and other hazardous chemicals that minimizes risks.</i></p> <p><b>3.2.12</b> <i>Your members must have equipment to handle accidents and spills in the areas where they prepare or mix pesticides and other hazardous chemicals, so these do not seep into soil or water. Members must plan spraying in such a way as to have no or very little spray solution left.</i></p> <p>The trainer will explain information given in the background information below for trainer support (Proper use and handling of pesticides and other hazardous chemicals).</p> <p>The trainer should give opportunity for participants to share their experiences during the demonstrations.</p> <p>Trainer will open the floor for questions and close the activity.</p>	

#### **Activity 5: Proper use and handling of pesticides and other hazardous chemicals**

<p><u>Method:</u></p> <p>Lecture</p>	<p><u>Media:</u></p> <p>Answer Sheet of Environmental Standards board game</p>	<p><u>Duration:</u></p> <p>40 min.</p>
<p><u>Proceeding</u></p>	<p>The trainer will give practical guidance on how to comply with the Fairtrade Environmental Standard below. To introduce the subject the trainers will use relevant illustrations from the Answer Sheet of Environmental Standards board game asking participants what they thought was the message of the illustration.</p> <p><b>3.2.9</b> <i>You <b>must maintain</b> a central storage area for pesticides and other hazardous chemicals that minimizes risks.</i></p> <p>The trainer will explain information given in the section below Biodiversity Friendly Practices - Background information for trainer support (Storage Area).</p> <p>The trainer should give opportunity for participants to share their experiences during the demonstrations.</p> <p>Trainer will open the floor for questions and close the activity.</p>	

<b>Activity 6: Soil Fertility</b>	
<u>Method:</u> Breakout Group Brainstorm Feedback	<u>Media:</u> Flip Chart and markers Samples of good soil and soil not suitable for planting.
<u>Duration:</u> 20 min.	
<u>Proceeding</u>	<p>The trainer will ask participants to break into groups and will pose the following question:</p> <p><i>“What is soil fertility?”</i></p> <p>The breakout groups will brainstorm, and discuss the question. Groups will then report back on this question in wider group discussions.</p> <p>Trainer will present samples of soil to participants and will facilitate the discussion about quality and type of soil in the samples.</p> <p>Trainer will close the activity by bringing attention to the samples that are most suitable for farming.</p>

<b>Activity 7: Soil Fertility</b>	
<u>Method:</u> Practical session	<u>Media:</u> Food scraps Worms Soil Paper Crop residues and leaves
<u>Duration:</u> 40 min.	
<u>Proceeding</u>	<p>The trainer will demonstrate to participants how to make a compost heap and how to create mulching. S/he will follow the information below on Biodiversity Friendly Practices - Background for trainer support (Ways to Improve Soil Fertility).</p>

**Activity 8: Practical Session on Soil Erosion and Sustainable Water Sources**

<p><u>Method:</u> Lecture Group Exercise Feedback</p>	<p><u>Media:</u> Flip charts Markers, butcher paper.</p>	<p><u>Duration:</u> 40 min.</p>
<p><u>Proceeding</u></p>	<p>The trainer will ask participants to break into groups of 4 and will distribute one sheet of butcher paper and markers to each group. S/he then will ask participants to draw a map of their community, and to identify areas that have been eroded and areas that are at risk of erosion.</p> <p>When the maps are completed, the trainer will make a list of areas that are eroded and will explain information given in the section below Biodiversity Friendly Practices - Background information for trainer support (Soil Erosion Management). Then s/he will explain the different types of measure to address soil erosion.</p> <p>To close the activity, participants will choose two areas to be considered as priorities in the organisation's Fairtrade Development Plan and business plan.</p>	

<b>Activity 9: Waste Management</b>	
<p><u>Method:</u> Breakout Group Brainstorm Feedback</p>	<p><u>Media:</u> Flip Chart and markers</p>
<p><u>Duration:</u> 20 min.</p>	
<p><u>Proceeding</u></p>	<p>The trainer will pose the following questions:  <i>“What do you think is good waste?”</i>  <i>“What do you think is bad waste?”</i></p> <p>Trainer will write on a butcher paper the items given by the participants making a list of good waste and bad waste. To finalise the list will explain information given in the background information below for trainer support (Waste Management).</p> <p>Trainer will close the activity by giving a summary of the section Biodiversity Friendly Practices - Background information for trainer support (Waste Management).</p>

## Fairtrade Environmental Poster

### FAIRTRADE ENVIRONMENTAL REQUIREMENTS FOR SMALL PRODUCERS

Fairtrade environmental standards stipulate requirements for the protection of producers' health and safety, conserving biodiversity and banning the use of genetically modified organisms and dangerous chemicals.



Fairtrade producers keep their environment clean of waste and pollution. With the environmental officer they improve their crop and production.



The illustration shows an environmental officer in a green cap and shirt. On the left, he is talking to a group of farmers. A speech bubble from the officer contains a checkmark. On the right, a series of panels shows the officer demonstrating safe pesticide use: a red 'X' over a pig near a tree, a checkmark over a tree being sprayed, and a checkmark over a tree with a pig nearby. Below, the officer is shown talking to a farmer next to a yellow pesticide container with a skull and crossbones symbol.

Every member of the Fairtrade organisation knows best. They look after their environment while controlling pests.



The illustration shows a group of people gathered around a 'COMMUNITY MAP'. The map has various colored markers. Surrounding the map are several small panels: one showing a person cleaning up litter (checkmark), one showing a person planting a tree (checkmark), one showing a person using a net to catch a bird (checkmark), one showing a person using a net to catch a pig (checkmark), and one showing a person using a net to catch a chicken (checkmark). There are also panels with red 'X' marks showing a pig near a tree and a chicken near a tree. A chicken and a pig are shown in the foreground.

Fairtrade Environmental Standards benefit us all. So that our trees and kids can both grow tall.



The illustration shows a community sign that reads: "Welcome to our community, where we protect the environment". In the background, a group of people, including children, are gathered. To the right, there is a 'conservation area' sign with a red 'X' over a pig and a chicken, indicating that these animals are not allowed in the area. A pig and a chicken are shown near the sign. A river flows through the scene.

## PowerPoint Slide 1

### The Production Chapter

- **Management of Production Practices**
- **Environmental Protection**
  - Environmental management
  - Soil and water
  - Waste
  - Genetically Modified Organisms (GMO)
  - Biodiversity
  - Energy and greenhouse gas (GHG) emissions
- **Labour Conditions**
  - Freedom from discrimination
  - Freedom of labour
  - Child labour and child protection
  - Freedom of association and collective bargaining
  - Conditions of employment
  - Occupational health and safety

## PowerPoint Slide 2

### Fairtrade Environmental Standards focus on the following areas:

- minimal and safe use of agrochemicals,
- safe management of waste,
- maintenance of soil fertility and water resources
- protection of conservation areas and biodiversity,
- strengthening the sustainability of local production systems and
- no use of genetically modified organisms.

### PowerPoint Slide 3

## Management of Production Practices



The management of production practices helps producers to identify their needs concerning their compliance with Fairtrade Environmental Standards.

### PowerPoint Slide 4

## Environmental Protection



Community based environmental protection systems encourage producers to evaluate themselves, and to provide feedback to their organizations.



## PowerPoint Slide 5

### Fairtrade Environmental Standards



**Fairtrade Environmental standards enable producers to address their environmental challenges, improve their livelihoods and contribute to a more sustainable planet.**

## Individual Handout 1

### Fairtrade Environmental Standards Poster Summary

- One person must be given responsibility to lead the operational requirements of the Generic Environmental Fairtrade Standards.
- The appointed person (Environmental Officer) should inform and explain to the members the Fairtrade Environmental and Labour Requirements.
- The Fairtrade Environmental Officer must support producers to comply with Fairtrade Environmental and Labour Requirements.
- Members must be able to identify the risk of not complying with Generic Environmental Fairtrade Standards.
- Maintain a safe central storage area for pesticides and other hazardous chemicals.
- Store pesticides and other hazardous chemicals safely, especially so they cannot be reached by children.
- Ensure members keep their farms free of hazardous waste.
- Avoid negative impacts on protected areas, and in areas with high conservation value.
- Do not spray above and around places with ongoing human activity or above and around water sources.
- Do not apply pesticides and other hazardous chemicals within 10 meters of ongoing human activity (housing, canteens, offices, warehouses or the like).
- Reduce the use of herbicides.
- Identify land at risk of soil erosion and land that is already eroded in Fairtrade crops.
- Measures to improve soil fertility.
- No collecting or hunting of rare or endangered species to take place.



## Handout 2: The Fairtrade Environmental Standards Checklist

### Management of Production Practices

#### Year 0 | Core |

These actions must be followed by the organization before sending an initial application to FLO-CERT.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.1.1	Inform and explain to the members of the organisation the environmental and labour requirements from the Fairtrade for SPOs, production chapter.				

#### Year 1 | Core |

These actions must be followed by the organization from the first year of certification.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.1.2	Identify which requirements in the Production chapter your members may be at risk of not complying with Fairtrade Environmental Standards.				

#### Year 3 | Development |

These actions must be followed by the organization from the third year of certification.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.1.3	Identify risks periodically, at a minimum every 3 years.				
	3.1.4	Procedure to monitor and evaluate the performance of your members in relation to the				

		requirements in the Fairtrade Generic Environmental Standards for SPOs, production chapter.				
	3.1.5	Conduct training sessions on integrated pest management.				

## Environmental Protection

Year 0 | Core |

These actions must be followed by the organization before sending an initial application to FLO-CERT.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.2.1	One person must be given responsibility to lead the operational steps required to comply with the requirements in the section Environmental Protection from the Fairtrade Environmental Standards for SPOs, production chapter.				
	3.2.9	Maintain a safe central storage area for pesticides and other hazardous chemicals.				
	3.2.13	The members of the organization must not reuse pesticide and other hazardous chemical containers to store or transport food or water.				
	3.2.15	Compile a list of the pesticides that are used on Fairtrade crops and keep it updated, at a minimum every 3 years. Indicate which of those materials, from the list above, are in the Fairtrade International Prohibited Materials List (PML): part 1 (Red List), and part 2 (Amber List).				
	3.2.16	<b>M</b> Do not use any of the materials on the Fairtrade International PML part 1 (Red List) on Fairtrade crops (see Annex 2). Prohibited materials must be clearly				

		marked "Not for use on Fairtrade crops".				
	3.2.32	Do not intentionally use genetically engineered seed or planting stock for Fairtrade crop(s). Implement practices to avoid GM contamination in seed stocks.				
	3.2.33	Avoid negative impacts on protected areas, and in areas with high conservation value within or outside the farm or production areas from the date of application for certification. The areas that are used, or converted to, production of the Fairtrade crop must comply with national legislation in relation to agricultural land use.				

Year 1 | Core |

These actions must be followed by the organization from the first year of certification.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.2.7	Do not apply pesticides and other hazardous chemicals within 10 meters of ongoing human activity (housing, canteens, offices, warehouses or the like).				
	3.2.8	Do not spray above and around places with ongoing human activity, or above and around water sources.				
	3.2.18	Develop a procedure to ensure that members do not use any materials on their Fairtrade crops that appear on the Fairtrade International PML Part 1 (Red List).				
	3.2.29	Ensure members keep their farms free of hazardous waste.				
	3.2.36	Ensure sustainable wild harvesting.				

Year 3 | Core |

These actions must be followed by the organization from the third year of certification.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.2.4	Provide training to members and workers who handle pesticides and other hazardous chemicals on the risks of handling these materials and on how to handling them properly.				
	3.2.5	Implement measures to ensure that all people, including members and workers, wear appropriate personal protective equipment (PPE)				
	3.2.10	Store pesticides and other hazardous chemicals safely, especially so they cannot be reached by children.				

**Year 3 | Development |**

These actions must be followed by the organization from the third year of certification.

Yes/ no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.2.2	Conduct training sessions on integrated pest management.				
	3.2.11	Have all pesticides and hazardous chemicals clearly labelled. Conduct training on use of labels.				
	3.2.14	Triple rinse, puncture and safely store empty containers. All equipment that has been in contact with hazardous materials must be cleaned and stored safely.				
	3.2.19	Reduce the use of herbicides.				
	3.2.20	Identify land at risk of soil erosion and land that				

		is already eroded in Fairtrade crops.				
	3.2.23	Measures to improve soil fertility.				
	3.2.24	Make a list of sources of water used for irrigating and processing Fairtrade crops.				
	3.2.26	Provide training to the members of your organization on measures to use water efficiently.				
	3.2.30	Designate areas for the storage and disposal of hazardous waste.				
	3.2.31	Raise awareness on re-using organic waste.				
	3.2.37	No collecting or hunting of rare or endangered species to take place.				
	3.2.38	Alien invasive species must not be introduced.				
	3.2.39	Record energy use in central processing facilities, make energy use more efficient and replace by renewable sources.				

**Year 6 | Development |**

These actions must be followed by the organization from the sixth year of certification.

Yes /no	Ref	Description of the standard	Description of activities towards compliance	Date	Type of evidence	Person in charge
	3.2.12	Have equipment to handle accidents and spills in the areas where they prepare or mix pesticides and other hazardous chemicals, so these do not seep into soil or water. Plan spraying in such a way as to have no or very little spray solution left.				
	3.2.3	Demonstrate that pesticides are applied based on knowledge of pests and diseases.				
	3.2.21	Provide training on practices that reduce and/or prevent soil erosion where risk of soil erosion or already eroded land has been identified.				



	3.2.22	Provide training on the appropriate use of fertilizers.				
	3.2.25	Keep informed about the situation of the water sources.				
	3.2.27	Manage waste water, so it does not have a negative impact on water quality, soil fertility or food safety.				
	3.2.28	Provide training about waste water and the health risks it bears, as well as on the prevention of risks and treatment methods of waste water and their implementation.				
	3.2.35	Maintain buffer zones around bodies of water and watershed recharge areas, and between production and areas of high conservation value, whether protected or not.				
	3.2.40	Report on practices to reduce GHG emissions and increase carbon sequestration.				

## Individual Handout 3

### Pesticides Available in PNG

Pesticide	Active Ingredients	Side Effects/ Risks
Diuron 800/900	Diuron	High risk of contaminating food sources of wildlife and aquatic life, surface run off (water) and is med-low oral and dermal toxicity. Non usage on windy days, and buffer zones are recommended when applying chemicals.
Gramoxone	Paraquat	Very toxic substance, ingestion can cause lung, liver, heart and kidney damage.
Copper oxychloride	Copper oxychloride	High toxicity to humans, wildlife and aquatic life. Must be strictly used as instructed.
Karate	Lambda cyhalothrin	Is moderately toxic in terms of inhalation and contact with skin and can cause skin, nose and throat irritation leading to nausea, headache and dizziness. Highly toxic to fish and aquatic arthropods.
Round up	Glyphosate	Drinking from contaminant water can cause kidney and reproductive difficulties.
Ametrex	Ametryn	Low health risk

## Template

Environmental Template for Pests and Pesticides							
	Member's Name	Has member encountered Pest (Y/N)	Type of Pest Encountered	Has member Used Pesticide (Y/N)	Type of Pesticide and Amount Used	Status of members PPE	Training received
1							

## Handout 4

### Warning symbols

Visual warning symbols on pesticide labels indicate the kind of harm that can result from pesticide misuse or mishandling. They alert the user to the degree of the hazard (by the shape of the border) and to the type of hazard (by the centre "picture").



#### Flammable

The "fire" symbol is a warning that the pesticide is flammable or easily ignited. Keep the pesticide away from heat, sparks, or open flames. Do not smoke while mixing or applying the product.



#### Explosive

The "exploding grenade" symbol indicates that the pesticide can explode, e.g., pesticide in pressurized cans. Explosive conditions may also be created by using Roundup or Ruster (glyphosate) in a galvanized steel spray tank.



#### Corrosive

The "corroded hand" symbol indicates that the pesticide is corrosive to the skin and eyes. The chemical is either acid or alkali (caustic) and can burn the skin. Protect the skin and eyes when using these products.



#### Poisonous

The "skull and cross bones" symbol warns that the chemical is poisonous if taken into the body. Keep the product out of reach of children. Use the appropriate safety measures when dealing with poisonous products.

### Toxicity symbols

These symbols relate the oral LD<sub>50</sub> value (mg/kg) of a pesticide to its toxicity symbol.



#### Danger Poison

LD<sub>50</sub> less than 500 mg/kg indicates high toxicity.



#### Warning Poison

LD<sub>50</sub> 500 to 1,000 mg/kg indicates moderate toxicity.



#### Caution Poison

LD<sub>50</sub> 1,000 to 2,000 mg/kg indicates low toxicity.

The source of the materials is <http://www.agriculture.alberta.ca>. The use of these materials by Fairtrade is done without any affiliation with or endorsement by the Government of Alberta. Reliance upon Fairtrade's use of these materials is at the risk of the end user.

## **B. Biodiversity Friendly Practices**

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General objectives:

- have a basic understanding of the Fairtrade Environmental Standards related to pest management, soil and waste
- describe the importance of protecting biodiversity and conservation areas in Papua New Guinea (PNG)
- be familiar with the relevant legislation around land use and management in PNG

Specific objectives:

- be aware of specific pests in PNG cocoa and their impacts, the available pesticides, and the recommended methods of use,
- understand the importance of soil fertility and methods to maintain and improve it
- be familiar with waste management practices
- describe recommended methods of protecting biodiversity and high conservation areas in PNG
- understand the ways in which relevant legislation around land use and management in PNG relates to them
- be familiar with the processes involved in Participatory Land Use and Management Planning
- be familiar with the basics of Conservation Area Planning (CAP)
- be familiar with the basics of implementing the CAP process

### ***Proposed training strategy***

<b><i>Activity 10: Introduction to Biodiversity</i></b>		
<u>Method:</u> Lecture Feedback	<u>Media:</u> PowerPoint (slides 5-9). Projector and white screen.	<u>Duration:</u> 20 min.
<u>Proceeding</u>	The trainer will open this activity with the PowerPoint presentation on biodiversity and then open the floor for questions.	

<b><i>Activity 11: National Legislation Covering Community Agricultural Land Use</i></b>		
<u>Method:</u> Lecture Feedback	<u>Media:</u> PowerPoint (slides 10-16). Projector and white screen.	<u>Duration:</u> 20 min.
<u>Proceeding</u>	<p>The trainer will carry out the PowerPoint presentation on National Legislation Covering Community Agricultural Land Use, and will touch the following areas:</p> <p>Introduction to Land Tenure and Agriculture Legislation in PNG (this must be customised per region/country)</p> <p>Relevant agriculture land use legislations</p> <p>Special Agricultural Business Leases (SPABLs)</p> <p>Trainer will base presentation on the section below Biodiversity Friendly Practices - Background information for trainer support (Special Agricultural Business Leases).</p>	

<b><i>Activity 12: Protecting High Conservation Areas</i></b>		
<u>Method:</u> Lecture Feedback	<u>Media:</u> PowerPoint presentation (slides 17-21). Projector and white screen. Handout 5	<u>Duration:</u> 20 min.
<u>Proceeding</u>	<p>The trainer will carry out the presentation “ Biodiversity Friendly Practices”</p> <p>After the presentation, the trainer will explain Handout 5, Conservation Mechanisms in PNG, and distribute it to participants.</p> <p>To finalise, the trainer will then field questions from participants.</p>	

<b>Activity 13: Participatory Land Use and Management Planning</b>		
<u>Method:</u> Lecture Feedback	<u>Media:</u> Power Point presentation (slides 22-27). Projector and white screen.	<u>Duration:</u> 20 min.
<u>Proceeding</u>	The trainer will carry out a PowerPoint presentation on Land Use Management Planning. To finalise, the trainer will then field questions from participants.	

<b>Activity 14: Practical session on Conservation Area Planning (CAP) - Closing</b>		
<u>Method:</u> Lecture Group Exercise Feedback	<u>Media:</u> Practical exercise with drawing materials (flip charts, markers, etc.)	<u>Duration:</u> 20 min.
<u>Proceeding</u>	<p>The trainer will ask participants to break into groups of 5 and will distribute sheets of butcher paper and markers to each group. Then, s/he will ask each group to make a map of an area in their community and to identify on it the following:</p> <ul style="list-style-type: none"> <li>- Items of biological, cultural and economic importance.</li> <li>- Environmental problems in the chosen area.</li> </ul> <p>On a second sheet, participants will write down the threats that these problems may represent for the community, placing at the top the ones they consider as more important. On the same sheet they will document the causes of these problems and suggestions to solve them.</p> <p>Once the list is finalised, participants will share with the wider group their ideas and suggestions.</p> <p>The trainer will then explain to the participants the structure for a community based monitoring system: TNC's "Development of Action Plan and Implementation system".</p> <p>To finalise, the trainer will field questions from participants, referring to the section Biodiversity Friendly Practices - Background information for trainer support (CAP Process).</p>	

## Handout 5

### Conservation Mechanisms in Papua New Guinea (PNG)

#### National Parks, Gardens and Reserves

National Parks, Gardens and Reserves are instituted under the National Parks Act (1982) and can only be established on State-owned land.

**Examples:** Variarata National Park, Mt. Gahavisika National Park, Kokoda Trail National Park, MacAdam National Park, Moitaka Wildlife (Sanctuary) Park and two botanical gardens (Lae and Port Moresby).

#### The Conservation Areas Act

The Conservation Areas Act (1978) provides another mechanism to establish protected areas on lands under customary tenure. It is overseen by a Conservation Area Management Committee in an advisory capacity.

##### Advantages

- Conservation areas are not restricted to protecting fauna but may include the management and conservation of all fauna, flora, biodiversity, habitat and scenery.
- Conservation areas explicitly provide for the restriction of development activities in the conservation area.
- Breaches of rules are punishable with monetary fines and the violation of a management plan is also a criminal offence under the Environment Act (2000).

##### Disadvantages

- The Conservation Areas Act came into force in 1978 and owing to the non-establishment of the National Conservation Council until 2003, it was never applied until 2009 with the Declaration of YUS Conservation Area in Morobe Province.

**Example:** YUS Conservation Area

#### Wildlife Management Areas

Under Fauna (Protection and Control) Act (section 15), wildlife management areas are a mechanism for local control of fauna on land and in waters held under customary tenure. WMA establishment has been the most used form of area-based conservation tool in PNG, accounting for over 90% of the total protected land area in PNG.

##### Advantages

- They are the most acceptable form of conservation available for PNG resource owners, as this instrument constitutes a flexible high level of control by local resource owners.
- They have provisions to use sanctuaries, protected areas and WMAs as a mechanism to protect coastal and marine resources.
- WMA rules are not restricted to fauna conservation only, but the landowner can decide to set other rules if they wish to do so.

##### Disadvantages

- WMAs may have rules against the cutting of trees; these rules are not actually covered by the provisions of the Fauna Act and therefore not likely to be upheld in court.
- WMA establishment does not provide resource owners with a suitable legal mechanism to manage tourist activities.
- Department of Environment and Conservation (the government agency responsible) lacks the field capability to monitor and enforce rules and regulations within WMAs.

**Examples:** Pokili WMA, Tonda WMA, Crater Mountain WMA, Ndrolowa WMA

#### Sanctuary

The Fauna (Protection and Control) Act (section 11) allows for the establishment of sanctuaries. The



Minister is required to gazette the areas and the specific class of fauna that can be harvested in a sanctuary.

**Examples:** Balek Wildlife Sanctuary, Crown Island Wildlife Sanctuary and Ranba Wildlife Sanctuary.

### Protected Areas

The Fauna (Protection and Control) Act (Section 14) allows for the establishment of protected areas. Protected areas are declared only for a specific class of protected fauna.

### Local-Level Legislative Instruments for Conservation

In response to the difficulties encountered with regard to formalising protected areas, a number of non-governmental organisations have started to look at the development of alternative legislative instruments that do not depend on central government for their implementation. Two instruments have been developed: a Conservation Deed which operates under PNG private law and local conservation agreements which come under a local-level government act drawn up on the basis of the 1995 new Organic Law.

### LLG Environment and Conservation Law

Under section 44 of the Organic Law on Provincial Governments and Local level Governments 1995, Local-level governments have the provisions to enact a wide range of laws on various subject matters. In the area of biodiversity, local-level governments can make laws on: (1) the environment; (2) sacred sites; (3) domestic animals; and (4) traditional copyright.

On the subject of environment, the law promotes sustainable development by integrating modern and traditional concepts of natural resources use and management. The law also establishes a committee which is responsible for the management of biodiversity in the Local level Government area.

**Examples:** Almami Conservation Areas, Kimbe Bay Marine Protected Areas

### The Conservation Deed

Unlike other forms of conservation that are defined on the basis of Government legislation, a Conservation Deed is grounded in private law. The Deed falls under the PNG Law of Contract, which protects and enforces agreements between the parties that enter these agreements. The Deed usually has a lifespan of 5 to 7 years.

As the Constitution of PNG recognises the ownership rights of resource owners and their right to make decisions on the use of their resources, and as these land-owning clans have signed a contractual agreement among themselves, the Deed cannot easily be undone by third parties. Any unilateral violation of the Deed is punishable in court as a breach of contract triggering either the enforcement of the contract, or forcing the defaulting party to pay damages.

Advantages:

- The Conservation Deed is flexible and as long as the involved parties agree among themselves as to how their resources should be managed, the Deed allows for the development of management plans covering a wide variety of activities.
- Its incorporation in law means that one is not dependent on the PNG government bureaucracy.
- As this entails an agreement between landowners themselves it can be drawn up in Tok Pisin.

Disadvantages:

- Its weakness lies with the fact that the Deed needs to be renegotiated every 5 to 7 years and that that communities themselves have to enforce the rules laid down in the Deed.

**Examples:** Wanang Conservation Deed, Tokain Conservation Deed.

**Resource Used** Van Helden, F. (2005). Lessons Learned in Community Based Conservation in Papua New Guinea. *The Nature Conservancy and WWF Papua New Guinea.*

## Biodiversity Friendly Practices - Background information for trainer support

### *Proper use and handling of pesticides and other hazardous chemicals*



Fairtrade encourages producers to minimize risks from handling pesticides, promotes the use of integrated pest management tools, and aims at reducing the amounts of pesticides used as much as possible. When pesticide use is necessary, producer organizations are encouraged to use pesticides that are the least toxic, and as economically and technically feasible as possible.

**Safe Use, Storage and Disposal of Pesticides**

Pesticides are toxic materials and most pesticide poisoning occurs when they are mishandled. Pesticide accidents can be prevented by using the right amount, using secure storage location, using safe handling methods and following safe disposal guidelines for the pesticide and the containers.

**Use Pesticide to the Required Amount**

When buying pesticides, only buy the amount that can be used in a reasonable length of time, and buy pesticides in quantities that you will use in the near future. Always keep pesticides in their original containers.

**Pesticide Labelling**

Not all labels are the same. The label format differs from product to product but pesticide manufacturers are required by law to state the following information on the label:

- **Brand, Trade or Product Name**

The name used to identify and market the product. Different companies will use different brand names to market their product, even when the same active ingredient is used.

- **Ingredient Statement**

Every pesticide label must include the product’s active and inert ingredients with the percentage of each by weight.

- **Type of Pesticide**

Most labels state the type of pesticide on the front. For example, the label may say Herbicide indicating it controls weeds, or Insecticide and indicating it will control insects.

- **Manufacturer**

The name and address of the manufacturer is required to be on the label.

- **Signal Words**

Pesticide labels must include a signal word prominently displayed on the front to identify the relative toxicity of a particular product.

Signal Word	Category
“Danger” or “Danger Poison”	Class I – highly toxic
“Warning”	Class II – moderately toxic
“Caution”	Class III – slightly toxic
“Caution” or no signal word	Class IV – very slightly hazardous

- **Precautionary Statements**

These statements guide users to take proper precautions to protect humans or animals that could be exposed. These statements include:

“Hazards to Humans and Domestic Animals,” “Keep Out of Reach of Children” and “Harmful if inhaled”.

- **Statement of Practical Treatment/ First Aid**

Tells what to do in case of exposure to the product.

- **Environmental Hazards Statement**

This statement details possible hazards to the environment including soil, water, air, wildlife, fish and non-target plants.

- **Physical or Chemical Hazards**

Describes any possible fire, chemical, or explosion hazards specific to this product.

- **Agricultural Use Requirements**

Specific safety measures for agricultural workers and handlers of agricultural pesticides.

- **Storage and Disposal Statement**

Each pesticide label has general storage and disposal instructions.



- **Directions for Use**

These directions instruct the user on how to properly apply the pesticides and achieve the best result. This section provides information for things such as the rate of application, the sites the product is intended to protect (e.g. aquatic, wildlife habitat areas, crop sites, etc.), which pests it controls, mixing directions and other specific instructions related to application of the pesticide.

**Personal Protective Equipment (PPE)**

PPE is protective clothing that effectively limits exposure to hazardous chemicals. PPE includes garments or equipment which covers the arms and legs, footwear (shoes or boots), a mask when applicable and, if spraying crops above your head, a hat. Specific garments will vary according to local context.

The product labels may provide further guidance on the type of PPE that should be used when mixing and applying.

Exposure may also be reduced by choosing certain formulations and modes of application. You can seek advice from the supplier or manufacturer.

At the minimum, when handling or applying any pesticide, the user must wear:

- Work clothing with long pants and long sleeves;
- Unlined, liquid-proof, chemical resistant gloves;
- Shoes and socks

Other specialized clothing may include:

- Chemical resistant clothing like PVC raincoat and coverall
- Footwear like rubber boots and boot covers.
- Eye protection like safety goggles and face shield fitted to a hard hat.
- Head and neck protection like a chemical resistant hood and hat to keep pesticides off the neck, eyes, mouth and face.

When finished with an activity in which you have handled pesticides or exposed to them, remove your PPE right away and wash.

**Storage Area**

Having a separate building, or room is best for pesticide storage. A best site for storage is away from sensitive areas such as houses, gardens and water sources. Locating storage facilities away from dwellings and livestock facilities will minimize possible contamination. The site should be also in an area where flooding does not occur.

Store pesticides in a space having good ventilation and a sealed, concrete floor that has good drainage. Warning signs should be posted on each door and in any windows of the building or room. The storage area must be lockable to prevent unauthorized entry and should only be used for pesticides and pesticide equipment.

**Be Prepared for Pesticide Spills**

Accidents can happen despite taking all safety precautions. Quick action is required if a pesticide spill occurs in the storage area. If pesticide is spilled on a person's body or clothing, the person should leave the area immediately and all contaminated clothing should be removed and the affected areas of the body should be thoroughly washed with detergent or soap with water. In any pesticides contamination incident, follow the instructions given in the label's first aid treatment guidelines. If label is not available seek medical attention.

Spilled pesticides spreading on the floor or ground must be contained by putting absorbent material, or with a big mound of soil but without the soil coming into contact with the pesticide. If the spill is liquid, use sawdust to cover the entire spill area.

**Disposing of Excess Pesticides and Containers**

The best way to dispose of small amounts of pesticides is to follow instructions on the container label.

*Triple Rinsing* instructions:

1. Remove cap from the pesticide container and empty all remaining pesticide into the spray tank, allowing the container to drain for 30 seconds.
  2. Fill the container 20% full of water or rinse solution (i.e. fertilizer solution)
  3. Secure the pesticide container cap.
  4. Swirl the liquid within the container to rinse all inside surfaces.
  5. Remove the cap from the container. Add the content of the pesticide container to spray tank and allow to drain for 30 seconds or more.
  6. Repeat steps 2 through 5 **two more times**.
- Return container to supplier or dispose of according to label directions.

### **Soil and Water**

#### **Soil Fertility**

Soil fertility is the ability of soils to produce plant life. A fertile soil is one that is rich in nutrients, contains high soil organic matter that improves soil structure and is well drained; it should also promote the presence and activities of microorganisms and have an adequate layer of topsoil.

#### **Organic Soil Matter**

A very important part of soil fertility management is the organic soil matter. The organic matter in the soil consists of fresh organic material and humus. Fresh organic material is plant and animal waste that has not yet decomposed, such as roots, crop residues, animal waste and dead remains. The fresh material is transformed by soil organisms into humus (dark coloured soil). In this process, nutrients are released and hence organic matter makes nutrients available to the plants.

#### **Ways to Improve Soil Fertility**

There are a number of ways to increase or maintain soil fertility including use of manure, composting and chemical fertilizers.

#### **Manure**

Manure consists of animal excrement and is usually mixed with leaves. The amount and quality of the excrement depend on what the animals were fed, and it must be aged. Ageing is necessary to retain all of the nutrients. Applying manure leads to increasing the amount of organic matter, increasing plant nutrients, and improving the structure and water retention capacity of the soil.

#### **Compost**

Like manure, compost is a good soil fertilizer. To create a compost heap, organic material (e.g. crop residues, manure, kitchen wastes, etc.) is collected and stored together. The material in this heap is gradually decomposed by the microorganisms.

Compost supplies nutrients and increases the level of organic matter in the soil. A good thing about composting is that diseases and pests, as well as weed seeds are destroyed because the temperature in the compost heap is so high that they cannot survive.

#### **Use of Chemical Fertilizers**

Application of chemical fertilizers, such as soluble forms of nitrogen, phosphorus, potassium and urea, is another way to give nutrients to the soil. Chemical fertilizers give specific nutrients to the soil (if there is an identified nutrient deficiency) with immediate uptake by crops.

However, the addition of chemical fertiliser alone is not enough to retain a sufficient level of soil fertility. If the organic matter in the soil decreases, the yield will also decrease, even if a lot of fertiliser is applied. This is due to degradation in the soil structure and a decreased soil capacity to retain nutrients and water.

#### **Soil Fertility and Crop Husbandry**

Crop husbandry refers to all agricultural activities done from planting to harvesting. There are a number of crop husbandry practices to improve the fertility of soil as well, including mulching and agroforestry. These methods are intended to provide the necessary conditions for crops to get the nutrients and moisture the soil needs for good yield production.

## Mulching

Mulching is the practice of covering the ground with organic material, such as crop residues and leaves. The aim of mulching is to: retain the level of organic matter in the soil; stimulate microorganism activity; protect the soil from water, wind erosion and soil dryness; prevent high soil temperatures; and increase the moisture level in the soil.

It is important to note that using crop residues can increase the risk of pests so do not use infected or diseased plant material, and use mulch before the rainy season starts to minimise the chances of erosion.

## Agroforestry

Agroforestry comprises all forms of land use in which trees are grown in combination with other cash crops or livestock. The use of leguminous trees such as *Gliricidia sepium*, *Luecaena* spp., and *Erythrina variegata* provide available nitrogen in the soil for plants to use. When planted as hedgerows between rows of agricultural crops, some tree species reduce soil erosion. When planted on slopes, alley crops slow down runoff rainwater and trap sediment.

## Appropriate Soil Fertility Management

The use of animal manure, compost and crop husbandry contribute to retaining the level of organic matter in the soil. Chemical fertilisers help the plants immediately while organic manures first have to be broken down into nutrients before they can be utilised by the plants. However, chemical fertilisers are quickly depleted by plants, while organic matter continues over a long period of time to enhance soil fertility and soil structure. A top priority for any farmer is to make the right decisions to ensure their lands have healthy, fertile and biologically active soil, thus creating an environment which ensures adequate nutrition to the crops.

## Soil Erosion Management

Soil erosion is the displacement of soil by the actions of wind and water. It occurs naturally and gradually as a geological process of the earth, but unwise actions of people can also speed up this process. Soil erosion management is the practice of preventing or controlling wind or water induced erosion in agriculture, and other development activities. Effective erosion measures are important techniques in preventing water pollution and soil loss.

The following are simple steps to address soil erosion issues:

- Identify areas where erosion has occurred or has the potential to arise in the future - this is dependent on soil type, slope and erosion risk activities.
- Choose the appropriate kind of soil erosion management measure.

Ideally soil erosion control begins with soil erosion prevention. But when it's too late for soil erosion prevention, you simply have to fix a problem that already exists.

Preventative measures are measures for areas not yet experiencing erosion but might in the future. These measures may include:

- Stopping expansion of agriculture activity on susceptible areas and practicing reduced tillage. The tillage process of digging up the soil in preparation for planting, while enriching for the crop, also displaces the soil layers and makes it loose and prone to being eroded.
- Designating existing vegetation cover as buffer zones, and additionally maintaining vegetation cover by soil enrichment practices like mulching and composting at these potential erosion sites.

When a site has already experienced a soil erosion problem it is time to take remedial (corrective) measures to address this problem.

These measures may include:

- Initiating a tree replanting program and plant trees in the affected areas. Trees, especially those with big, sturdy roots, should be planted to hold and maintain the integrity of the soil.
- Another measure could be consolidating the eroded river banks by putting compacted rocks in wire baskets as a physical barrier against the gradual intrusion of the river's edge through the action of the river.



## **Waste**

### **Waste Management**

Managing waste in an agricultural project is a management practice that needs to be fully addressed and followed. Unwise disposal of certain toxic wastes will have a negative impact on the environment particularly water sources, soil properties and human health.

### **Agriculture Waste**

There are different sorts of waste that can be generated out of an agricultural activity; these can be grouped into Hazardous Waste, and Organic Waste.

Hazardous waste may include:

- Pesticides
- Pesticide containers
- Plastic polybags
- Materials used to clean up leakages and spills of pesticides.
- Contaminated clothes
- Cleaning chemicals, such as disinfectants and bleach

Organic waste may include:

- Plant cut materials from pruning.
- Removed crop tree
- Pod/pulp shells from harvested crops
- Animal waste/remains
- Food cuttings

### **Managing Hazard Waste**

You must store hazardous waste separately from all other waste. You must keep it in sealed and labelled containers, and in a separate, storage area.

Also you must dispose of the waste according to instructions on product labels.

### **Managing Organic Waste**

Re-use organic waste through practices that allow nutrients to be re-used such as Composting, Animal Manure, Mulching.

A good waste management system is one that minimises impact on the environment and promotes sustainable practices like re-cycling of re-usable wastes.

### **Brief on Land Tenure and Agriculture Legislation in Papua New Guinea (PNG)**

Papua New Guinea is a developing country with vast natural resources. It is blessed with a multitude of resources including extensive land with pristine forests, access to fresh water, and a rich marine life. As seen by the boom in the extractive industry, PNG is also blessed with mineral resources in almost all parts of the country. Despite this, the backbone of PNG, the agriculture and forestry sector, is fundamentally but not yet fully realised.

### **Status of Agriculture Sector in PNG**

The most common form of agricultural business activity is smallholder farming where individual family groups plant and harvest crops such as cocoa, coffee, copra and palm oil on their own parcel of land to sell for cash.



These household entities have proven to be quite resilient despite the risks and fluctuations associated with market pricing of the cash crops.

Another form of agriculture business is the estate holding (plantations) sector which has dropped significantly (except for oil palm) in recent times due to various reasons like the lack of tenure extension of existing holdings, no new lands to expand to and also declining market prices. Small oil palm estates have worked well, especially when assisted by reputable developers who have put in long term commitments and sound management practices that comply with social and environmental standards.

### **Land Tenure**

Having a subsistence-gardening based society, Papua New Guineans are a culturally diverse people with complex relationship structures that determine traditions, kinship and landownership. Its land tenure system is unique in that almost all land (97%) is customary owned by the people and this is stated fundamentally in the nation's constitution. The remaining 3% is alienated or state owned land and is administered by Land Act 1996. The Land Act 1996 also provides for methods of customary land conversion either through land tenure conversion or the lease lease-back mechanism.

### **Land Reforms**

Since 2006 there has been one land reform to amend existing land laws, primarily to empower the owners of the land, in order for them to secure title to their land and to enable them to participate in business activities. This would entail fulfilling requirements for correct identification of the landowners and their land, and formation of Incorporated Land Groups (through the Land Groups Incorporation Act), followed by registration of their land (Land Registration Act). At this point in time the government has not fully implemented the amended Land Group Incorporation and Land Registration Acts.

### **Special Purpose Agriculture and Business Leases (SPABLs)**

The Land Act (sect 11) means that the Land Minister may lease customary land for the purpose of granting a special agriculture and business lease of the land. It is essentially incorporated land groups leasing to the State and the State leasing to those that the landowners choose. The land reverts back to customary tenure after expiry (99 years). This mechanism is being utilised by government and developers.

The main implications of SPABLs is that customary land holding and usage is suspended for the duration of the lease period (no customary rights apply). Once the lease is issued, it cannot be forfeited and also normal process for tendering, advertising, granting and execution of a lease does not apply for SPABLs.

SPABLs have caused much controversy in the country where over 5 million hectares of land have been executed by this lease lease-back mechanism, whereby the government has not leased back to the landowning ILG as originally intended, but leased to other corporate entities nominated by the ILG (however, it has been reported that nominations are sometimes done by a few people from the management committees and not the majority of members) through loopholes in the Land Act 1996 (specifically Sect.102).

### **Conservation Area Planning (CAP)**

The Conservation Area Planning tool (CAP) described below is based on The Nature Conservancy's original CAP methodology and adapted as a participatory tool for use with Melanesian communities (Brown and Mayer, 2009). It is a tool that fully engages participants in an analysis of their local resources, and provides information to help them to design management strategies for maintaining these resources.

The CAP methodology views ecological information from a human point of view, relating management strategies to issues of relevance to local communities. This tool provides a method to effectively: identify resources of cultural and biological value to communities; assess past, current, and future resource quality; and identify stresses, sources of stress, and threats to their land and resources.

The results of this tool form the foundation for designing a range of strategies which communities can develop to protect and manage their resources and achieve the common goal of community conservation.

### **CAP Process**

The CAP Process consists of 5 key areas:

- The Conservation Target (the resource you want to conserve)
- Stress (pressure on the target)



- Source of Stress (the underlying factor behind that pressure)
- Strategies (the management action to minimise the threat on the target)
- Success (assessing the success of the strategy)

### Conservation target:

Give the community the opportunity to brainstorm and identify the key biological and cultural resources they depend on and want to conserve. These resources can either be a whole representative system like a type of forest or a specific individual target like an endemic species.

Examples:

Victorian Crowned Pigeon, Lowland Forests, Kwila Tree, Cultural caves, Habitat Sites of Seasonal birds, Cassowary, Headwaters of Catchment Areas, Montane forests, Traditional Sacred Sites, Taun tree.

The community then groups the identified community conservation targets into no more than eight classes of targets.

Example:

Assessing the condition of each of the targets/systems (use trend line)

Draw a diagram with conditional values of population on the vertical axis (High, Medium, Low) and timeline values on the horizontal axis (Before, Now and Future). Then ask the members what the conditional status of the target in the past, now in the present and in the future) and plot it onto the graph with dots and then join the dots.

The aim is to see the trend of availability of the target as seen by community members from the past to the present and to determine the future state of the target as anticipated by the community. If the condition is high throughout then it is still viable and abundant, and maybe management actions are not required to be put in place to protect it. If it was high in the past then it has dropped in the present (like in the example) then it is a conservation target that is in need of protection, and you should go on to the next steps of the process.

Example:

### Stress (pressure on the target)

Identify the Stress on the Conservation Target: (Use of Flow Chart and Ranking)

The community brainstorms and identifies all the possible stresses (pressure) on the target that have led to its low condition status, from their experience and understanding.

Example:

The community then assigns, to each of the stresses, a score of influence imposed on the target (out of all the stress identified for the target) using 1- 4 scoring (1 being less influential and 4 being most significant influence).

### Sources of stress:

Identify the Sources of the Stress on the Conservation Target.

The community further brainstorms and identifies all the possible sources of these stresses. They must do it, one stress at a time until they are satisfied they have identified all possible underlying factors for that stress, then move onto the next stress and do the same for it until they have completed all of the stresses. The example below only gives 2 stresses, and one stress has 4 sources of stresses identified while the other stress has three identified. There could be more or less depending on the type of target and viewpoint of the community.

Then again the community has to assign a score of influence on the stress for each source of stress (out of all the source of stress identified for that particular stress) using 1-4 scoring (1 being less influential and 4 being most significant influence).

### Threat Matrix Table





After scoring the stress and the source of stresses on the target, the community draws a threat matrix table which prioritizes the threats from the highest to the lowest. This is done by multiplying the score of the source of stresses by the score of the stress on the target. From this assessment the community can now see what the leading threats on the target are. The threat that has the highest number is highlighted to be a leading threat on the conservation target and is singled out for discussion in the strategies.

## **Strategies**

Identify Strategies to Abate these Threats

Using the results from the matrix threat table, the community breaks into small groups and discusses objectives and strategies to address the identified threats.

## **Develop and Implement Action Plan**

The community then develop activities, identify available resources to carry these activities and assign responsibilities to members to take leads, give timeframes as to when activities take place and where they are to take place.

## **Measures and Monitoring**

The community develop and use indicators (on which a simple monitoring program is based) that assess the progress of the strategies over time and determine whether it is successful or not. Management decisions can be made upon this to change or further improve the strategies.

## **Resource Used:**

Van Helden, F. (2005). *Lessons Learned in Community Based Conservation in Papua New Guinea. The Nature Conservancy and WWF Papua New Guinea.*

## **Community Conservation and Management Planning Process**

The Community Conservation Planning process is a guide for interested communities to establish conservation areas, and land use and management plans to better manage their forest resources. This process was trialled in the Almami LLG Conservation Areas in the Adelberts Range, Bogia District of Madang Province (Adelberts Project, 2010).

### **Step 1 Community Entry**

The first step, Community Entry, introduces the community to the implementing organization (IO) which could be a Non-Government Organization (NGO) or Community Based Organization (CBO). This is an important step because it begins the process of building relationships and trust with community stakeholders, sets the tone for future interactions and introduces the Community Conservation Process.

### **Ward Development Planning**

It is important to note that information collected from the various steps in this process is community based priorities and plans that are relevant to feed into and further improve the local level governments ward development planning mechanisms.

### **Step 2 Information Collection**

#### **Community History Timeline**

All communities have histories that mark transitions from past states to their present conditions. Every community has a heritage of experience and environmental knowledge that influences present attitudes and behaviours. A time line records in chronological order major events in the history of a community or area, and stimulates discussions regarding trends, actions, problems and achievements of the past. Reflecting on the significant events in the community's past can provide relevant insight to influence their future planning.

#### **Community Resource Mapping**

Maps are useful and effective ways of representing information. They are also a very good communication aid. Sketch or ground maps are geographic models or representations of a village and its surroundings made by the community members themselves to show various aspects of their village. Maps can be used to



show how the village looked in the past, its current features or how the people will want it to look in the future. Maps can illustrate the location and use of resources, important social and cultural information, boundaries and characteristics of the land and community, hunting areas, trails, garden sites and other aspects of the land a community considers important to their lives.

### **Conservation Area Planning (CAP)**

CAP is a participatory conservation tool that fully engages participants in an analysis of their local resources, and provides information to help them to design management strategies for maintaining these resources.

The CAP methodology views ecological information from a human point of view, relating management strategies to issues of relevance to local communities. This tool provides a method to effectively identify resources of value to communities, assess past, current, and future resource quality, identify stresses, sources of stress, and threats to their land and resources. The results of this tool form the foundation for designing a range of management strategies, which communities develop during the later steps.

### **Step 3 Community Vision and Action Plan**

To bring about positive change, it is first necessary to know what is needed or desired and then put a plan into action by working together toward achieving the desired change. Using social, environmental and economic criteria, the Community Vision tool enables community members to visualize what they would like their environment and village to look like in the future. The vision should be focussed towards sustainable resource management and conservation. The activity could be broadened to include a community development aspect if that is part of the sponsoring organization's mission. The Community Action Plan builds from the vision, and incorporates plans for implementing the strategies identified in the CAP activity of Steps 7 and 8 (see CAP Guide).

### **Step 4 Setting the Goal and Management Objectives**

To initiate the management planning development component of the process, the implementing organisation meets with the clan to begin discussions of land use management objectives. It must be clearly outlined what is meant by setting objectives (see Creating SMART Objectives). Examples of objectives based on the key community targets from the CAP steps should be presented to encourage discussion and to further develop these and other objectives.

This step should be further enhanced by input from science or biological information (from previous research in the area). Science information can give additional insights into the natural environment and bring a subset of conservation targets of biological importance and their threats. The community may not have prioritized these in the preceding steps, or it could further confirm the views on protecting the resources decided by the community.

First, develop a goal or overall objective for management of the natural resources of the area. Refer to the Community Vision Statement as a starting point for developing this goal. A goal is a brief statement of intent that provides a broad focus or vision of the desired future state. Unlike an objective, a goal does not need to be specific or measurable.

Once the clan agrees on an overall goal, develop specific objectives for each of the key resources or community targets identified in the CAP, such as an objective for forests, another for drinking water. Each objective should reflect the clan's perspective about addressing the threats to each CAP target. Thus it is unique for each situation. Also use target audience (like youths, mothers' groups, hunters, etc.) meetings to help refine the objectives.

If the clan cannot reach consensus about any issues or objectives, it may be necessary to facilitate further discussion to build consensus. Objectives may change during this and the following stages of negotiation and consultation, as new ideas and issues arise. This is fine. The objectives should be documented as they are developed, and then presented back to the community to confirm that they are recorded correctly.

### **Creating SMART Objectives**

Objectives are meant to be realistic targets for the Land Use Management Plan. Objectives use active and strong words like plan, conduct, produce, prohibit, protect. Objectives can help focus the plan on what the clan wants to accomplish. They will always answer the following question: who is going to do what, when, why, with what outcome or result.



A simple acronym used to set objectives is called SMART objectives.

SMART stands for:

**Specific** – Objectives should specify what they want to achieve, a specific outcome. The objective is clearly defined, stated in numbers, frequency, percentages.

**Measurable** – This means that the objective can be measured to determine whether it has been achieved or not. All activities should be measurable at some level. Identify what indicators of success to measure.

**Achievable** – Are the objectives achievable and attainable? The objective to be accomplished must be realistic given the conditions, time frame and resources available.

**Relevant** – Will this objective lead to the desired results? This means that the outcome or results support the long term goal.

**Time framed** – State clearly when this objective will be achieved.

### **Sample Objectives**

To protect important species of birds and animals, in particular muruk, guria and wallaby, and increase their populations by 50% over the next 5 years by prohibiting hunting in the conservation area and regulating hunting in other zones.

By 2010 protect all head waters, streams and pools that provide clean drinking water to support community health and aquatic life, by prohibiting clearing of forest within 30m of water, by planting trees in existing streamside clearings, and by protecting water sources from contamination by domestic animals.

### **Step 5 Demarcate and Document Clan Land Boundaries**

It is essential that each clan clearly identifies their land boundaries before establishing a conservation area. These boundaries must be recognized and accepted by all stakeholders from within the clan and with neighbouring clans. To avoid disputes once conservation areas are established, any land conflicts or boundary issues need to be resolved before proceeding with the land use management planning step. Clan and community leaders are responsible for identifying and resolving any land and boundary disputes. This step is completed by the community or clan on their own. Generally, the implementing organisation does not get involved in settling land boundary issues.

#### **Boundary Survey**

A formal boundary survey using a Global Positioning System machine (GPS) maps out the internal and external boundaries of each clan, which were documented in Step 2. The data points collected during the survey are then transferred onto topographic maps. These maps are important tools for the next step – designing management plans – and provide an accurate record of a clan's land holdings.

### **Step 6 Agree on Management Rules and Actions**

The implementing organization facilitates a community meeting to begin discussions on management rules and actions for the Land Use Management Plan (LUMP). It should start by reviewing the management objectives agreed to during the previous visit and present the information collected to date on flip charts which can be referred to during discussions. Use the LUMP format as a guide for what needs to be included in the management plan and focus discussions on the following areas:

- Develop initial ideas regarding land use zoning, types and levels of resource use within each zone, control mechanisms, such as rules and penalties and other areas included in the format.
- Refer to ideas and strategies developed during the community Conservation Area Planning (CAP) as a starting point for discussions. These strategies should be reflected in the objectives. The rules and actions developed should be regulations and activities that achieve the specific outcomes of each objective.
- Encourage the use of locally and traditionally accepted rules and actions. When deciding on penalties for individuals that infringe on rules of LUMP, use traditionally agreed practices that support community conflict resolution and even charging customary fines.
- Use information on biodiversity conservation issues relevant to the region from national biodiversity mapping and planning resources; this can be provided by the team's technical advisor.

## **Step 7 Finalize and Implement Land Use and Management Plan and Conservation Program**

Land Use and Management Planning (LUMP) is a set of guidelines on how an identified forest area and its inherent resources are used. At its most basic, land use planning determines what activities take place in which areas, and to what level these activities can take place. The goal of land use planning is to balance the needs of the people who live in the area with the needs of the environment.

A LUMP is drafted by clan, communities or wards where community members discuss all of the issues raised during the information collection step through to the boundary demarcation in order to develop objectives, a set of rules and management actions that are agreed upon by all, to ensure sustainable management, conservation and development of the area.

Technical advisors may be needed to provide input on any negative impacts the proposed rules and management actions would have on conservation and the environment, and suggest ways to overcome these impacts.

Additionally, focus should be placed on the positive future benefits to the community's well-being that conservation and resources management regulations can provide. The outcome of discussions will be put into a formal written draft land use management plan and further reviewed by other stakeholders before endorsed and signed by land owners and relevant authorities. Then through the clan, an annual clan implementation work strategy is implemented that specifies a schedule to carry out major LUMP activities. It is similar in structure to the Community Action Plan in Step 8 (see CAP Guide).

## **Step 8 Monitoring Program**

The aim of the Monitoring Program is to provide a base level of information necessary for monitoring progress and outputs of conservation and land use management. It also provides clans and implementing organizations with an indication of the impacts and effectiveness of project activities. Monitoring can be carried out at several levels:

- Basic environmental and socio-economic monitoring tools that clans can use on their own to assess the changes over time attributed to implementing their LUMP.
- Periodic in-depth monitoring that is conducted by the project team, with participation of community members and when necessary, with assistance of biological experts and social scientists.
- Enhanced scientific monitoring to provide more rigorous information relating to the measurement of impacts and effectiveness of the project, particularly those impacts on biodiversity conservation and human livelihoods.

These activities are usually carried out by research organizations such as universities and are generally outside the expertise of the project team.

An important aspect of monitoring is for clans to regularly observe changes in their resource areas and document these changes. This will contribute to awareness and education on resource-use and conservation issues along with providing detailed information for improving the LUMP and resource management activities.

The monitoring tools outlined in this section are those that the project team, in conjunction with members of local clans and communities, can carry out. The methods described include: Forest Condition Monitoring, Resource Use and Threat Monitoring, Socio-economic Condition Monitoring.

## **Progress on Implementing Conservation Agreements and Land Use Management Plan**

The monitoring data and results of data analysis should be presented regularly to the community. Based on the monitoring results, clans, with assistance from the field team and technical advisors, periodically review and revise LUMP management strategies to better achieve objectives and desired outcomes for the targets/systems.

### **Forest Condition Monitoring**

#### **Step 1 - Rapid Forest Appraisal**



Rapid forest appraisal is completed every 6 months for each clan Conservation/LUMP area. The intention is to systematically gather information that can provide some indication of changes occurring in the forest and provide early warning of any serious changes in the condition or health of the forest. An important part of the process is involving clan members in the monitoring of their resources and providing them the opportunity to regularly review and evaluate their own forest areas. The Rapid Forest Appraisal technique uses a participatory forest walk along established tracks to observe and record information on forest condition.

## **Step 2 - Local Knowledge Collection**

Regular systematic recording of local knowledge and observation about forest conditions can provide additional information to the Rapid Forest Appraisal, and also, a local perspective on long-term changes in the forest. This tool can also provide an opportunity for clans to analyze changes in their forests and reflect on the reasons behind these changes. The aim of this component is to provide a way to systematically record local knowledge so that comparisons can be made using information collected over a number of years without relying only on memory.

### **Photographic Monitoring**

The purpose of photographic monitoring is to select sites that have been disturbed either naturally or from human causes, which can be regularly photographed every 6 months to provide a visual record of changes occurring at these sites over time. Caution, to avoid the problem of communities asking for cameras, make it clear this tool is for project monitoring staff, using project camera equipment. If necessary, discuss the issues of electronic equipment needing special care in humid environments, and the fact that digital pictures need to be transferred to computers for analysis.

### **Resource-Use and Threat Monitoring**

#### **Step 1: Land-Use Change Mapping**

This component will record information on changes caused by gardens, cash crops, relocation of hamlets, fire, landslides or other activities as they occur. This data can be analysed to determine trends and causes of changes over time.

#### **Step 2: Resource-Use Monitoring**

This component looks at indicators of resource-use, pressures on resources and changes in the amount or location of resources available. It includes:

- Indicators of timber and non-timber forest product use.
- Indicators of hunting pressures through monitoring hunting dog populations and recording evidence of hunting.
- Indicators of changes in the amount of effort in both time and distance to collect resources.

### **Socio-economic Monitoring Satisfaction with Agreements**

The aim of this tool is to document community/clan satisfaction with their Conservation Areas and LUMPs, along with other factors such as types and number of conflicts, and changes occurring over time.

### **Progress Reporting**

#### **Progress on Implementing Conservation Agreements and Land Use Management Plans**

The aim of this monitoring tool is to keep track of progress by clans and communities following the signing of their conservation agreements and completion of their land-use management plans. It also collects information on activities related to the LUMPs such as visitors to the site and meetings. This information should be useful in monitoring whether the clans are actively implementing their management plans and give some indication of benefits or difficulties arising.

### **Community Self-Monitoring**

Self-monitoring of clan conservation areas should be carried out twice a month by the conservation manager and monitors. Any signs of illegal activities should be recorded in their monitoring logbook along with sightings of species that are monitored and observations such as forest resource consumption by the



community and signs of hunting. The logbook should include the dates, location, type of sign and also recommendation for any action needed.

The conservation manager should keep a record of all meetings held regarding the conservation area or LUMP, which will include the following:

- Date of meeting,
- Attendance,
- Purpose of the meeting,
- Summary of issues discussed, and
- Agreed resolutions.

Other land use zones should also be monitored by clan members informally during their daily routine, and report observations to the clan leader or conservation manager. Monitor for:

- Compliance with rules governing each zone
- Indicators selected to demonstrate progress with achieving management objectives
  
- Number of hunted animals they have caught
- Illegal activities observed
- Sightings of rare or endangered species and any other matter which may be relevant to the Conservation Agreement and the Management Plan

The clan leader and the conservation managers should keep records of any reports and subsequent actions taken e.g. warnings, fines given and paid. These records will be provided to the field team on the biannual monitoring trip.

**Resource:** The Nature Conservancy – Adelbert Project. 2010. *Community Conservation Tools and Processes: A Training Manual for Clan Based Conservation Practitioners*. Published by Research and Conservation Foundation of PNG.

## PowerPoint Slide 1

### Cocoa Diseases in PNG

**Black pod**  
(*Phytophthora palmivora*)



**Pink disease**  
(*Corticium salmonicolor*)



**Vascular Steak Dieback**  
(*Oncobasidium theobromae*)

## PowerPoint Slide 2

### Cocoa Pests in PNG

**Cocoa Pod Borer –CPB**

Larvae bore into the pod and feeds on pulp and placenta causing clumping of beans, and small and flat beans



**Pantohytes weevil**

Larvae bores trunk and main branches causing disease in trees and *Phytophthora* canker

**Mirids (*Heteroptera*)**

Adults and nymphs suck sap from pods and shoots.



## PowerPoint Slide 3

### Coffee Pests in PNG

**Green Scales (*Coccus viridis*)**

-Cause growth reduction in young coffee and losses in cherry yield of mature coffee.



**Coffee Centre Borer**

-Defoliate coffee plants resulting in losses



**Coffee Berry Borer-CBB  
(*Hypothenemus hampei*)**

-Next Big Pest in PNG???

## PowerPoint Slide 4

### Natural Ways to Eradicate Pests

Good Farming Practices

- Frequent and complete harvesting
- Block Sanitation and Management
- Pruning of Cocoa/ Coffee trees
- Pruning of Shade Trees
- Weed Management
- Insect Control



## PowerPoint Slide 5

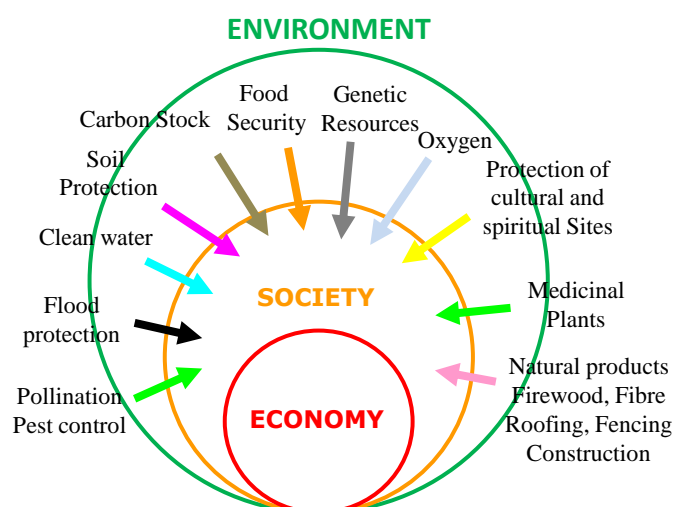
### Biodiversity

- Biodiversity, short for biological diversity, is the term used to describe the variety of life found on Earth and all of the natural processes.
- This includes ecosystem, genetic and cultural diversity, and the connections between these and all species.



## PowerPoint Slide 6

### Ecological Services



## PowerPoint slide 7

### Threats



- Unwise resource use practices/ unsustainable harvesting
- Climate change



## PowerPoint Slide 8

### Activities that Conserve Biodiversity

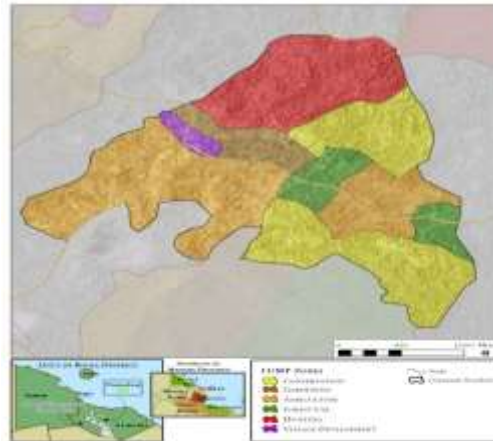
- Protect and Manage existing Forests
- Buffer Zones
- Plant more trees
- Organic farming



## PowerPoint Slide 9

### Sustainable Management

- Land Use and Management Planning
- Sustainable Harvesting Programs



## PowerPoint Slide 10

### PNG Legislation on Agricultural Land Use

## PowerPoint Slide 11

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### Agriculture Sector

- Development Challenges
  - Low education, health and employment rates
- Status of Agriculture Sector in PNG
  - Small Holder Farming
  - Estate Holding
  - *cocoa, coffee, palm oil, copra*

## PowerPoint Slide 12

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### Land Tenure

- 97% of land is customary owned by the people  
(*PNG Constitution*)
- Remaining is State Land (by *Land Act 1996*)
- Constraints in Land Conversion

## PowerPoint Slide 13

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## Land Reforms

- Since 2006
- *Land Group Incorporated Acts*
- *Land Registration Acts*

### **PowerPoint Slide 14**

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## Special Purpose Agriculture and Business Leases (SPABLs)

- 99 yr. Lease-lease back from *Land Act (sect 11)*
- Customary land holding and usage is suspended
- Issued lease cannot be forfeited
- Normal tendering process not apply

### **PowerPoint Slide 15**

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## Future of Agriculture Land Use

- Customary landowners empowered
- Amended land laws implemented
- Enter opportunities to improve livelihood

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### **PowerPoint Slide 17**

## Protected Area Mechanisms in PNG

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### **PowerPoint Slide 18**

## Protected Area Mechanisms in PNG

- Area Based Conservation
  - State Land
  - Customary Land
- Local-Level Legislative Instruments for Conservation

### PowerPoint Slide 19

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## Area based Conservation

### State Land

- National Parks, Gardens and Reserves

*e.g. Variarata National Park, Mt. Gahavisika  
National Park, Lae Botanical Garden*

### PowerPoint Slide 20

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## Area based Conservation

### Customary Land

- National Conservation Areas  
*e.g. YUS*
- Wildlife Management Areas  
*e.g. Tonda WMA, Crater Mountain WMA, Ndrolowa WMA*
- Sanctuary/Protected Area  
*e.g. Balek Wildlife Sanctuary, Crown Island Wildlife Sanctuary*

### PowerPoint Slide 21

## Local-Level Legislative Instruments for Conservation

- LLG Environment and Conservation Law  
*e.g. Almami LLG Conservation Areas*
- The Conservation Deed  
*e.g. Wanang Conservation Deed*

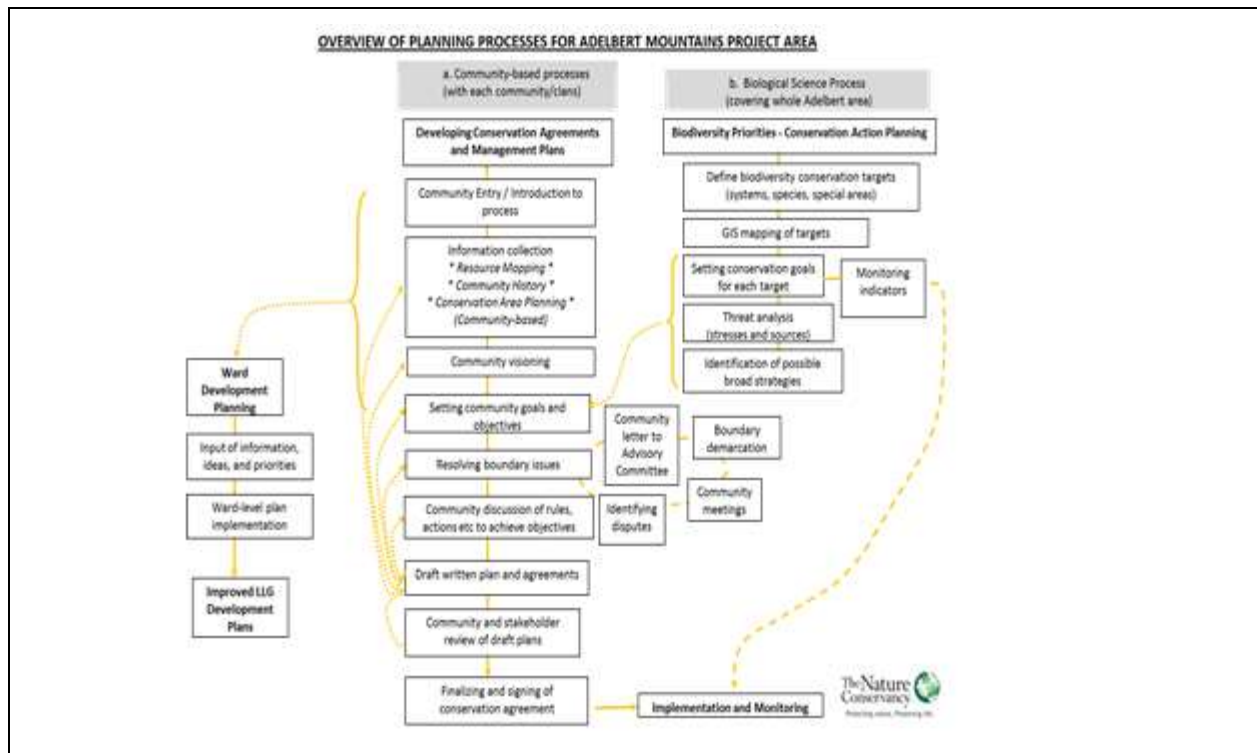


### PowerPoint Slide 22



## Community Conservation and Management Planning

### PowerPoint Slide 23



### PowerPoint Slide 24

## Steps of the Process

- Step 1 Community Entry
- Step 2 Information Collection
  - Community History Timeline
  - Community Resource Mapping
  - Community Conservation Area Planning (CAP)



Category	Item	Value	Value	Value
Water	1. Water source	3	9	3
	2. Water quality	3	9	3
	3. Water access	3	9	3
Land use	4. Forest cover	4	16	4
	4. Agricultural land	4	16	4
	4. Pasture land	4	16	4
	4. Plantation forest	4	16	4

## PowerPoint Slide 25

## Steps of the Process (cont.)

- Step 3 Community Vision and Action Plan
- Step 4 Setting the Goal and Management Objectives (SMART goals)
- Step 5 Demarcate and Document Clan Land Boundaries
  - GPS Boundary Survey
- Step 6 Agree on Management Rules and Actions



## PowerPoint Slide 26

## Steps of the Process (cont.)

- Step 7 Finalize and Implement Land Use and Management Plan
- Step 8 Monitoring Program
  - Forest Condition Monitoring
  - Resource Use and Threat Monitoring
  - Socio-economic Monitoring
  - Progress on Plan Implementation



Adaptive Management

## PowerPoint Slide 27

Example of  
Community  
Conservation and  
Land Use Planning

