

TRY IT! Environmental Education

–for harmony with nature–



March 2008

**Global Environment Department
Japan International Cooperation Agency**

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Preface

Nature is the foundation for people's lives and nobody doubts the importance of nature conservation. However, in recent years, growing populations and increasing economic activities have harmed the balance between nature and human activities. In developing nations, many people survive by relying on natural resources. Overuse of natural resources damages their own base of lives. To conserve the natural environment and utilize natural resources sustainably, it is very important for local residents to realize the preciousness of the natural environment and to take a lead in its conservation. Here lies the importance of environmental education: to encourage people to consider the link between their lives and the natural environment, to be a source of inspiration on the importance of conserving the natural environment, and to increase awareness and change behavior so that people will live their lives without damaging the natural environment.

We all know the importance of environmental education, but how do we implement effective educational activities? Environmental education encompasses a wide spectrum of topics and there are no universal standards regarding teaching methods. Environmental education does not produce quick results, so we often feel unsure if our efforts are really being rewarded.

The aim of this book is to help those who provide environmental education to find better educational activities. Environmental education does not call for special qualifications or talents; anyone can be a good educator once he or she has mastered the essential points. The essential points are described in this book. I hope you can get some ideas for better environmental education through this book and improve your skills through practices.

March 2008

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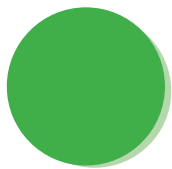
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Whole Earth Nature School

Contents

Introduction.....	1
Chapter 1 What is Environmental Education?.....	3
1.1 Environmental education	3
1.2 Environmental education and nature conservation	3
1.3 Key points in environmental education	4
Chapter 2 Let's begin environmental education	6
2.1 Plan – To make a plan for the environmental education program	7
2.2 Do – To execute the program	11
2.3 Check – To evaluate the program	12
2.4 Act – To improve the program and strengthen partnership	14
Chapter 3 Many Forms of Environmental Education	16
3.1 First-hand learning experience (single event)	18
3.2 Seminars and workshops	22
3.3 Environmental education at school (1) (curriculum specialized in environmental education)	23
3.4 Environmental education at school (2) (integrated in other subjects)	27
3.5 Eco-tours	29
3.6 Environmental education using facilities for environmental education	33
3.7 Create education materials, brochures, etc.	37
3.8 Events.....	40
3.9 Environmental education using mass media	44
3.10 Instructor training.....	47
Chapter 4 Examples of Activities and Ideas for Environmental Education.....	51
4.1 Facilitation and interpretation	51
4.2 Ideas about how to proceed with the program	55
4.3 Useful activities	59
4.4 Appealing exhibitions	66
Chapter 5 Brushing up your Environmental Education Skill	69
5.1 How to collect information	69
5.2 Reference books and websites	70



Introduction

Many people in developing countries live on natural resources. In some cases, however, overuse of resources is causing damage to the very environment on which the people depend. To conserve the natural environment and utilize natural resources sustainably, it is very important for people living there to realize the preciousness of the natural environment and to take a lead in its protection. However, in some instances an impending need for daily living prevents people from giving thought to the environmental problems of the future, or, even if they are aware of the problems, they lack the knowledge about what should be done to conserve the environment.

Here lies the importance of environmental education: to encourage people to consider the link between their lives and the natural environment, to be a source of inspiration on the importance of conserving the natural environment, and to increase awareness and change behavior so that people will live their lives without damaging the natural environment.

The importance of environmental education is widely recognized; there is a global trend in promoting the education for the sustainable development, including the United Nations Decade of Education for Sustainable Development (UNDESD). In many developing countries, however, environmental education consists only of knowledge cramming lectures or relies heavily on events and campaigns; well-balanced and effective environmental education is not always available. Environmental education encompasses a wide spectrum of topics and there are no universal standards regarding teaching methods. Moreover, environmental education does not produce quick results. Those who implement environmental education often feel unsure if their efforts are really being rewarded.

The aim of this book is to help those who provide

environmental education in developing countries to find better educational activities. Environmental education does not call for special qualifications or talents; anyone can be a good educator once he or she has mastered the essential points. The essential points are described in the pages that follow, and readers are invited to apply them after considering local factors and devising methods suitable to the local conditions of the host country. We hope that readers will use their own teaching experiences to further improve their skills and to provide yet more effective environmental education.

Contents of the book

Chapter 1 What is environmental education?

This chapter provides a definition of environmental education, explains the relationship between environmental conservation and environmental education, suggests ways of providing environmental education that is effective for environmental conservation, and outlines some basic points to be observed in actual implementation.

Chapter 2 Let's begin environmental education

"I know the concept and significance of environmental education, but I don't know where and how to begin." To answer questions like this, this chapter uses an example of a nature experience program to explain the key points for implementing environmental education programs in accordance with the PDCA cycle of "Plan-Do-Check-Act."

Chapter 3 Many forms of environmental education

It is important to design environmental education by effectively combining appropriate activities while bearing in mind that participants and methods vary significantly. Accordingly, this chapter presents some specific examples to illustrate a variety of methodologies and key points for environmental education, including a nature experience

program, incorporation into the school curriculum, an event, and an eco-tour.

Chapter 4 Examples of activities and ideas for environmental education

The combination of small ideas and effective activities can improve the outcome of an environmental education program. To offer hints for activities and ideas, this chapter describes some examples of activities and ideas that are often employed in actual education programs.

Chapter 5 Brushing up your environmental education skill

This book describes the basic key points for environmental education. It is very important that educators put these basics into application in accordance with actual local conditions and add their own creative ideas to develop environmental education programs that best suit the needs of the host country and local participants, while brushing up their environmental education skills in the process. This chapter introduces reference materials to aid such efforts for self-improvement.

Chapter 1

What is Environmental Education?

1.1 Environmental education

For centuries humankind has lived within the bounds of the earth's capacity to regenerate nature. In recent times, however, human activities have exceeded nature's capacity for self-regeneration and have caused various kinds of environmental problems. Environmental problems have become a global issue. Many international conferences have been held on the environment and have emphasized the importance of environmental education. The 1975 Belgrade Charter and the 1977 Tbilisi Declaration, in particular, established the concept of environmental education and constituted a framework for it that has been cherished to this date. According to the Tbilisi Declaration, the goals of environmental education are to foster awareness of economic, social, political, and ecological interdependence, to provide people with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment, and to create new patterns of behavior towards the environment.

1.2 Environmental education and nature conservation

For the people in many developing countries, the natural environment is the basis for living, and its conservation is of vital importance to them. In some cases, however, population increases and modern technologies have led to excessive exploitation of natural resources, resulting in destruction of the very nature the people depend upon for living. Many countries make efforts to conserve the invaluable natural environment. However, in relation to the issue of environment conservation, conflicts occur at times between local residents who consume natural resources such as wood, animals, and fish as well as those who suffer damage caused by elephants and other wildlife on the one hand and the government authorities who try to regulate the use of resources and protect wildlife on

the other. Moreover, the enforcing officers are too few in number to achieve effective regulation or protection. The natural environment will continue to degrade to the benefit of neither side if such conflicts and insufficient control are left unattended. It is important for local residents to realize the interaction between their own lives and the natural environment and get involved in conservation activities for themselves through cooperation with the government authorities. The objective of environmental education is to nurture such awareness and create new patterns of behavior.

Environmental education is thus a very important activity for nature conservation. But the natural environment cannot be conserved by environmental education alone. Wide ranging efforts are called for, including policy measures and institutions to conserve the environment, technologies to restore damaged nature, and production methods which do not impose a load on the environment. The Japan International Cooperation Agency (JICA), for example, has identified nature conservation as one of the most important areas for its international cooperation. To achieve harmony with human activities and the environment, JICA assists the people of developing countries in their efforts to increase their understanding of the natural environment and to improve their ability to conserve it wisely. To achieve this objective, JICA offers a wide variety of assistance programs covering such areas as the formulation of policies and systems, capacity development for administrative institutions that implement such policies and measures, upgrading of capacities in research and studies to understand the current situation, development and extension of technologies for restoration of damaged environment, and promotion of sustainable community development. Environmental education will be all the more productive when it is implemented in combination with such activities.

In implementing environmental education programs in developing countries, we should pay attention to the lives of the local residents. Many people in developing countries rely on natural resources for their living. They may know very well in their minds that nature conservation is important, but they have no choice other than to keep exploiting nature if that is the only way to stay alive. It is extremely important therefore to provide environmental education in combination with other measures that help local residents make a living within the limits of nature's capacity to regenerate, while offering them opportunities to become aware of the linkage between their lives and the natural environment.

1.3 Key points in environmental education

(1) Understanding the steps: awareness, knowledge, attitudes, skills, and participation

When providing environmental education, it is important to be fully aware of the distinct steps—**awareness, knowledge, attitudes, skills, and participation**—and to make adjustments according to the degree of awareness and comprehension of the participants in the program. A key to fostering people who understand nature and are willing to protect it is to help them acquire an awareness about their association with the natural environment and with fellow residents and to develop an understanding as to what impact their actions have on the environment and the people around them. This initial step is to be followed by the provision of knowledge on the environment, the nurturing of attitudes to actively participate in efforts to conserve nature, assistance for acquisition of skills to solve environmental problems, and finally the provision of opportunities for them to participate in activities directed at the dissolution of environmental problems.

The most important step is awareness. While knowledge and skills are important, the first step is to help your participants acquire an awareness that motivates them to gain knowledge and obtain skills for nature conservation.

In some developing countries environmental education is conducted mostly by lectures, in which knowledge is

passed on unilaterally. But knowledge cramming seldom results in generating awareness. What should you do? There is a saying that goes: “I hear and I forget. I see and I remember. I do and I understand.” First-hand experience is a most effective method for stimulating awareness acquisition. The role of an instructor is to provide opportunities for learners to gain such experience and acquire awareness by themselves.

(2) Points of environmental education

There are some common points in any form of environmental education, even though the content and the methodologies employed may vary depending on the local environmental challenges and the characteristics of the learners.

Points of environmental education

- (1) To help participants sense their association with nature and other people
- (2) To offer participants the opportunities to acquire awareness
- (3) To promote new patterns of behavior in daily life
- (4) To tune into participants
- (5) To make the program enjoyable

1) To help participants sense their association with nature and other people

We know much less about the environment and the people around us than we think we do. Even people in developing countries, whose lives are surrounded by an abundance of nature, are often oblivious to it. That is why it is so important to give them the opportunity to look at nature from a different perspective or to think about their relationships with others. They can then sense their associations with nature and the other people around them and get interested in them.

2) To offer participants the opportunities to acquire awareness

In providing environmental education, you should work to help participants “acquire awareness” by themselves, rather than “teach” them. This is because people remember the things they become aware of

spontaneously better, and are then more willing to take positive action. You should prepare a number of activities directed at triggering this awareness and ask questions and otherwise help your participants think by themselves and gain inspiration.

3) To tune into participants

Although preparation is of course important, you should not be restricted by your plan. It is very important that you respond flexibly to the interests and attitudes of your participants. In a nature experience program, no one will listen to you talking about leaves if the interest of the participants is drawn to a squirrel that suddenly jumps out of a bush. Likewise, you should not offer your participants any more activities if they are obviously tired. Observe the conditions of your participants closely, listen to their voices and opinions carefully, and make flexible responses accordingly. Then you will be able to create an environment in which your participants can learn successfully.

4) To promote new patterns of behavior in daily life

One of the goals of environmental education is to foster people who can think and act on their own. It is recommended therefore that you incorporate into your program some clues for new patterns of behavior for those participants who have acquired an awareness of the environment and are desirous of changing their lifestyles. “I will start to separate my garbage.” “I will never jog on that beach again because I now understand that sea turtles lay eggs there.” These seemingly small considerations do contribute to nature conservation. You need not have all the answers ready. It is a part of environmental education that the participants think by themselves about what should be done and what they can do.

5) To make the program enjoyable

An environmental education program should be fun to take part in—this is one very important point in any program. An activity for nature conservation is not a one-time deal, but rather an ever continuing

effort. Statements such as “You must protect your environment” or “It is an offense to damage the environment” impose such a sense of obligation or guilt upon participants that they will feel it burdensome to conserve the environment and try not to be involved. Instead, you should work to let your participants feel it is good to get close to nature and it is fun to take part in the program and discover new things. If the participants are led to think in such a positive way, the psychological barriers that may have prevented them from taking part in activities break down, and they become more likely to take part on a continuing basis. People soon cease to do the things they find hard work or difficult, but they are happy to repeat activities that are fun over and over.

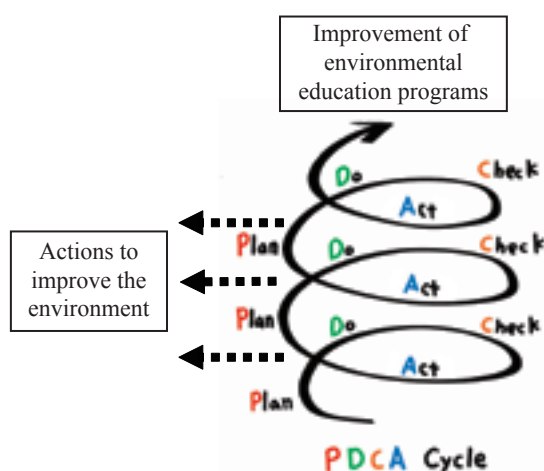
Chapter 2

Let's begin environmental education

Key points common to all environmental education

- To implement environmental education programs according to the PDCA cycle of “Plan-Do-Check-Act”
- To implement the “Do” step with attention to the flow of “introduce-develop-review/wrap up”

There are no universal rules for successful environmental education; environmental challenges vary from one locality to another and different audiences require different themes and approaches. There are two key points, however, that are common to all successful programs for environmental education. One is to run the program¹ according to the PDCA cycle of “Plan-Do-Check-Act.” And the other is to implement the “Do” step with attention to the flow of “introduce-develop-review/wrap up.” Repeated program implementation according to the PDCA-cycle management method will improve the program quality on a continuing basis and upgrade the skills of the parties involved. In this chapter we will use an example of a nature experience program in order to explain in detail these key points for effective environmental education.



¹ A program for environmental education is a specific plan that is executed to a specified group of participants for a specified time and duration with clear start- and end-points. A program is composed of a number of activities. Examples of activities are described in Chapter 4.

Plan: To make a plan for the environmental education program

(1) Define the program concept (objective)

The program concept should be defined with due consideration to the environmental challenges of the locality, the parties involved, and the resources (human, material, and financial) that are available to the program promoter.

(2) Formulate the plan

- The program parameters should be defined, including timing and duration, place, audience, staff, equipment and budget.
- The plan should be documented in the form of a prospectus, setting out title, concept, parameters, draft program outline, promoter profile, and other information.

(3) Prepare for program execution

- A secretariat should be organized and staffed.
- A work schedule should be prepared and the progress should be monitored against it.
- The draft program outline should be refined, the necessary resources secured, and effective PR made.

Do: To execute the program

(1) Last-minute preparations

- Final staff meeting, weather check, pre-event inspection, equipment check

(2) Program execution

- From awareness to action (triggering)
- Facilitation and interpretation

(3) Safety management

- Measures for physical safety and mental care to allow all participants to enjoy the program

Check: To evaluate the program

(1) Self-evaluation, evaluation by the participants, and mutual evaluation among educators

- Preparation and distribution of evaluation sheet/questionnaire
- Post-event evaluation

(2) Thank-you letter and reporting to parties involved

- Thank-you letters to the host country and timely reports to parties involved
- Emphasize good points when writing reports on environmental education programs conducted by others

Act: To improve the program and strengthen partnership**(1) Efforts to improve the program**

- Documentation and filing for good record keeping
- Be always on the alert for information that may be useful for environmental education and keep notes of awareness

(2) Converting awareness into action

- Deepen partnership with the government, NGOs, private enterprises and citizens to convert ideas into concrete actions toward environment improvement.

2.1**Plan - To make a plan for the environmental education program**

Eighty percent planning and 20 percent execution: the success of a program depends 80% on its planning. Even an experienced educator cannot execute a program successfully if it is poorly planned. Programs should be planned so as to befit the participants, incorporating timely topics of the program scene and building in many elements to trigger awareness. Let us begin with the concept definition.

(1) Define the program concept (objective)

First, define the program concept after obtaining good understanding of the environmental challenges of the area, the parties involved, and the resources (human, material, and financial) available to the program promoter. At times, the program concept and objective are already set, but it is important that you do not simply obey. You should double-check them by yourself.

1) What environmental concerns are at issue in the area?

Have a good understanding on what environmental concerns exist in the area. Furthermore, think deeply about the background and reasons that are causing

the problems. Deforestation, endangered species, depletion of water sources, river contamination, and many other problems may be found. Keep your eyes wide open to the realities of the scene and listen attentively to what the local people have to say.

2) What types of people are involved? (Analysis of participants)

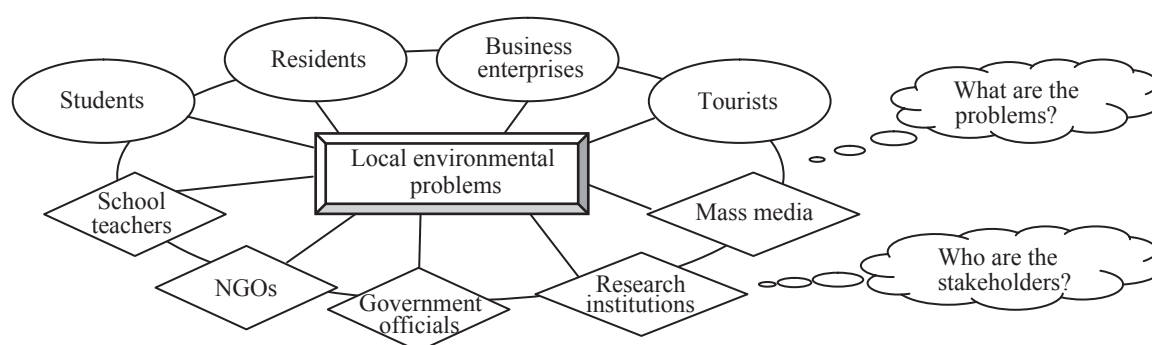
After you have grasped the environmental problems of the area, consider all major stakeholders that are involved with the problems and identify the target group(s) to which you should implement environmental education. Such groups can include minors or students (elementary school students, high school students, and college students), residents, business enterprises, tourists, government officials, school teachers, environmental NGOs, think tanks, and the mass media. The table below summarizes some characteristics of such major stakeholders, but they can vary from one area to another. Therefore, you should not take these characteristics for granted, but rather find them out for yourself on site.

And check out the literacy level of your target group in addition to the environmental awareness. If the literacy level is low, it is necessary to devise many alternative ways for effective communication, such as the use of visual educational materials.

Table 2-1 Characteristics of stakeholders

Major target groups of environmental education		
Students	Elementary school students	They can learn freely with no vested interest. You can develop an environmental consciousness in the younger generations. A desirable influence on parents and other adults can be expected.
	High school students	They are at the development stage of acquiring common sense before growing up. They are capable of understanding issues constructively.
	College students	You can offer them internship and other OJT (on-the-job training) opportunities. Their age proximity allows them to assist elementary, high school students and children effectively.
Residents		Users of natural resources in the area. While their wanton use of resources can damage the environment, they are directly affected by deterioration of the environment. This group is not necessarily monolithic; people should be approached individually.
Business enterprises		Their business activities have an impact on the environment. It is possible that environmental measures which would adversely affect their bottom line will be opposed.
Tourists		In addition to the economic benefits they bring to the local community through their visits, their exchanges with local residents can trigger renewed awareness on the part of the residents about the environment.
Parties that can be providers of environmental education		
Government officials		They implement environmental education programs for environment protection. They are also responsible for providing support to and facilitating networking of other environmental educators. Through awareness-raising of officials involved in environment protection, improvements and upgrading of policy measures can be expected.
School teachers		They are the promoters of environmental education in schools. They are in need of practical methodologies for environmental education.
Environmental NGOs		They are the promoters of environmental education in the community. They are in need of practical methodologies for environmental education.
Research institutions		They conduct studies and research on the natural environment and socioeconomic conditions. The outcomes can be utilized for environmental education.
Mass media		Their ability to disseminate information to a wide audience can be used to raise the awareness of the general public about environmental problems. They are especially effective for campaigns and events.

Source: author



Source: author

Figure2-1 stakeholders of environmental education

3) Checking out the environmental education already in place and available resources (human, material, and financial) in the area (analysis of program promoters)

At times schools and/or NGOs already have environmental education in place in the area. Check out what kinds of environmental education programs, if any, have been provided and by whom. This exercise will not only avoid duplication but will help you better understand the orientation and challenges of environmental education in the area and make your plan better focused on the educational objectives required.

In addition, check out the kinds and amounts of resources (human, materials and equipment, and financial) the program promoters have available to them. Understanding what can be mobilized and in what quantity will help you determine the feasibility of your education program.

(2) Formulate the plan

After defining the concept, make a concrete plan on what kind of environmental education you will be conducting. First, delineate your points by writing a prospectus.

1) Defining the objectives

Based on the directions indicated by the defined concept, set out your objective, that is, what you want to accomplish with the program you are implementing and to what extent.

2) Define the program parameters

Then define the program parameters, including date and time, place, participants, staff, equipment, and budget. Even in cases where such parameters are given, check them out yourself and add any missing items to complete the plan.

3) Write the prospectus

The prospectus should contain descriptions of program title, concept, objective, draft program outline, conditions (date and time, place, participants,

budget, etc.), and promoter profile. It should be neatly prepared in a formal style so as to be ready for submission when requesting cooperation from third parties. The title should be one that will draw the attention of prospective participants and at the same time one to which the staff will feel closely attached. It would be a good idea to add a PR strategy, budget sheet, and organization chart as required. The draft program should be formulated with reference to the example shown in the box bellow and with due consideration to the objective and participants. At the stage of prospectus writing, a draft program outline will suffice. (A detailed program will be developed before implementation.)

An example prospectus	
Prospectus for Program XXX	
Prepared on <u>(date)</u> by <u>(name)</u>	
Program title	
Concept and objective	
Duration (hours, days)	
Place	
Participants and total count	
Concrete activities (draft program outline)	
Operating staff (assignments)	
Materials and equipment	
Budget	
Promoter information (contact)	

(3) Prepare for program execution

1) Organizing the secretariat

Recruit operating members (staff) and give respective assignments to set up the secretariat.

2) Preparing the work schedule and controlling the progress

Prepare a work schedule up to the first program day to document who is to do what by when. Hold periodical meetings to check out work progress. It is important to be as specific as possible as to what to do

Box2-1 Seven points for formulating a draft program outline

1. Make the program consistent with the concept.

It is important that the program be consistent with the concept. When you are executing a program about trees, you should not propose that the participants engage in an out of context game about penguins.

2. Structure (flow) = “introduce - develop - reflect”

The environmental education program should be structured according to the flow of introduce -- develop -- reflect.

Introduce: Ice-breaking; nurture an atmosphere of relaxed participation, and use exercises requiring the use of all senses.

Develop: Let the participants sense something from the experience and give them a chance to gain awareness.

Reflect: Share and summarize the awareness gained by the participants and wrap it up as something unforgettable and ready for use in pro-environmental action in daily life.

3. Program adapted to the participants

The target groups for environmental education include people of all ages ranging from small children to adults.

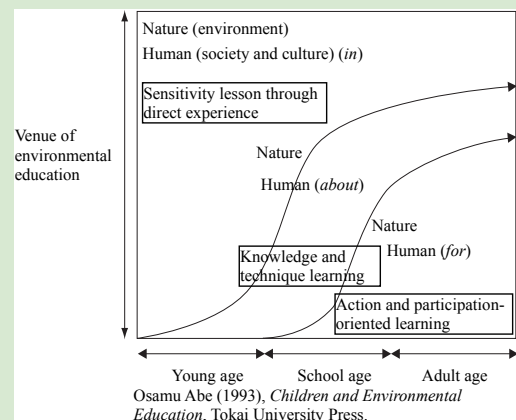
Design your program to best suit the respective characteristics of the group you are targeting, referring to the figure below.

In-type programs: Lessons to enhance sensitivity through direct experiences in nature and human society and culture
This type of program has great importance for young age groups, though *about*- and *for*-type programs fitting their stage of development are also needed.

About-type programs: Lessons on knowledge and techniques about nature and human society and culture

This type of program has great importance for school age groups, though *in*- and *for*-type learning fitting their stage of development are also needed.

For-type programs: Action and participation-oriented learning *for* nature and human society and culture
This type of program has great importance for adult age groups, though *in*- and *about*-type programs fitting their stage of development are also needed.



4. Participatory and experience-based programs are effective

Knowledge cramming leads only to acquisition of piece-meal knowledge and does not nurture the ability to make your own judgment and take action. It is extremely important for the program to effectively contain opportunities for the participants to actively participate, experience, feel by themselves, and gain awareness. Using workshops and other similar formats, design your programs in such a way that the participants do their own thinking, form their own opinions, and work together with fellow participants to find out solutions, thus learning how they should behave in real life. Another effective method is to encourage participants to experience nature and find out about its wonders and mysteries, stimulating their desire to learn more. The knowledge that participants have acquired on their own will stay with them.

5. Let the participants use all their senses

Often times, what cannot be easily communicated in writing can be understood if experienced by recipients with their own senses. In providing environmental education, you should share with your young students the joy of using all senses to experience sensations and encourage adult students to recall the use of all senses for learning, thus offering participants opportunities to understand what they believed they had seen but had not really seen at all.

6. Cherishing rapport

It is important in environmental education to realize that one is connected to the environment and fellow mankind and that everything is linked. Design your program to stimulate this realization.

7. Extension to daily life (actions)

Design your program so that the participants will, after finishing the program, be mindful of their link to the environment and make their own judgments to act differently in their daily lives. It is up to individual participants whether they act differently or not after the program, but you can increase that possibility by conducting programs that leave pleasant and inspiring impressions in their hearts.

by when and check progress frequently.

3) Refining program outline, securing resources, and preparing PR (promotion)

In accordance with the work schedule, you should refine the draft program, secure the necessary resources, and prepare PR (promotion) activities. For resource procurement, you should approach potential sponsors from an early stage to secure budget and prepare materials and equipment. When purchasing equipment, do so after carefully considering the local availability, ease of maintenance, and ease of operability by anyone.

PR is important for bringing participants together. It will be a good idea to make a request to the education ministry if the target group is students or teachers and to seek cooperation of town leaders if the target is local residents. If you intend to draw in a large crowd, use radio, television, newspaper, posters, and flyers for aggressive PR. If you belong to an organization that makes periodical news releases, make one about the program in a timely fashion. A news release through mass media will increase people's interest in environment issues.

If you ask participants to file entry applications, appoint someone who will be responsible for receiving the applications and make sure that the participants can comfortably wait for the event by seeing to it that the registration be done properly, pre-event materials and registration certificates be duly sent out, and announcements of postponement due to rain be communicated.

2.2 Do - To execute the program

For the stage of program execution (the "Do" step), it is necessary to make good preparations beforehand, and, after the program has begun, to find out through communication with the participants how inspired they have become and adjust the program content accordingly in a flexible and impromptu manner. Facilitation,

interpretation, and other techniques are useful for implementing effective environmental education programs. Please refer to the information sources listed in Chapter 5 or learn these techniques on the job in your implementation of environmental education programs.

(1) Last-minute preparations

Items to be made ready prior to program start are listed below.

- Staff manual (overall schedule, actions of individual staff members, participants list, equipment list, emergency contact network, etc.)
- Final meeting: to run over the program plan (overall and individual staff members) and confirm participants (to reconfirm their willingness to take part)
- Check weather forecast: to check the latest weather forecast and get prepared for any rainy weather (alternative program in case of rain, announcement of postponement due to rain, etc.)
- Final site inspection: to confirm the latest situation such as flowers blooming, natural sounds, and safety conditions
- Confirmation of materials to be distributed on the spot: educational materials, handouts, review sheets, refreshments (snacks), etc.

(2) Program execution -- from awareness to action

The essence of conducting an effective environmental education program lies in placing importance on the natural generation of awareness in the participants and inducing them to create ideas, rather than cramming in knowledge. With the help of methods like facilitation (to induce participants to express their opinions and experiences) and interpretation (to help participants gain knowledge and information), you should offer participants opportunities to gain awareness. You should check the extent of awareness in participants and work to ensure that it is remembered and leads to future action. For details of facilitation and interpretation methods, see Chapter 4.

(3) Safety management

When implementing an environmental education

program, it is very important to ensure safe management from both physical and mental aspects. Do not overwork, and limit the scope of your program to within a manageable range.

For management of physical safety, you should anticipate every possible risk and take necessary precautions. You should also familiarize your staff assistants who will be executing the environmental education program with the necessary safety measures. Having ensured these points, tell the participants that

the principle is self-aid, that is, they should protect themselves from risks on their own. If minors are participating, you may wish to consider obtaining letters of consent from their guardians in advance (depending on the local practices of the host countries). On a routine basis you should keep yourself familiarized with detailed safety management cases, specific countermeasures, and rescue and first aid techniques. It is important to review your learning again and again because you do not use these techniques in normal situations.

Various Risks

①Nature

- ☐ weather (temperature, rain, wind, etc.)
- ☐ large scale natural disasters (an earthquake, a tsunami, a flood etc.)
- ☐ geographical features (a landslide, a rock fall, a steep slope etc.)
- ☐ animals and plants (a poisonous snake, a bee etc.)
- ☐ water (a rapid current, a depth of water, water temperature etc.)

②physical risks

- ☐ illness (infectious diseases, food poisoning etc.)
- ☐ injuries (slip, fall, hit etc.)

③man-made risks

- ☐ human relations (mental and physical risks caused by bad human relations)
- ☐ accidents (an edged tool, fire, traffic accident etc.)
- ☐ leaders (a fault of a leader, unreasonable plan, insufficient knowledge and skills etc.)

2.3 Check - To evaluate the program

Following the program completion, conduct a review and analyze the successful and unsatisfactory points of the program to wrap up the experiences gained in the process from program planning to execution. It is recommended to document the evaluation results and keep them in a file along with the program materials for use as a reference for future programs.

(1) Self-evaluation, evaluation by the participants, and mutual evaluation among educators

1) Self-evaluation

Following the program completion, put down in

writing how much of what you wanted to convey was conveyed and your thoughts and feelings about the program while it is still fresh in your mind. It is advisable to have prepared a self-evaluation sheet in advance. (Reference to Example of self-evaluation sheet) You can devise your own check items according to the program.

Be as specific as possible when keeping records. Records of your creative ideas and the reactions of the participants will be useful not only for you but also for instructor training programs. Detailed descriptions convey clear and vivid messages.

Example of self-evaluation sheetDate and timePlaceProgram titleTarget group

- (i) Objective and degree of accomplishment (%)
- (ii) Good points and unsatisfactory points
 - Was I able to get the message across?
 - Was I able to incorporate what happened on the scene?
- (iii) Other points I noticed

2) Evaluation by the participants

Evaluation by the participants will also help you improve the program. One way is to have the participants respond to a questionnaire about the program. (Reference to Example of questionnaire) In the case of programs for children, let the children write down “The thing that I will remember most” during the review stage of the program, have them read their essays aloud, and collect the papers afterward for your program evaluation and filing. (Reference to Example of review sheet)

Example of questionnaireName

- (i) How did you feel about participating in the program?
- (ii) What did you think about the staff?
- (iii) Please describe areas that could be improved.
- (iv) Please give us any other opinions or comments.

Example of review sheetName

- (i) What will you remember most about the program?
- (ii) What do you want to do next?
- (iii) Please tell us about any other things that you noticed or thought.

3) Mutual evaluation among educators

Teachers learn from each other by observing other teachers' classes. However, this system seldom exists in developing countries. If possible, try to set up similar opportunities, because you will be able to gain useful stimulation by observing your fellow educators conducting an environmental education program. Networking with colleagues will also lead to improvements in the quality of the education you provide. (You need to be sensitive, however, to the hesitancy on the part of your fellow educators in some countries to let you observe the execution of their programs.)

When taking part in such observations, allow time for a mutual evaluation session after the termination of the program. You should not point out problems only, but rather try to list good points and make recommendations and give encouragement. When filling in the evaluation sheet, try to cite as many good points as possible; it will be sufficient to point out only one or two areas for improvement. Remember that the evaluation sheet is prepared for the benefit of the evaluated educator. With due attention to the local customs and the self-esteem of your fellow educator, make the evaluation something that he or she will be happy to accept.

(2) Thank-you letter and reporting to parties involved**1) Thank-you letter**

After you have conducted an environmental education program at a school or in a community, send a letter of appreciation to the school or the community. It will not only serve as a good remembrance but also help to strengthen the relationship, increase motivation, and contribute to further promotion of environmental education. One environmental education volunteer wrote nice letters of appreciation, enclosed a group photo of all the participants, and decorated the letters with beautifully folded paper cranes. These letters were displayed on the walls in the classroom and community center for a long time. Such letters have

the effect of reminding people of the importance of nature conservation.

If you attended an instructor's training session as an observer, you may want to attach your evaluation sheet to the thank-you letter. As mentioned above, you should mention as many good points as possible to raise the morale of the trainee and help him or her get a high score from his or her superior. Such a considerate attitude serves to further promote environmental education.

2) Reporting

Although it is not necessary to write a report after every program, it is very important that you submit periodical and final reports. By so doing you will be able to monitor the progress of your environmental education efforts and develop strategies for the future. Keeping records after the implementation of every program will enable you to write good reports.

2.4

Act - To improve the program and strengthen partnership

When you complete a program, you should reflect on the lessons learned from the program evaluation, collect further information, attend skill-development seminars, and otherwise make efforts for improvement. Such efforts will allow you to carry out your next program more effectively. In addition, strengthen partnerships with the stakeholders around you to raise awareness about the environment and work with the society as a whole to conserve the environment through policy and institutional improvements and technological developments.

(1) Efforts to improve the program

1) Documentation and filing for good record keeping

Keep records of programs and activities you were satisfied with according to the type of participants or program themes. You may wish to keep notes on filing cards with indices or store data on your PC. Even simple handwritten memos filed in chronological

order in a notebook would do the job. Filing of accompanying photos and education materials will help you recall the details of previous programs and develop good ideas for new programs. In fact, photos say a lot. Simple captions constitute good data and are useful for report writing. Therefore, do try to take photos of your programs if you can.

Participation in seminars and training courses provides a good opportunity to enhance your program repertoire. You should keep records of handout materials and your impressions.

2) Be always on the alert for information that may be useful for environmental education and keeping notes of awareness

Make it a custom to always carry a small notebook so that you can immediately put your awareness down in writing, "I can use this in my next program." Also, notes of local culture, customs, dances, songs, language, and tales that you have found interesting will likely prove useful for environmental education. Hints and clues for successful environmental education are to be found in abundance in our daily lives, so you should take notes and keep them in good order.

Such filing of materials and notes is beneficial not only for your future activities but also for your colleagues.

(2) Converting awareness into action

In addition to awareness-raising, concrete measures on a wide range of fronts including policies, institutions, systems, research and development, and technology are required to conserve the environment. If local residents want to push ahead with the recycling of household waste, for example, no recycling will be possible unless a system is built for transportation of the waste to recycling facilities. Improved awareness alone does not warrant environment conservation. Accordingly, you should give thought to the measures needed in addition to the environmental education you are providing and work to strengthen ties and partnerships with stakeholders so that

people's increased awareness indeed leads to changes in behavior and action. As the first step, you should start thinking together with the people close to you, including your colleagues in the organization, local government officials, NGOs, business enterprises, and residents to explore in what concrete ways the environment problems

could be ameliorated and solved.

By repeating this circular process of Plan-Do-Check-Act, you will successfully improve the quality and enhance the repertoire of your programs, while brushing up your skills.

Chapter 3

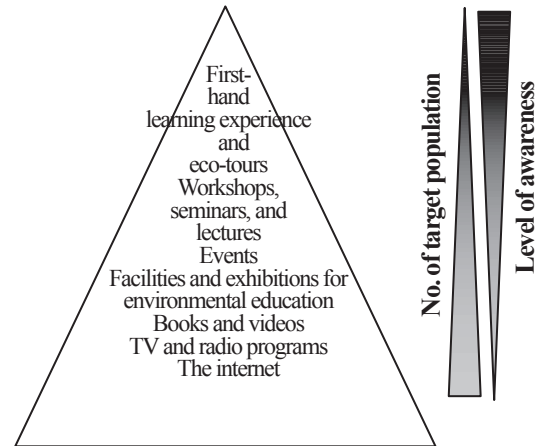
Many Forms of Environmental Education

Environmental education can be implemented using various contents and methods depending on the themes and types of participants. Combining different methods in order to meet the objectives will enable effective environmental education. This chapter introduces the major forms of environmental education so that the reader can grasp the features of each form and adequately design and structure activities for environmental education.

(1) Forms of environmental education for different types and numbers of participants

Objectives of environmental education and the approaches to participants, of course, vary significantly depending on whom the environmental education is provided for, such as children or adults, elementary school students or high school students and so on. Please see 2.1 (P.6) for an explanation on the characteristics of different participants. Select the form of environmental education which meets the interests and the level of understanding of the participants.

Different methods should also be employed for different numbers of participants. For example, a first-hand learning experience can be provided to a small group of participants so that every participant can gain a deep awareness through careful facilitation and interpretation which meets the individuals' interests. An event might not lead to such a deep awareness as a first-hand experience, but it provides an opportunity for getting many men and women of all ages to participate in the event and think about the environment, while having fun and feeling a sense of solidarity. Programs on radio and TV targeting the general public are effective in disseminating information to many people although they cannot meet the needs of



Source: The diagram was produced based on P. 55, Japan Federation of Forestry Unions (2004), *Egaki Hagukumi Furikaeru* (Draw, Grow, and Look Back)

Figure 3-1 Examples of environmental education

individual audience members. Generally speaking, smaller numbers of participants will enable activities which will lead to a deeper awareness and understanding, and a wider target audience will result in less information being disseminated. It is important to consider the objectives and the participants at each environmental educational program in consideration of such characteristics when designing the activities.

(2) Many forms of environmental education

The following table3-1 summarizes the features and the key points of activities which are often employed in environmental education. Environmental education can be put into practice by suitably combining these activities depending on the objectives. The next section and beyond explain the methodologies for these cases in further details while presenting some examples for each case.

Table 3-1 variation of environmental education

	Features and key points	Remarks
1 First-hand learning experience (single event)	Facilitate participants' awareness through nature experience. Activities using the five senses are effective. The basic flow is "introduce-develop-review." Try not to put too much content into a limited time and follow the theme to ensure the consistency of the activity so that the participants can deepen their awareness.	This can take various forms from a session in a one lesson time frame (45 min.) to a several-day program.
2 Seminars and workshops	Gather participants interested in a specific topic. Share information and exchange ideas between them mainly through presentations by presenters. Through these opportunities, participants can gain profound knowledge from experts' and they can also create networks between presenters and participants as well as among the participants.	One hour – one day
3 Environmental education at school (1) (specialized curriculum)	Where environmental education forms an independent subject, set goals and consider the contents of each lesson to systematically achieve the goals, while bearing in mind the flow of "introduce-develop-review" for both the individual lesson and the overall course. Combine different methods such as first-hand experience, research by students, school trips and role-playing to effectively encourage participants to deepen their awareness. Textbooks for the programs are useful for teaching students and for reviewing the course.	One lesson x several times
4 Environmental education at school (2) (integrated in other subjects)	Where the independent subject of "environmental education" does not exist, which is normally the case, integrate the elements of environmental education into other subjects or club activities. Suggest contents which are easy to introduce into the curriculums of existing subjects. The understanding and cooperation of the teachers of other subjects are essential.	
5 Eco-tours	Local residents act as guides to introduce nature and the culture of the area on eco-tours. This is expected to be an incentive for the residents to protect the environment around them because they will gain benefits from the environmental conservation. Consideration is, nonetheless, necessary to reduce the residents' expectations because eco-tours do not necessarily work everywhere and do not bring in much income even if they are successful.	A small group is adequate. Knowledge of business management is necessary in addition to knowledge about the environment.
6 Environmental education using facilities for environmental education	Provide information about the surrounding nature to visitors using visitor-centers in such places as national parks. These can be the starting points for eco-tours. Interactive exhibitions where the visitors can touch and play with exhibits are effective, in addition to explanations about nature. Explore the possibilities of special exhibitions and events which attract visitors including repeat visitors.	Visitors have different lengths of stay and needs. Be innovative so that a wide range of the population can enjoy their visit.
7 Create educational materials, brochures, etc.	Text books, supplementary materials, brochures, and newsletters for environmental education enables the participants to take them home and repeatedly learn by themselves. Insert photographs and illustrations to make them easy to understand rather than using texts only. It might be fun to make a game where participants can enjoy and learn. Newsletters are also useful as an activity log.	Issue newsletters regularly.
8 Events	The atmosphere of a festival makes events accessible for many people. Participants can share a sense of purpose with many people at once and increase the sense of solidarity. Producing original posters and goods for the event are also effective.	It is effective to hold events regularly (e.g. once a month or a year).
9 Environmental education using mass media	Mass media enables instant information dissemination to large population. Find out which media is usually used by local people and use it to gain successful results. Discuss beforehand the way to observe reactions of the audiences in order to improve the program. This is important because using the mass media tends to be a one-way form of communication.	Once to several times targeting general public
10 Instructor training	It is recommended that methodologies and formats which are useful for implementation are introduced into the training for the instructors along with the concept of environmental education. The training should also provide opportunities for the participants to learn from each other and to create a instructors' network.	Holding the sessions regularly will help to brush up their abilities.

3.1 First-hand learning experience (single event)

First-hand learning experience will facilitate the participants' awareness by nature experience. First-hand learning experience can be provided as part of lessons or extracurricular activities at schools, or using external facilities such as visitor centers. You can also set a specified area for field observations, which is another form of first-hand experience.

Similarly to many other programs, the basic flow of first-hand learning experience is “introduce-develop-review.” Please take plenty of time to “review” because this is an especially important part of the process to turn what they have experienced into what they have learned.

In first-hand learning experience, it is important that the participants feel a connection between nature and themselves as well as the connection between nature and humanity as a whole. This will help to nurture their respect for nature and for others. To achieve this, it is effective to introduce activities in which participants can feel emotion and learn by themselves by using their five senses, instead of them just being taught about the nature in front of them. Through the activities of looking, listening and touching the object carefully, or by even pretending to be the object, the participants can become aware of what they normally overlook, as well as deepening their interest and bringing themselves closer to the object. You can then proceed with the session after these activities. This will help to make your message easier to understand for the participants.

Since the time in one session is limited, it is recommended that a narrow theme is followed and that the content is made consistent with the theme rather than adding too much content. This will help you to design a session in which the participants will have fun and also gain some awareness from a short-time experience.

(1) Implementation procedure for first-hand learning experience

Please see Chapter 2 for the explanation of the flow of Plan-Do-Check-Act for first-hand learning experience.

This section describes the typical structure of a program in the “Do” part. A program is normally implemented using the flow of “**introduce-develop-review**.”

At the “**introduce**” stage, create a friendly atmosphere so that the participants can feel comfortable enough to participate. Help the participants to relax by greeting each other and playing simple games, to create an informal atmosphere. Then, explain the outline of the program to raise the interest of participants in the program. Please be sure to explain any safety considerations and care for the environment when the program involves field activities.

At the “**develop**” stage, start the activities in which participants will connect with the nature of the area using their five senses. People can notice things which they would normally overlook even in familiar scenery if they are careful. They can discover something new even in the nature around them such as the sound of water, the sound of insects and smells which they have not noticed before, by changing their point of view. Such fresh discoveries will lead to an increase in the participants' affection for nature and interest in it, and this in turn will increase their motivation to protect the nature in their area.

It is also useful to prepare tools such as photographs, models and real objects (e.g. bones and horns of animals) which will help to communicate your main messages to participants, although the basic idea of first-hand experience is to increase their awareness by letting them observe objects which naturally occur in nature. This will compensate for the fact that you cannot always show what you want to show to your participants in the actual natural setting.

Although you should prepare the activity plan and explanation texts prior to the implementation, you can facilitate the participants' awareness more naturally by flexibly altering the program's content according to the degree of interest or tiredness of the participants, weather and unexpected events (such as small animals coming into sight). Such flexibility requires knowing the area that is to be used for the program well and being equipped with

a wide range of knowledge so that you can utilize any circumstances that are outside the prepared contents.

At the “**review**” stage, participants deepen their awareness by looking back at what they have experienced, summarizing what they felt or thought and sharing their experience by listening to each other’s opinions and impressions. It is also important to encourage the participants to think about the relationship between what they have experienced and their daily lives. Make sure to make the time for the “review” for deepening awareness, because the program could end up being just a fun activity without the “review” process.

Points to remember

- The flow is “introduce-develop-review.”
- Ensure safety management.
- Make a fun program consistent with the theme.
- Re-discover nature using the five senses.
- Do not teach but facilitate awareness.
- Effectively make use of tools.
- Flexibly alter the content in accordance with participants’ needs.
- “Review” is essential for deepening awareness.

(2) Examples of first-hand learning experience

It is important to set different themes and activities for first-hand learning experience so that they meet different types of participants’ needs. It is suitable to employ more activities using objects and playing for younger children to deepen their interest in their local nature. A deeper learning process which uses the participants’ knowledge and imagination is recommended for older participants. The following are examples of a first-hand learning experience for third-grade elementary school students using one lesson time frame and a half-a-day nature experience program.

1) Example of a first-hand learning experience using a lesson time frame

Program Sheet

Created on DD/MM/YY
Created by:

Title: “Let’s have a close look at the nature around our school”

Objective: Participants have a close look at the surrounding nature in order to become interested in nature, so that they will feel like protecting beautiful nature.

Content of the activity: Participants focus on “having a close look” at the nature, and become aware that they are surrounded by natural treasure through this “treasure hunting.”

Conditions: Time: 1 lesson time frame (45 min.) **Venue:** School (classroom and school yard)

Participants (No.): Third grade elementary school students (30 students)

Equipment: List for treasure hunting, pen (18 sets for working as pairs)

Time		Contents	Key points
: 00 (5 min.)	Introduce	Greeting (Classroom) Self-introduction	<ul style="list-style-type: none"> - Let participants talk. - Grasp participants’ characters. Some are embarrassed to talk in front of people. This depends on the country’s culture or the individual class. - School programs often starts from a classroom, but you can also start from outside.
: 05 (5 min.)		Introduction activity (Classroom) “What we think we see but we don’t look at”	<ul style="list-style-type: none"> - Practice looking at objects carefully. Choose an introduction activity which is suitable for the theme of having a close look at the surrounding nature.
: 10 (25 min.)	Develop	Move to the school yard First-hand learning experience “Treasure hunting” Equipment: “Treasure hunting list” Participants look for “treasures” in nature written on the list, in pairs. The list contains what you want them to find, such as “Something spiky” “Something which smells” “Something which makes sound” “Something with bite marks” “Something interesting” “Fallen leaves” “Nuts,” etc. They re-discover nature by looking for the “treasures.”	<ul style="list-style-type: none"> - Ask them what they found at the mid-way point of the lesson. - You can also let them make treasure boxes using newspapers to put the “treasures” that they found onto, or let them make photo-frames using the “treasures.”
		Move to the classroom	
: 35 (10 min.)	Review	Review the activity Ask participants what they found. →Ask them what participants want to do with them. “As you saw, there is a lot of wonderful and diverse nature around you. I hope that you will take good care of this nature and enjoy discovering many more things in nature.”	<ul style="list-style-type: none"> - Praise the local nature of the participants and send them a message about the importance of noticing something we tend to overlook or we normally take for granted. Summarize the activity in such a way that they want to continue to enjoy discovering in their daily life. - You can also tell them that there are things which go back to nature and things which do not, if some children pick up plastic products.
: 45		Greeting Thank you. Good bye.	<ul style="list-style-type: none"> - Check out the participants’ facial expressions. The program was fun and success if everybody was smiling.

Source: author

2) Example of a first-hand experience workshop for residents in a target area with mangrove afforestation and a conservation project

Objectives: Participants learn about the connection between mangrove forest and other creatures, the mechanism and importance of mangrove forest.

Date: 8:30 – 10:30, DD/MM/2006

Venue: The site of the XX village mangrove afforestation and conservation project

Involved institutions: A local school, the JICA grass-root mangrove project (REDEMA)²

Participants (No.): 15 fifth and sixth grade elementary school students, three teachers and seven people involved in the project

Schedule:

Time		Topics	Details
8:30	10	Greeting	Self-introduction, questions about participants' lifestyles, etc.
8:40	30	Oh! Caranguejo	Variation of Project WILD "Oh, Deer!" Participants learn the relationships between food, water, homes and caranguejo (crabs which support residents' livelihood).
9:10	30	Nature Loop	Participants learn interrelations between the creatures which make up the ecosystem of mangrove. - Contents of the cards Caranguejo, swimming crabs, sururu (a kind of shellfish), turu (a kind of sea lice), fish, shrimps, plankton, spiders, caterpillars, honey bees, termites, butterflies, herons, woodpeckers, bats, monkeys, armadillos, guano, cows, humans, mangroves, fallen leaves, seeds, orchids, grasses, flowers, rain, the sun, soil, waterway
9:40	30	Move to another location	
9:45	40	Field Bingo	Participants look for objects inside the mangrove forest using various senses. Explain the mechanism of the mangrove and the need for the forest in the summary of the activities. Participants are taken to a six-month old afforestation site and check on the progress. - Items on the cards Flowers, roots of mangroves, sound of birds, something salty, new life, dried up waterways, crabs, habitat of crabs, bees, dead mangroves, bad smells, different kinds of leaves, planted trees, seeds, nice smells
10:30		End	

- The program was developed between experts and the project personnel walking around in the field and finding out the objectives of the project, messages for the residents, the mechanism of mangrove forests, etc. on the previous day of implementation of the program.
- The participants actively participated in the program thanks to the combination of residents' empirical knowledge being brought out and the experts' knowledge being shared in the program.
- This type of first-hand experience program is effective for community-empowerment projects.

Source: Naoko Miyoshi (2006) Completion report of the short-term expert (environmental education) for the Project for Forest Conservation and Environmental Education in the Eastern Amazon³

Box 3-1 Flow learning

In nature games, it is suggested that "flow learning" is introduced into the program development, in which activities are combined to form four stages so that the activities follow the participants' state of mind and deepen the participants' awareness. By combining the activities to create four stages, programs can increase the interest of the participants more effectively and harmoniously, and facilitate further empathy and awareness of the participants towards nature.

The first stage: awaken the participants' passion (symbolic mark: otter)

Lively activity with lots of play elements

The second stage: sharpen the senses (symbolic mark: crow)

Activity which sharpens the sensitivity and requires intensive attention

The third stage: directly experience nature (symbolic mark: bear)

Activity to feel unity with nature

The fourth stage: share emotions (symbolic mark: dolphin)

Activity to share ideals and empathy

The first and second stages correspond to "introduce," the third stage to "develop" and the fourth stage to "review." Nevertheless, it is more effective to combine these stages while observing the participants, e.g. switching from the third stage to the second stage when you see them start to lose their concentration.

Source: Japan Nature Game Association (2004) *Neichaageemu Sidouin Handobukku Dai-roku-ban – Rironhen (The Sixth Edition of Handbook for Nature Game Instructors – Theory)*, Nature Game Research Institute, Co., Ltd., p.26

² JICA grass-root mangrove project REDEMA Restoration of degraded mangrove ecosystem of the North Brazilian coast (2005.6 – 2008.3)

³ JICA project for Forest Conservation and Environmental Education in the Eastern Amazon (2004.1 ~ 2007.1)

3.2 Seminars and workshops

Seminars and workshops are often held in order to share information and exchange ideas between interested people on a specific theme. This is not limited to the case of environmental education. This section offers the minimum points that you might want to remember for the effective implementation of seminars and workshops. For further details, please refer to various books which have been published explaining effective ways of holding seminars and workshops.

(1) Implementation procedures for seminars and workshops

1) Plan

- Decide on the theme and the target population. Create the program. Book the venue which has the required capacity and which is suitable for the planned activity.
- Find presenters who are suitable for the theme and secure their participation.
- Explain to the presenters the aims of the seminar or the workshop and the length of time for their presentation. Ask them to prepare content which meets the aims. Also ask them to send materials for the presentation if possible, and ask for improvements if necessary.
- If the seminar/workshop involves presentations about a project activity, provide an opportunity for the counterparts or the project stakeholders who participated in the project to present their achievements. Disseminating their performance to other stakeholders will encourage enthusiasm in the project's participants.
- It is a good idea to produce prints (proceedings) which contain bibliographic data (author, publisher, date of publication, etc.) from the presentation materials. This will enable the content to be quoted in essays and for the materials to be recognized as one of the accomplishments of the author. Therefore, the presenters will work harder on the content. If you leave the content as just a handout, even good content cannot be quoted and the outcome will be a temporary product.

- For a seminar, schedule some spare time for exchanging ideas because unilateral presentations do not help in deepening the participants' understanding of the subject. A workshop should be designed so that participants can act in a voluntary way such as debating and presenting what they have learned to each other. For this to happen, the ideal number of people in one group would be 10 people or less.

2) Do

- Check the venue, equipment, documents and materials prior to the event. Go through a final briefing for the operational matters with the staff.
- Aim for smooth proceedings. Adequately manage the time in accordance with the program, while leaving some flexibility such as inserting a break or changing the time allocation where necessary to adjust the program to the conditions of the presenters and participants.

3) Check

- Ask the participants to fill out a questionnaire and use the results to improve the event on the next occasion.
- Hold an evaluation meeting among the organizers to evaluate themselves and discuss points to be improved.

4) Act

- Continuous activity is more effective than a one-time seminar/workshop. Therefore, you could consider different types of follow-up activities for the event. These could include: holding regular seminars or workshops if necessary to strengthen the network among the participants, taking actions to implement the ideas proposed at the seminar, visiting the participants' working sites for follow-up activities and so on.

(2) Malaysia: Example of a workshop⁴ held in the Bornean Biodiversity and Ecosystems Conservation Program⁵ (2002 – 2007)

Title of the workshop: “Participatory activities in international cooperation

– how to implement a workshop –”

Participants: Five JICA experts and five Japan Overseas Cooperation Volunteers (JOCVs)

Expected results: After the workshop ends: (1) the participants in the workshop will be able to explain the definition of “participatory training”; (2) they will be able to explain the difference between “seminars” and “workshops”; and (3) they will be able to explain what is required of the participants in the activities themselves in order to promote participatory activities.

Program:

(1) What sorts of sectors employ the participatory approach?

- ☐ Sectors in which the participatory approach is utilized
- ☐ How is the participatory approach utilized in international cooperation?

(2) Identify participatory approaches around us.

- ☐ Comparison between “seminars” and “workshops”
Make pairs with one expert and one JOCV member. → Each pair produces a comparison table of “seminars” and “workshops” within five minutes. → Share the results. (The facilitator writes them on blackboard.) → Compare the results with the ones from the Malaysian counterparts. → Review → Wrap-up

(3) Make a definition for “participatory training.”

- ☐ Brainstorming the keywords for “participatory training” (see P52)
Brainstorm the keywords for “participatory training” within each pair (the same pair as (2)).

☐ Making a definition of “participatory training”

Each pair (the same pair as above) produce a sentence which defines “participatory training” within five minutes based on the keywords which came out of the brainstorming session. Share the results with everybody. → Present the definition made by FAO (Food and Agriculture Organization).⁶ → Review

Feedback after the workshop: A report was produced and shared with the participants via email. Similar workshop-type learning sessions were held regularly for promoting teamwork and consensus building within the project.

3.3

Environmental education at school (1) (curriculum specialized in environmental education)

When a school has “environmental education” as an independent subject, you can produce a curriculum for environmental education and implement it. In the formulation of the curriculum, you can set goals and consider the content for each lesson so that the goals can be achieved systematically. Develop the curriculum while bearing in mind the flow of “introduce-develop-review” for both the individual lesson and the overall course. Combine different methods such as first-hand experience, research by students, school trips, role-playing and special lectures by visiting lecturers in addition to the normal lectures, to effectively encourage the participants to deepen their awareness.

It is useful to produce textbooks and supplementary materials for the program when teaching students and when reviewing the course.

When you are developing the plan, explain the objectives of the curriculum to the external parties that are related to the subject (e.g. staff of forestry agency and national parks, guides, and researchers) and ask them for

⁴ Based on a material made by Mr. Hiroyuki Sato, JICA expert of The Bornean Biodiversity and Ecosystems Conservation Program

⁵ The Bornean Biodiversity and Ecosystems Conservation Program, JICA (2002.1 – 2007.1)

<http://www.bbep.sabah.gov.my/index.asp>

⁶ Definition of participatory training made by FAO: “Participatory Training is a learning situation in which trainees develop their answers by themselves through active engagement using new information and analytical tools.”

their cooperation in such things as being the guides in the forest, support for afforestation, lectures on demand, etc. This will help you develop a more diverse and a more profound curriculum.

It is also effective to provide homework and activities in between each class which connect the content of the lessons to students' daily life.

(1) Formulation and implementation procedures for a curriculum on environmental education

1) Plan

- Set the objectives of the curriculum for environmental education and decide on the themes for each lesson based on the target participants, the condition of the local nature, the curriculum for other subjects, etc. Consider the existing implementation manual, too, if there is any.
- If there are no existing educational materials, produce textbooks and supplementary materials for the curriculum. Make the educational materials easy to understand by using photographs and illustrations, not just texts. It is a good idea to integrate forms into the educational materials for different activities which the participants can fill in so that participants can use them during the lessons. You can also add to the textbooks for teachers the comments and the essential points of the teaching methods.
- Develop the annual and monthly plans, while considering the school terms and school events. When the plan includes an afforestation program, you will need to take into account the seasonal factor (harvest seeds, raise seedlings, plant trees and maintain the planted trees in accordance with the suitable season).
- Consider the effective combination of first-hand experience, research by students, lectures by visiting lecturers and so on so that participants can gradually gain deeper experience.
- Explain policies and plans for environmental education and receive consent from the involved parties such as the school principal, the relevant teachers and the visiting lecturers. Get signatures on

the annual plan from the key people such as the school principal, the relevant teachers, as well as responsible people from government ministries or agencies for education and forest conservation if necessary. This can be kept as the written consent. Producing and sharing the monthly operational schedule will help smooth the preparation and implementation.

- Receive the consent of parents when conducting lessons away from the school such as for afforestation. Give a letter of consent to the parents along with handouts explaining the objectives of the lesson and information about what the participants should bring, such as snacks and transport fees.

2) Do

- Follow the flow of "introduce-develop-review" in each lesson. In any form of lesson, it is important to let the participants think, give them opportunities to present their ideas and facilitate their awareness instead of unilaterally teaching them. Contrive ways of holding the whole program together by completing each lesson but also linking one lesson to the next lesson.

3) Check and Act

- After the end of each lesson, review the successful points and the points which need to be improved for the next lesson. When the curriculum is completed, assess the overall course, produce a report and disseminate it to all the involved parties in order to make improvements in the next curriculum.

(2) Example of a curriculum for environmental education

1) Fiji “FOREST” program⁷

Target participants: Elementary school students

Theme: Forest conservation

Curriculum (1 lesson time frame 45 min. x 10 times)

	Theme	Outline (Each lesson has the flow of introduce-develop-review.)
Introduce	Inspire the interest of the participants in trees.	
Lesson 1	About trees	Explain the mechanism of trees using pictures and photographs. Explain about annual rings (Note: annual rings might not be seen in countries which do not have four seasons) and let children write their own annual history along the annual rings.
Lesson 2	Trees around us	Participants check out trees around them using a check list. Children choose “a tree as their friend” then observe and draw the tree, name the tree and make a story about the tree.
Develop	Deepen their knowledge about trees. Learn more about trees by participating in afforestation.	
Lesson 3	Trees in our country	Participants learn about major trees including how they are used in daily life, the history of the trade in these trees, etc. This helps them to learn about the connection between trees and society as well as the connections with their own lives. This is a good topic for a research by students.
Lesson 4	Map of world forests	Show the participants photographs of forests in different regions using a world map. The participants will learn that there are different types of forests other than the tropical rain forests which they are already familiar with.
Lesson 5	Role of forests	Participants learn about examples of healthy forests. Show photographs of the forests to the participants and take them to nearby forests to observe them. Ask the participants about their experiences of forests and then think about the role of the forest as a group.
Lesson 6	Products from forests	The participants learn about the connection between forests and their lives. Introduce local tree products and coconut products, and then ask the children to make a list of coconut products and other tree products.
Lesson 7	What if there were no forests?	The participants imagine what could happen if there were no forests, by contrasting what they learned in Lesson 5. Take them to sites or show them photographs of landslides and coastal erosion, and think about what would happen if there were no forests.
Lesson 8	Let’s plant trees!	Participants learn how to plant ordinary trees and mangrove trees, and plant them. Ask the Forestry Agency, etc. for assistance.
Lesson 9	Let’s bring up trees!	Participants maintain the planted trees. They draw “my forest,” which is a map of their ideal forest while imagining the planted trees and themselves in 5, 10 and 30 years time.
Review	The participants summarize what they want to do with the forests and what they can do to help based on what they have learned from the past lessons.	
Lesson 10	Our future	The participants review what they have learned about forests from the course. Take them to a place where they can see a landscape of local natural beauty or show them photographs of such scenery. The participants write down and present their own dream about forests and what they can do for the forests.

⁷ Yuko Kimura (2003) *FOREST*, Fiji

<Example of a textbook>

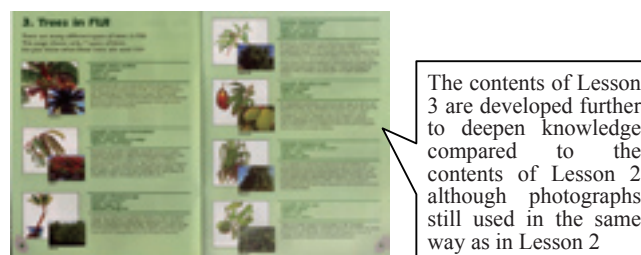
[Key points]

- Make it easy to understand at a glance by using diagrams and photographs.
- Include pages which children can fill in by themselves (be actively involved).

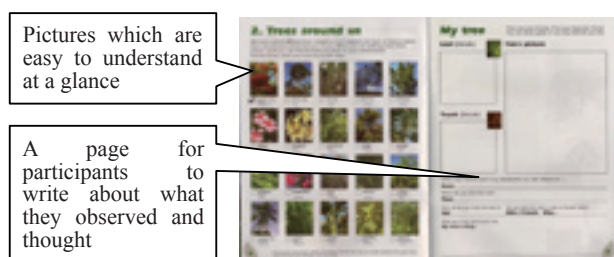
Lesson 1



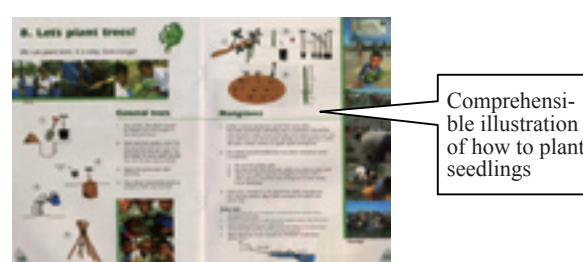
Lesson 3



Lesson 2



Lesson 8



Experience of a participant: The Oak seedlings have dried up!

We planned an annual program which involved such activities as picking up seeds, nursing seedlings and planting seedlings with the participants using plastic bottles. However, we failed to water them properly in the dry season and all the seedlings died off. Nonetheless, this was a good learning experience. We received new seedlings which were provided by the Forestry Agency. (A JOCV member for environmental education in Guatemala, the first JOCV in 2003)

2) The environmental education program⁸ for high school students in the Project on Conservation of the Galapagos Marine Reserve in Ecuador⁹

Target participants: 14 high school students majoring in tourism

Theme: Conservation of the Galapagos Marine Reserve

Period: Once a week, two hours per lesson x 22 times

Lecturers: Local researchers and staff from the Galapagos Marine Reserve

Structure of the curriculum:

The curriculum consists of the following four modules.

1. Interpretation of the environment (learning about the interpretation of flora and fauna)

2. Management of the Galapagos Marine Reserve (learning about the participatory management of the marine reserve)
3. Zoning (learning about the zoning of the marine reserve)
4. Marine environment and marine coastal waters (learning about the difference between marine coastal waters, near-shore waters, the open sea and so on)



In the module on "Management of the Marine Reserve," the participants simulate a meeting with the representatives of different sectors which are involved in the management of the marine reserve. Personnel from each sector participate in the activity as advisors.

The basic structure of each module contains (1) a lecture, (2) a group discussion, (3) preparatory research for a presentation, and (4) a presentation.

⁸ Based on the materials made by Mr. Jiro Yanase, JICA expert of the Project on Conservation of the Galapagos Marine Reserve

⁹ JICA Project on Conservation of the Galapagos Marine Reserve, Ecuador(2004.1-2009.1)

All the lessons are designed to have interactive communications between students and lecturers. The lectures are also designed so that they contain plenty of opportunities for asking the students questions. The lecturers give the students assignments for the next class at the end of some lessons. Each group of students then independently conducts research for the assignments. Facilitators take the time to review what the students have learned at the end of each lesson.

Evaluation method: Participants take an exam at the end of the course. This helps measure the level of understanding of the participants. The program is also evaluated by conducting a questionnaire survey with the involved parties.

3.4 Environmental education at school (2) (integrated in other subjects)

Where the independent subject of “environmental education” does not exist at a school, which is normally the case, the key to success is how well you can integrate the elements of environmental education into other subjects or club activities. Therefore, suggest contents which are easy to introduce into the curriculums of existing subjects. You can make the program more interesting by including any local culture which is environment-related.

When integrating environmental education into other subjects or club activities, it is essential to obtain the understanding and cooperation of the teachers who are responsible for the subject or the club. Actively work together with the teachers to carry out the programs so that the teachers also learn about how to implement environmental education through the experience, with the aim that the teachers will be able to implement the environmental education on their own eventually.

(1) Procedures to integrate environmental education into other subjects, etc.

1) Plan

- Study the existing curriculum and educational materials for each subject, consider how the activities

for environmental education can be integrated into these curriculums, and then formulate the implementation plan.

- Propose the implementation plan to the school principal and the relevant teacher (also to the relevant institutions if necessary), and obtain their consent.
- Conduct some programs on a trial basis with students from each grade and compile the programs and educational materials which meet the needs of the target participants.
- When a series of sessions is planned for the same participants, structure the curriculum so that it can maintain a connection between the overall contents from session to session, as explained in the “3.3 Environmental education at school (1) (curriculum specialized in environmental education).”
- Produce schedules such as the annual plan and ask the involved parties for their cooperation.

2) Do

- Hold a meeting before implementing the program with the relevant teachers. Also take the time to review the program by having an evaluation meeting, etc. after the end of the program.

3) Check

- Hold a briefing session and produce a report once a year so that the results can be utilized for the following year. It is recommended that you give testimonials to the involved parties and also give certificates to the participants.

4) Act

- Hold workshops for teachers in order to improve the teachers' abilities. → Please see “3.10 Instructor training.”
- Increase the subjects for which environmental education is introduced and increase the number of schools which implement environmental education.

(2) Examples of the integration of programs into other subjects or club activities

1) National language and foreign language

“Tree of my friend” for elementary school students in upper grades

Conduct a class using trees as the theme for a composition, etc. Each student finds his/her favorite tree near to the school, draw a picture of the tree and study the shape of the leaves and the surface of the bark. They research what kind of tree it is (if they have means to research) and give the tree a nickname. The participants then imagine the sex, the age, and the history of the tree, and write a story about the tree. This can work with pairs as well. The students could introduce their “friend” at the wrap-up stage. An important part of this activity is that the students observe trees closely and feel a bond with the trees. Be creative and make suitable contents for the students in different grades and for different numbers of lessons.

2) Arithmetic

“Look for different shapes” for elementary school students in the lower grades

Use shapes in nature when students learn shapes like round, triangle, and square. Students copy the shape of leaves and write down their names. Just as people have different faces, each leaf on the same tree is a different shape. Students learn that every shape in nature is different.



Learn about the different shapes around us



Learn how to copy the shapes of leaves



Look for shapes and copy them



Exhibition by everybody

3) Social studies

“Make a nature map” for elementary school students in the upper grades (see P.65) and **“Make an environmental newspaper” for elementary school students in the upper grades** (see P.59)

4) Music

“Make musical instruments” for elementary school students in the lower grades

Students can feel nature through music in this program. Participants put shells, nuts, gravel, sand, etc. into plastic bottles, empty cans or other small containers to make maracas. Bamboo and wood can be made into nice musical instruments. Students can sing their favorite songs and play the hand-made instruments. It is a good idea to compose music with a group of students and hold a mini-concert.

5) School environment club (committee)

Environmental activities can be worked on as a club activity or through a committee. Volunteers can be invited to the club activities. A couple of students can be selected from each class in order to create the committee. In the case of either a club or committee event, ask the teachers to act as advisors. The club or the committee plans activities which will conserve the environment around the school and invite other students to participate in the activities. Examples of the activities might include making compost and planting flowers at the school, or collecting cans and plastic bottles to be recycled and converting them into money which can then be used as a fund for their future activities. Activities can be implemented by small groups. They can then hold general meetings regularly, such as every week or every other week. Members can keep a simple journal on a rotation basis. In this journal, the members can write down positive aspects that they found about the environment around their school on a daily basis, or they can make notes which have suggestions for future activities when they think of something. The activities can be expanded by involving parents and local residents. If the club or the committee is expanded to several schools, meetings for participating schools

and seminars for the advisors can also be organized.

Reference: Junior Eco-Club <http://www.env.go.jp/kids/ecoclub/> (group activities at schools and in communities)

3.5 Eco-tours

The best way to protect local nature is for the people who live in the local area to protect the nature themselves. However, there are many cases where the government restricts the utilization of natural resources by the local residents in order to conserve the natural environment, which provokes much criticism from the residents and results in difficulties when trying to gain residents' cooperation in the conservation efforts. It is difficult to encourage the residents, whose livelihood is at stake, to conserve nature by only trying to convince them how important nature is, unless you can also present the residents with an alternative means of making a living. Therefore, it is important to make a system where residents can also benefit from conserving nature. It is expected that residents can come to understand that nature is important and that they will want to protect it, if they can benefit from nature, through the income created by conservation

activities. Eco-tourism is a typical example of such an activity.

Eco-tourism is a type of tourism in which the local natural environment, history and culture become the subjects for the tours, the tourists experience and learn about these subjects as well as hopefully becoming responsible for conserving them. An eco-tour is a tour conducted using such an approach.

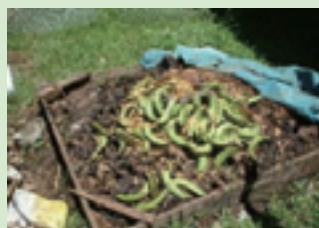
In an eco-tour program, the local residents act as guides who will talk about the local nature and culture to the tourists. The residents therefore refresh their knowledge about their own local nature and culture, and this process fosters the residents' pride in their local area by helping them to deepen their understanding of the local nature. Such pride will motivate the local people to protect their local nature. Therefore, the residents on the one hand can gain a new perspective on their own local nature and culture, as well as gaining an income through the communication with the tourists. The tourists on the other hand can feel closer to the local area through the experiences with the local people and the nature, as well as gaining a sense of

BOX 3-2 How to make compost

Compost making is one of the environmental activities that you can do at school. Kitchen waste is decomposed by microbes and made into nutritious compost. You can utilize kitchen waste and fallen leaves from the school. It might be good to make a system in which local residents can also utilize the compost.

<How to make compost> (Example of Samoa)

- (1) Prepare 2 to 4 wood frames (see below) and pits made of concrete blocks (1 m³). You can also use boxes or buckets with holes punched at the bottom from which water and air can escape. Alternatively, compost can be made by simply piling up the ingredients.
- (2) Lay fallen leaves, wood chips, straw, etc. and put kitchen waste on top of them. You can also mix in some soil. Pile them up in many layers. Make sure that the ingredients do not contain too much water, otherwise they will go rotten.
- (3) Facilitate decomposition by mixing adequate moisture and air. Cover the content with plastic sheets or straw to prevent a lot of rain water or insects from getting in.
- (4) Keep piling up the layers for a month. Then, stop piling up the content from the second month.
- (5) Keep mixing in air and then you can get good soil within 2 to 4 months.



Just put a wooden frame

Source: author

respect for nature and the culture which hopefully they will then want to protect.

That said, eco-tours seem to create win-win situations but in fact creating revenue by eco-tours is not so easy. Various elements need to be in place in order to expand the number of tourists, including attractive tour contents, qualified guides, friendly residents, means of transport, facilities for meals and accommodation, measures for safety and hygiene as well as publicity. It is difficult to fill these conditions instantly, and so you could end causing a huge disappointment, especially when the residents have high expectations. Therefore, always bear in mind that there are a wide range of obstacles to overcome in order to have successful eco-tours.

(1) Implementation procedures for an eco-tour

1) Preparation

- Conduct a brief social economic study of the target area. [Aspects to be studied could include: the laws and government systems related to eco-tourism (regulations, permits and licenses, subsidies and related institutions); the residents' livelihood and awareness of the environment; the residents' level of interests in eco-tourism; potential tourist attractions (nature and culture); geographical conditions (access to the site and conditions in the surrounding areas); the tourist industry (travel agencies, hotels, restaurants, guides, etc.); transport systems; the number of tourists and their character (nationalities, interests, etc.); public safety; hygiene; medical services; and so on.]
- Decide on the concept for the eco-tourism in consultation with the residents, the tourist industry, the relevant government institutions and any research institutes which study nature in the target area, etc. Establish a cooperative framework with them.

2) Plan

- Conduct a study on tourist attractions with the interested parties and identify the resources together with them. It is useful for both outsiders and local people to conduct the study together because outsiders

could find something interesting which might not be special to the local people. Make a guidebook from the results of the study so that the guides can show the guidebook to tourists while explaining the content.

Examples of resources: natural resources (sites where tourists can enjoy nature, unique flora and fauna), cultural resources (traditional cultures, histories, episodes, distinctive customs, religious events), human resources (those who have traditional skills, masters of specific skills, residents who show wonderful hospitality)

- Decide on the course of the tour by considering the available resources and make a route map. It is recommended that programs include sections where local people and tourists can socialize with each other while enjoying nature (for example, the tourists have lunch at a private house, local people teach tourists their traditional songs or dances, the tourists experience farming or fishing with local people, etc.) Prepare various versions of the tours such as a one-hour course and a half-a-day course to satisfy tourists' different needs. You can devise a program which integrates a night tour or an early-morning tour into the program when you want tourists to stay overnight. A package tour can be created by cooperating with hotels and restaurants. Consider developing different programs for different seasons to attract regular customers.
- Create operational rules with the involved parties such as improving the routes, consideration for nature, safety management, and fees for guides and methods for the distribution of the fees. Improvements in toilets and garbage management are especially important for reducing the impact on the environment and ensuring the tourists' comfort.
- Train the guides. Hold training sessions on facilitation and interpretation, safety management, hospitality as well as for learning about the local resources. If eco-tours are to be operated by a residents' group, training in the management of an organization and accounting are also needed. There is a great need for language training courses such as for English in the

areas where many foreign tourists visit.

- Find other ways to raise income levels so as not to rely only on the fees from the tours, such as selling souvenirs which are made from the special produce of the area.
- Publicize the tours by putting advertisements in travel agencies, the media, and the internet. Try advertising the tours in travel guides. Invite tourists on a trial basis to participate in the tours as an effective way to improve the tours as well as for gaining a PR effect.

3) Do

- The basics are the same as for first-hand learning experience. The guides explain and answer the questions of the tourists. Introduce activities which use the five senses including looking, listening, touching and smelling so that the tourists can gain as much inspiration as possible. It is also effective to include activities where the tourists can experience local people's life, such as paddling a canoe and harvesting crops. Start from running short courses and gradually include variations to the tours as you gain more experience.

4) Check

- At the end of the tour, ask the participants for their impressions of the tour or ask them to fill out a questionnaire so that you can utilize these results when improving the content of future tours. Photographs taken during the tours can make excellent materials for publicity.

5) Act

- Hold regular meetings with the involved parties, as well as updating reports on income and expenditure, and nature information. Conduct regular maintenance in the area and facilities for the tours.

(2) Example of an eco-tour

1) Abaca village in Fiji¹⁰

The Abaca village is situated in a mountainous area which has a precious rare type of forest in the South Pacific region. However, the village was poor and the residents were living subsistence lives due to its isolation. The village tried to increase its income through a sugarcane plantation and logging of the forests, but the government did not approve it due to the need for forest conservation and water source conservation. Instead, they tried introducing eco-tourism. The following is a description of the steps taken for its introduction.

(i) Confirmation of the high value of the resource

The government and researchers found that the forest around Abaca village was valuable nature.

(ii) Establishment of the implementation structure for eco-tourism

The land trust public corporation, which acts as the legal representative of the land owners, has banned deforestation by the residents. On the other hand, they also worked to secure alternative sources of income for the residents, and obtained consent from the United Nations and the villages in the target area to introduce eco-tourism through consultation.

(iii) Identification of resources by the residents

Workshops on eco-tourism were held in the village with the cooperation of external experts and they conducted a study on the resources for eco-tourism along with the village residents. They prepared maps of the area, cameras, pedometers, compasses, and field books. With these tools, the village residents and external experts produced an eco-tourism map by walking the routes, taking photographs of plants and the landscape which could be resources for eco-tourism, and noting down the site of these resources. The distances were calculated using the pedometers.

¹⁰ This section was produced based on Maita and Kaizu (2001) *Development of eco-tourism and its experimental trial in the Fiji islands*, Ishimori and Maita *Comprehensive study on eco-tourism Senri Ethnological Report 23*, and Japan National Committee for Pacific Economic Cooperation Council (PECC) (1999) *Development of eco-tourism and effects of the development in Fiji – the case of development of the Abaca village –*.

They interviewed village residents about the resources which were found during the study, asking questions about such things as, what times of the year the plants flower or yield fruits, how the local people use them, and the stories connected to them. Such information was written down in the field notes and put onto the eco-tourism map as information.

They further interviewed the village residents about the relationships between the customs and nature, as well as having academics write about the flora and fauna. They then produced a guidebook attached to the map which contains all the information obtained. The guidebook also has a phenologic calendar which shows the seasonal flow of nature and village life in one year so that tourists can see what they will encounter and when.

Key content of the guidebook

- Welcome
- History of the village, a geographical description, and the ecosystem (written by experts)
- Village life (utilization of plants, land use, daily life, architecture of the houses, and the village plaza)
- Nature around the village (description of birds, animals, and plants)
- Eco-tourism guide (access to the village, how to book, information about meals and accommodation, and introduction of various eco-tours)

(iv) Training of guides

The guidebook is used for the training of local guides.

(v) Execution of a model tour

A Japanese NGO and a travel agency worked together to conduct a model tour for 15 tourists from Japan and the evaluation results from the model tour were fed back into the content of future eco-tours. The following is the tour content. The tour participants enjoyed the content, especially the friendships made with village people which captivated the minds of the participants.

(vi) Construction of toilets

Ecological-type toilets were installed to reduce the impact on the environment because of the increased number of tourists, as well as to improve the tourists'

Content of the model tour

- Experience “Kava Ceremony,” a ceremony to enter the village.
- Trekking through a tropical forest and a plain, barbecue, bathing
- Experience farming (planting sweet potatoes, harvesting taros), afforestation, and horse riding.
- Cook traditional stone-roasted dishes with the village residents.
- Learn how to make a skirt using grass from the ladies of the village.
- Exchange Fijian and Japanese songs and dances.

Main content of the questionnaire

- Impression about Fiji (before and after the tour)
- The time of year that the tour was conducted, the length of the tour, fees, accommodation, meals, distance and content of the trekking course, program contents other than the trekking (satisfaction level out of five)
- Tour guide (contents of the explanations, consideration for the environment, how the guides treated the tourists) (satisfaction level out of five)
- What made a strong impression during the tour (participants make multiple selections from “flora and fauna, landscapes, history, and customs”), what was attractive about the tour, what they put priority on when choosing a tour (nature, access, costs, guides, program, etc.)

comfort. Materials were procured in Fiji and villagers offered free manpower for the construction. Specialized construction was commissioned to a local company.

2) Example of support for eco-tours in the Project for Coastal Wetland Conservation Plan in the Yucatan Peninsula, Mexico¹¹

Ria Celestun Biosphere Reserve in the Yucatan Peninsula is blessed with abundant nature with a mangrove coast which is famous as a feeding ground for flamingos. The JICA project assists eco-tours by local fishermen so that local people can continue to protect this rich nature. The project is implementing the following activities in order to assist the eco-tours.

¹¹ JICAProject on the Coastal Wetland Conservation in Yucatan Peninsula, Mexico(2004.1–2007.1)

- Support for developing the implementation plan for eco-tours: Interview fishermen, boat renting companies, hotels, restaurants, the administration office of the reserve, the local government, etc. and collect information about tourism such as statistics. Based on this information, suggest the organizational structure and the procedures needed to implement the eco-tours.
- Check on local tourism resources with fishermen and produce a phenology calendar¹² and develop a model course (strolling around a spring, walking on a board walk in mangrove forest and going around a basin by canoe).
- Consider a package tour with fishermen, boat renting companies, restaurants, hotels, etc. Produce programs which contain night tours and early-morning tours so that overnight tourists can fully enjoy the programs.
- Provision of equipment: Provide canoes, etc. for conducting eco-tours.
- Training: Hold training for the guides and English training for the fishermen who wish to conduct the eco-tours.
- Support for developing souvenirs: Consider souvenirs which tourists might like such as Mayan salt and mangrove honey.
- Support for PR activities: Produce videos, websites, and brochures to publicize the eco-tours. Conduct PR activities for media and for travel agencies.
- Model tours: Conduct a trial eco-tour by receiving students from a Japanese school and then discuss improvements that can be made to the tour.
- Set up a contact point for booking the eco-tours. Solve any conflicts of interest between the interests of fishermen and boat renting companies.

park, etc., although there are various other facilities for environmental education including zoos, botanical gardens, science centers, and exhibition galleries. The visitor center exhibits and gives information about the characteristics of the nature and culture in the area in a comprehensible manner, in order to help visitors find out more about nature and so that they can enjoy interacting with nature. The visitor center also provides information about how to use the park and provides visitors with opportunities to experience nature. Therefore, if you make a program in which participants walk around the park, then you can use the visitor center for the “introduce” part of the program. You could also organize an environmental education program which only utilizes the inside of the visitor center for a fixed period of time. It is important to put as much ingenuity into the programs provided at a visitor center as possible so that a wide range of people can enjoy the programs, because various different groups from the population such as children or adults visit the visitor center and they look around the center at their own pace. (For example, you could prepare programs for children which can deepen their interest through playing, as well as providing materials and videos which can satisfy the intellectual curiosity of adults.) Try providing different programs which are unique to the season so that regular customers can enjoy different contents on every visit.

It is important to provide quality environmental education by effectively utilizing limited resources while taking into account the maintenance costs, because the budget and personnel for the operation of the facilities are limited in many cases.

3.6 Environmental education using facilities for environmental education

This section introduces environmental education which uses a visitor center that can be found in a national

¹² A year calendar that tells the literary calendar of the local animals, plants, and people's living etc., like “What is able to see, and How is the nature appearance like, in each season”. (Source: Ministry of the Environment(2004)*Eco-stuurizumu Saa, Hajimeyou!(Eco-tourism Let's begin!)* p.92)

Example of information provided by a visitor center

- Information about the area: history, maps, outline and characteristics of the natural environment, distribution of flora and fauna, seasonal changes, relationships between nature and people's lives, measures taken against hazardous creatures, means of emergency contact, etc.
- Information about the day: weather forecast (sunrise and sunset times), information about the best flora and fauna to see in the season, safety information (hazardous creatures to watch out for, risks from cliffs and falling rocks, etc.)
- Information for visitors who want to explore the park individually: route maps, self-guide sheets, etc.
- Descriptions of the environmental education programs provided at the center and how to participate in the programs

(1) Operational procedures of a visitor center

1) Plan

- Collect accurate information about the nature in the area covered by the program as well as information about the visitors (including where they are coming from, when, how many, the purpose of the visit, etc.)
- Based on some rough assumptions about the target participants, formulate a concept of what message the program wants to send and to whom. In this process, introduce a theme which encourages visitors to connect the program to the nature around where they live by learning about the nature in the park, rather than just trying to tell them about the nature in the park. (For example, you could tell the visitors about developments in the evolution of birds so that they could live in different environments, using the birds which live in the area as examples.)
- Create exhibits and develop the program in accordance with the concept. In this process, consider carefully the maintenance of the exhibits (expenses and operational system), the organizational structure for implementation of the program and the operation of the center itself, in order to ensure the sustainable operation of the program by the local people. It is possible to make quality showpieces without spending

money if you are innovative. It is recommended that you prepare illustrated guidebooks for the flora and fauna, as well as materials and videos through which visitors can find information that they are interested in by themselves.

- It is important to consider the following three principles in order to create an exhibition which allows visitors to share their new discoveries with each other, experiences, opinions, values and insights, regardless of the theme of the exhibition.
 - (1) Allocate the exhibits within a story so that the context of the exhibits made is clear. Make effective use of explanatory texts.
 - (2) The planners of the exhibition should make clear who the target population is and what the message of the exhibition is. Based on this plan, explain the concepts and the story in the exhibition in simple language to the involved parties. This will help producing an exhibition which effectively works with the visitors' five senses such as smell, sound, and feel.
 - (3) How users behave, feel, and learn should be reflected in the designs, the type of media to be used, and time to be allocated for the exhibition. Design the exhibition so that visitors can easily walk around and can look at showpieces from many directions as well as interacting with the showpieces.
- Update the contents of exhibitions and programs regularly (for each season) in order to attract regular visitors. (Normally all exhibitions need updating, and so do not produce exhibits which are too complicated, on the premise that you will have to update these exhibits.)
- You can also encourage the participation of local residents as well as visitors to exhibitions at a visitor center, by for example exhibiting the products of the local residents and putting up messages and information that the visitors have given to the center so that they can become more involved in the activities of the visitor center.
- Do not limit the exhibits to things that can only be looked at or read. Introduce exhibits in which the visitors can participate and have fun with such

as quizzes, games, etc. Also, show exhibits which can be touched and moved around by the visitors, because such interaction is effective in deepening their interest.

- Install outside information boards which have maps, explanations, and cautions on them on the routes for the eco-tours and walking courses for example, as well as inside the visitor center. Make them easy to read. Use durable materials to produce them.

2) Do

- Provide information which meets the visitors' needs. Post daily information in a comprehensible manner (handwriting is good enough).

3) Check

- Keep records on the daily number of visitors. Check the trends for the utilization of each exhibit.
- Place questionnaires inside the building for the visitors to fill in.
- Evaluate exhibitions and programs regularly based on the above information.

4) Act

- Consider improvements based on the evaluations. Also, improve the exhibitions and the programs by learning from other visitor centers, museums, and zoos. Make improvements so that regular customers will be satisfied as well.

(2) Examples of developments and operations at facilities

1) Lake Tanuki Nature School

Lake Tanuki Nature School was established to provide

opportunities for visitors to enjoy and learn about nature by experiencing nature so that the visitors could deepen their interest in environmental conservation and hopefully take action for conservation. The School aims to provide opportunities for visitors to voluntarily and actively experience ecological living. It also aims to promote interaction between visitors and the local area. The facility is located by the lakeside of Lake Tanuki and you can see Mt. Fuji from it. The School is equipped with the facilities for exhibitions and workshops (Main Hall), Meeting Room, Outdoor Stage, Adventure Forest and accommodation facilities on an area of 6.7 ha (out of which 4.8 ha is government-owned land).

The Nature School is a barrier-free facility which is wheelchair-accessible and can be used by children and adults. Visitors can take off their shoes and take as much time as they want to look around. The "Main Hall" is where visitors can enjoy exhibitions and it contains the following thematic sections: a section on the nature of Mt. Fuji; a georamas of a deep forest and a cave that the visitors can go inside and explore; a section on living harmoniously with nature; a section on history and culture, a display of the study of Mt. Fuji; and so on. These exhibitions include videos, georamas, as well as devices and materials which are changed every season. There is the "Room to Discover Wonders" and a workshop where visitors can participate in first-hand experience programs.

The government and the private sector are working together to operate the Nature School. The following table shows the roles of each party.

<Different thematic sections>



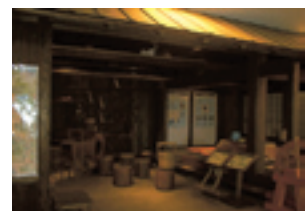
Section on the nature of Mt. Fuji
There are many devices to touch and play with.



Display of the study of Mt. Fuji
The work of local elementary school students is exhibited.



Section on living harmoniously with nature



Section on history and culture
Visitors can learn about the culture of areas neighboring Mt. Fuji and listen to the folklore.

Table 3-2 The administrative framework framework

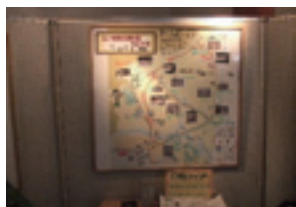
National government	Ministry of the Environment	Pays for the maintenance costs of the Main Hall.
Local government	Fujinomiya City, Shizuoka Prefecture	Provides the budget for the operation of the Main Hall.
The private sector	Japan Environmental Education Forum	Conducts the operation of the Main Hall (allocation of staff, implementation of exhibitions and programs).
	National Park Resort Villages of Japan, Qkamura	Operates the accommodation facilities (allocation of staff, management for reservations, providing maintenance costs). Pays for operational costs. Inputs the revenue from the accommodation facilities to cover the operational cost of the Main Hall.

Source : based on interview to Lake Tanuki Nature School

The accommodation facilities are doing well with an operating rate of 60%. This high operating rate is derived from the excellent location which has a view of Mt. Fuji. Also, the National Park Resort Villages facility is near to the Nature School and so there were already potential customers available. Good accommodation services were also a reason for the high operating rate.

2) Oze-Yamanohana Visitor Center and Oze Marshland Visitor Center

These visitor centers provide information about the Oze area and provide a space to get to know the nature of the area. The visitor centers provide exhibits and materials which comprehensively describe the drama of nature and the relationships between humans and nature. This information includes: how the Oze marshland was created, the lives of flora and fauna, the climate, the floral calendar as well as nature conservation activities. Guidance and information is installed at key points on the trails in a comprehensible manner.



Information about the routes and maps to be distributed



Floral calendar (four seasons)



Characteristics of the forest



Information about animals (exhibits that visitors can touch)



Today's weather and eyewitness information about bears



Visitors can get a certificate if they see ermine. Eyewitness information from visitors is used to study distribution.



Signposts are installed to show destinations along the trails.



Information boards are installed at key points on the trails. The materials used are durable against sunlight, rain, and wind.

(3) Programs which utilize visitor centers and the surrounding nature

1) Self-walk (Tourists walk around the routes by themselves.)

[Preparation]

Produce self-guide sheets¹³ for the self-walk. Update the self-guide sheets each season. Change the theme each season such as focusing on flowers in a floral season and focusing on rain in a rainy season so that regular customers can enjoy the walks from a different perspective each time they visit.

[Implementation]

- It is recommended that a 10 minute orientation is conducted (“introduction”) even for a self-walk, and

explain the seasonal information, safety management, the rules of the park such as, the picking of flora and fauna is prohibited. Holding orientations at fixed times is an efficient method when there are many visitors.

- Although the participants walk around the course individually at their own pace, it is useful to have interpreters at the visitor center so that participants can freely ask questions and consult with them when necessary.
- Ask visitors to fill in a review sheet or a questionnaire when they finish walking the course so that you can review and wrap up the activities later on.



Self-guide sheets



Visitors can look at a new page at every key point on the trail.



Signposts – Visitors can choose from various options.

2) Guide-walk (Participants and guides walk together.)

- The basic content is the same as the nature experience programs. Facilitate the participants' awareness by introducing them to the local nature and seasons and encouraging the participants to use their five senses.
- Advertise the date and the maximum number of participants beforehand, and receive bookings on a first-come first-serve basis.
- Check the number of participants at the beginning of the program, and explain safety management and the rules of the inside the park such as, the picking of flora and fauna is prohibited.
- Ask for the participants' impressions of the program at the end of the program, and summarize them.

- Update the program in accordance with the changes in seasons so that regular visitors can enjoy every visit.

3) Handcraft workshops

It is a good idea to hold handcraft workshops using natural materials through which the participants can feel closer to nature. Expand the varieties of handcrafts by using branches, stones, nuts, etc. which can be found in the park. Use materials which are available on site. Collect only a reasonable amount even though it is fallen material.

3.7 Create educational materials, brochures, etc.

Text books, supplementary materials, brochures, and newsletters for environmental education enable the participants to take home information and repeatedly

¹³ A description of of animals and plants that is to be observed along the route.(Source : Ministry of the Environment (2004) *Eco-stuurizumu Saa, Hajimeyou!(Eco-tourism Let's begin!)*)

BOX 3-3 Examples of handcrafts

- **Nature craft:** Participants make whatever they want using nuts, etc. They can make bracelets with holed nuts, or cut cardboard into the size of a postcard and stick on twigs or leaves. They can also make a photo frame. Stock the materials for craft-making including nuts and twigs (which have been sorted into different kinds), hemp string, cardboards, bonds, etc. Keep them in a well-ventilated place to prevent mold and insects.
- **Leaf rubbing:** Lay a thin paper on top of a leaf or a piece of bark and rub them with a pencil or a crayon. They can also make a stamp shape by pressing paper on a leaf which has been painted with different colors.
- **Nature postcard making:** Prepare a plain piece of paper for a postcard and make a picture card by sticking onto it paper-cutouts which copy the shapes in nature or by sticking onto it pressed flowers and leaves. It is also a good idea to write a letter directly onto a leaf. You can make a program where the participants write letters to themselves or to their friends and send them, if it is possible to send the products, although this depends on the conditions of post services in the country.
- **Making wooden blocks:** Prepare small pieces of wood made from thinned trees and pruned branches. The participants file these pieces of wood. The more they file the wood, the smoother it gets. The participants will love the blocks that they make.



Collection of materials can be a part of a program.

learn by themselves. If you are making paper-based educational materials and information, insert photographs and illustrations to make them easy to understand rather than using text only. As supplementary materials, it might be fun to make games such as card games and simulation games where the participants can enjoy and learn. Newsletters are also useful as an activity log.

(1) Procedures for creating educational materials, etc.

1) Plan

- Investigate the present situation of environmental education and existing educational materials, and then consider what kinds of educational materials, brochures etc. are needed.
- Examine the objectives, target population, forms, contents, estimated volume and the budget, and then make a proposal (which includes a creation plan and a distribution plan). Make them compatible with the curriculum if you are creating educational materials for the school system.
- Decide on the organizational structure for the implementation and discuss the writing and editing of the manuscript, as well as discussing the design and the distribution methods.

2) Do

- Ask for a quotation from manufactures and order the products. Comply with the regulations of the country and the institution when getting quotations or ordering products.
- Check the products which were delivered, and distribute them to the recipients of the products.

3) Check & Act

- Evaluate the products based on the number of products distributed and the questionnaires returned by the target population. Review the creation plan and the distribution plan.
- If you identify points which need to be improved, amend them when the products are reprinted.

(2) Various examples

1) Brazil: The Cerrado Ecological Corridor Conservation Project¹⁴

This project aims for the conservation of the Cerrado area in Brazil which has a rich biodiversity. One of the focuses of the project was environmental education which would encourage the understanding of local residents. The project created various educational materials which are shown below, and distributed them to people involved in education. These educational

¹⁴ The Cerrado Ecosystem Conservation Project(2003.2–2006.3)

materials became well known because the project publicized them on TV and in newspapers, and inquires about these materials flooded in.

(i) Textbook for environmental education

The textbook describes the ecosystem of Cerrado and the relationship between



people's lives and the environment, as well as explaining about environmental conservation activities, etc. in a comprehensible manner. It has plenty of friendly paper-cutout illustrations, with the reader guided by an "owl" which is the symbol of wisdom in Cerrado.

a joyful text of environmental education

(ii) Playing cards

The project produced playing cards which contain photographs and explanations of



animals, plants and insects which can

cards which have pictures and explanation of animals, plants, insects

be found in Cerrado. Playing cards are handy tool for simple environmental education because it is portable and you can play with the cards in many different ways.

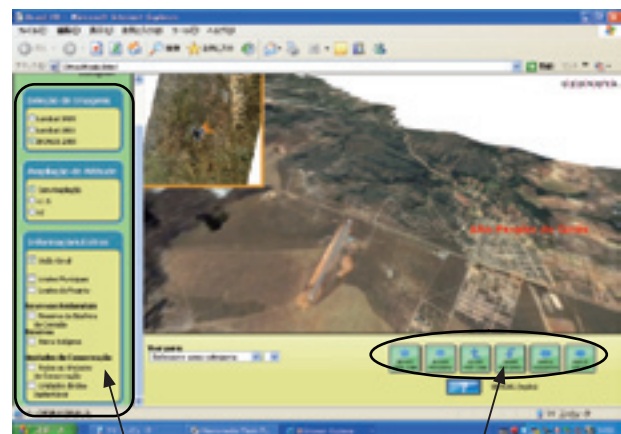
(iii) Cerrado ecological corridor multimedia educational materials

The project is utilizing satellite images in order to understand land use in Cerrado. The project published the results of the analysis of the satellite images as an atlas, as well as producing a CD and a DVD which contain three-dimension images created from these satellite images. Using these multimedia educational materials, the users can look at the conditions in the area just like they would if they were watching from an airplane. They can also jump to anywhere they want to look at, as well as changing the angle and

zooming in. They can also see the types of land use by superimposing the study data. The data contains the images from different years and so the users can learn about the changes in the area from year to year.

These educational materials enabled people to easily look at the conditions in the area, and this led to deeper understanding of the area.

Although the satellite images were originally expensive, the cost of the educational materials was low because the images from the survey conducted by the project were used.



Users can choose the year and the data to be displayed.

Users can move the image, zoom in and out using these buttons.

2) Introduction brochure for the Sabah Forestry Department, Malaysia

The pictures below are of the brochure for the “introduction of the Forestry Department” (A4-size, folded into three, both-sides are printed in color) which was produced by a JOCV member who was working at the Sabah Forestry Department in Malaysia for environmental education. The brochure focuses on “sustainable forest management” which the Forestry Department was aiming for, and explains the theme comprehensively using photographs and maps.

Outside



Inside



(2) Objectives
Comprehensibly explaining the five main objectives using concept photographs

(6) Back cover
Map of the facilities of the Forestry Department and the publishers' information
The publishers' information should always be stated.

(1) Front cover
Introduction and an overview of the Forestry Department

(3) Present situation and future
Forest distribution map and sustainable forest management

(4) Explanation about sustainable forest management
Specific examples and plans

(5) Programs provided
Also an invitation to participate in the programs

3.8 Events

Events provide opportunities to share a sense of purpose between many people at once. A festival atmosphere makes events accessible to many people and this encourages the general public to participate. The participants can feel a sense of solidarity in an event where a large number of people gather. Small actions such as picking up garbage can produce a visible result (the area gets clean) if a lot of people do it at once, and this can show to the participants more clearly the effect of such actions. Producing original posters and goods for the events is an effective PR method.

At events where the work of participants is invited, such

as for a poster contest or an essay contest, the participants have a chance to think about the environment more deeply during the process of producing this work.

Events are also satisfying projects for the staff because they attract a lot of attention. Staff can gain confidence and strengthen the solidarity between them, if they succeed in holding an event through everybody's efforts. Making staff T-shirts is an effective way to create a sense of fellowship and encourage awareness of their responsibilities. Try to seize any opportunity to plan and hold an event because even an event which only takes place once a year or some small event is effective for both the participants and the staff.

World anniversary days or the country's own anniversary days are good opportunities to hold events. For example, you can set up a booth as a participating organization at a large event which has been organized by the country or by other organizations, or you can attract participants more easily to your own event by holding the event on these anniversary days. Find out about international days and national anniversaries, as well as what kind of events are held presently. Making an event calendar based on this information will help you to come up with ideas for planning your events.

(1) Implementation procedures for events

1) Plan

- Investigate international anniversaries and national anniversaries and then consider what types of event will be effective and also consider the timing of the event.
- Decide on the concept of the event in consultation with involved parties. Ask for cooperation from the local ministries and agencies, NGOs, schools, companies, etc. so that you can organize events which have a wider participation. (More involved parties will mean a more complex coordination effort, but the networks which are created through such events will become useful for the future activities of environmental education.)
- Set up an executive committee, lay out the organization of the secretariat, secure the budget and personnel, produce a work schedule and allocate the roles to each member of the personnel.

** Take plenty of time for the preparation (several months are needed although it depends on the size of the event).*

A new event needs especially careful preparation.

- Finalize the time and date, the venue, and the target participants for the event.
- Decide on the program and the structure of the contents. The structure of the program should be: "introduce" (greeting and explanation of the concept)→ "develop" (exhibits at the booths, workshops, first-hand experience programs, attractions, etc.)→ and "wrap-up" (small speech to

Table 3-3 international anniversaries

International anniversaries useful for organizing events	
March 22	World Day for Water
March 23	World Meteorological Day
April 7	World Health Day
April 22	Earth Day
May 15	International Day of Families
June 5	World Environment Day
August 12	International Youth Day
September 16	International Day for the Preservation of the Ozone Layer
September 21	International Day of Peace
September 22	International Coastal Cleanup Day
September 26 -	World Maritime Day (the last week of September)
October 13	International Day for Natural Disaster Reduction (the second Wednesday of October)
October 16	World Food Day
November 20	Universal Children's Day
December 5	The International Volunteer Day for Economic and Social Development
December 11	International Mountain Day

For international days, weeks, years or decades other than the above, please see the website of United Nation Information Center, Tokyo: <http://www.unice.or.jp/index.htm>

wrap up the event which encourages the people to connect what they felt or learned at the event with their future actions).

** Care is needed not to make a regular event just routine. It is effective to make the exhibitions at the booths more interesting by introducing quizzes and hands-on experience sections, introducing a stamp rally, etc.*

- Arrange the invitations for guests and prepare the equipment. Produce materials, exhibits, and goods for the event. Confirm the budget for anything you are going to produce or purchase. Actively publicize any large event that you hold in the mass media.

** Different types of stationery with a logo and a catch phrase on them have a good PR effect because they tend to be used daily. They could include pens, memo pad, and desk calendar. T-shirts and bags are also good PR materials.*

- When you are organizing an event which invites participants to show their work, such as for a poster contest or an essay contest, consider the theme,

target participants, judging method, commendations and prizes, how to utilize the outstanding work (such as exhibiting them at the visitor center or in a school, making a calendar from them and distributing it, or distributing them as a booklet) and so on.

- Publicize the event by means which will get to the target population. (Produce and distribute posters and flyers, inform the interested organizations about the event, publicize the event using the mass media, etc.)

2) Do

- Confirmation before the event: Confirm the layout and the equipment at the venue. Hold a final briefing with the staff.
- Holding the event: You should have a plan in the case of bad weather if the event is held outside. Careful attention is needed for the safety measures. Taking photographs during the event creates a useful record and a nice way to remember the event.
- Clear-up: Try minimizing the environmental burden of the event by reducing the generation of garbage as much as possible, recycling the garbage, etc.

3) Check & Act

- Hold an evaluation meeting (at the same time have a gathering to celebrate the completion of the event), discuss the successful points as well as the points which need improvement, and make a record of the results of the discussion.
- Based on the results of the evaluation, extract the points which need to be improved and new ideas for the next event. Collect further information for planning the next event.

(2) Example of events: My Bag Campaign (JOCVs for environmental education in Fiji, the first batch of JOCV in 2004)

They planned the My Bag Campaign for Environment Day in June. The campaign was organized in cooperation with the government ministries and agencies, NGOs, a company (a supermarket), and a Japanese company. The campaign created a boom in the country of assignment for

using eco-bags as part of advertising campaigns. This idea was new to the country.

Background: In the meeting on “the control of plastic shopping bags” held by the Government, the need for environmental education (opportunities for residents to gain awareness) was discussed. The JOCV members made a presentation about the stamp-card system (in which people can get a gift when they refuse to accept a plastic shopping bag on 10 visits to the shop). They asked for the cooperation of the members of the meeting. They also asked for support from the local supermarkets, sponsoring companies, environmental NGOs, etc. by sending the proposal to them. They then organized a project team.

Concept: Kick-starting a plastic shopping bag control system, giving motivation and raising the awareness of the residents so that they would refuse plastic shopping bags

Implementation period: About six months (starting from the meeting on “the control of plastic shopping bags” to the end of the monitoring activity)

Methods:

(1) Plan: Establish a project team.

(2) Plan: Divide roles (expenditure) between each party. Invite sponsorship.

Ministry of Environment: Covers the expenditure for printing eco-bags.

Ministry of Education: Sends information to elementary schools nationwide about the design contest. Covers travel expenditure for the presentation of the letters of commendation and for taking photographs for the posters.

Sponsorship: A supermarket, Radio Nippon, and JICA

(3) Do: Hold a Contest for My Bag Ideas targeting elementary schools nationwide.

The two best designs were used as the designs for the eco-bags.

The logos of the supermarket, Radio Nippon and the Ministry of Environment which were

the co-organizers or the sponsors were also printed on the back of the eco-bags. The logo of the supermarket was not put onto half of the posters nor stickers produced so that other supermarkets could use these goods as well.

The project members visited the schools on outlying islands to present the letters of commendation to students whose designs had been chosen for the eco-bags.

The project produced posters using photographs of the two students shopping at the co-organizer supermarket which showed them using the eco-bags with the students' own designs on them. These posters were put up in the branch shops of the supermarket nationwide. The project also produced stickers which had the catch phrase of the campaign on them.

- (4) Plan: For publicizing the campaign, information about the My Bag Campaign was put up on newspapers as part of the advertisements for the supermarket.
- (5) Do: A launching event for the campaign was held at a supermarket in the capital on Environment Day. The project invited the two elementary

school students who had designed the eco-bags. Exhibitions were shown at a booth and a press release was put out at the same time.

- (6) Do: Eco-bags were distributed free to customers who spent 10 Fiji dollars (about 700 yen) or more at all the branch shops of the co-organizer supermarket.
- (7) Check: The campaign was generally popular although there were some negative comments such as the number of eco-bags at each shop were not sufficient.
- (8) Act: The co-organizer supermarket wanted to continue the campaign and so started discussing distribution methods of the eco-bags. DIY shops, etc. seem to be getting involved in the eco-bag campaigns. The initiative shifted from the government ministries and agencies to private companies. The government is planning to gradually implement the controls on plastic shopping bags and commented that they want to support such activities using various means. This support could include special treatment for companies actively working on such activities and a tax-break for the production of eco-bags.

Box3-4 Utilization of the prize-winning work at the contests

Malaysian Sabah Forestry Department produced posters and calendars using the prize-winning work from the contest along with an introduction to the Forestry Department and the facilities.



Palau International Coral Reef Center Strengthening Project¹⁵ held a painting contest for children, and calendars were produced and distributed using the prize-winning work. This activity was well received by the local people.

3.9 Environmental education using mass media

The mass media enables the instant dissemination of information to a large population at once. In developing countries, radio programs and newspapers are important information sources which many people have access to. Other features which you can find in developing countries are that people talk about what is on the radio and spread the word, and a single newspaper is circulated and read by many people. However, pay attention to the literacy rate which varies in different countries and regions.

The downside of the mass media is that information flows in one direction only. You could utilize the postal services and phones to make communication more interactive. Considering that the internet is becoming more common in developing countries, programs on the internet which enable interactive communication are also very useful.

This section describes some examples of the utilization of general radio and newspapers.

(1) Procedure for the production of environmental education programs on radio

- (1) Plan: Decide on the concept (when it is a regular program).
- (2) Plan: Decide on the themes for each show.
- (3) Plan: Decide on the basic structure (introduce: x min., develop: x min., wrap-up: x min.).
- (4) Plan: Develop a script.
- (5) Plan: Rehearse the program.
- (6) Do: Make a recording (or host the show live).
- (7) Check: Review the program and take records.
- (8) Act: Collect various ideas (interviews, quizzes, etc.) and topics.

Division of the main roles for the production of the programs

- Director: Produce scripts, gives cues, etc.
- Mixer: Adjusts sound.
- Announcer: Read manuscripts and proceeds with the program.
- Guests: experts, general public, etc.

Note: There might be a producer as well.

The division of roles varies for each team, e.g. announcers participating in the production of the scripts and mixers choosing the music, etc.

<Structure of a program>

Introduce: xx min.

- "Greeting + Today's theme is ..."

¹⁵ Palau International Coral Reef Center Strengthening Project (2002.10—2006.9)

Palau International Coral Reef Center <http://www.picrc.org/>

Start from familiar topics such as stories on the seasons and daily life.

- Information about the present situation (Interviewing people on the street before the program is one idea.)

E.g. An environmental problem that we face today

=Music and commercials=

Develop: xx min.

- A talk by a guest or an interview with a guest

Causes of the environmental problem and what is the solution.

Explanation about a project that has been implemented as a solution and about its effects, etc.

- Telephone or postcard consulting with citizens:

E.g. Telephone

consulting for children

- Quiz: Present eco-goods to those who give the correct answer.

E.g. Quiz on the songs of birds

- Asking for stories on a certain theme:

E.g. Stories

about “forests” which are useful for daily life

=Music and commercials=

Wrap-up: xx min.

- “What can we do to help?”

E.g. Actions for the day

- Event information: Use words which encourage people to take action.

- Announcements about the next show

=Music and commercials=

Production of a program in a Latin country

Background: A JOCV member participated in an environmental NGO's local environmental program (45 min.) where various people come on air and talk.

Contents: Various contents including local environmental problems, the introduction of activities, an invitation to general public to participate in an ecological city contest, the introduction of Japanese culture, an introduction to recycling, etc.

Structure: Use meringue music. Stream it every 20 minutes during which time personnel were changed. There was a 10 – 15 min. call-in section (where citizens talk about their complaints about environmental pollution, questions about Japanese culture, etc.)

Guests: Request for participation on a personal basis. They included a local environmental activist and a JICA expert on public hygiene.

Stance: It was a frank Latin program where people talked freely by picking topics on a spot. The host of the program is not a JOCV member. The host let the JOCV member use the program to give information and invite citizens' participation.

Key point: Be flexible and utilize the opportunities available effectively by going along with the ways of the country when it is difficult to realize your precise plan.

(JOCV member for environmental education in Nicaragua, the second batch of JOCV in 2000)

PR activities using the radio and newspapers

Many countries have newspaper or radio services where you can easily post local information. The posted information includes “Volleyball practice in the xx village, from 13:00 on Saturday,” “Screening of a movie, organized by xx, from (time), (date), (month),” “Happy birthday to you, xx!” etc. They normally have a fixed space in the newspaper or a fixed broadcasting time on the radio. Many people read or listen to them and so these services will be very helpful for the PR activities for events.

<Key points>

- Make the program consistent with the theme.
- Choose topics which reflect the season or daily life.
- Choose words carefully.
- Give the correct information.
- Do not talk impulsively during making recording (or hosting the show live).

(2) Articles in newspapers

1) Implementation procedure

- (1) Plan: Decide on the concept (when it is a regular feature).
- (2) Plan: Decide on the themes for each article.
- (3) Plan: Develop a basic structure (see below).
- (4) Do: Draft → proofreading → submission → publication
- (5) Check: Purchase the newspaper, conduct self-evaluation, and file the article.

Take into account the feedback from readers if there is any, and utilize it for future content.

- (6) Act: Collect various ideas (illustrations, games, etc.) and topics.

Structure of the article (page space)

- Title, the theme for the article
- The body (introduce, develop, wrap-up)
 - Introduce: sentence to catch attention
 - Sentence about the season or a school event → main body
 - Develop: comprehensible words and specific content
 - Wrap-up: message that you want to send
 - Try to connect the topic to the readers' lives.
 - Ask the readers: "What would you do?"
 - Make an announcement about the next article
 - Game, information on an event, etc.
- Publisher information

Use reader-friendly fonts and size for the letters. Also, employ games, etc. effectively.

- Do not write ambiguous information. Write an accurate article which is based on the facts.
- Maintain connections with people from various sectors and areas of expertise so that you can confirm that the information is accurate.
- Make sure that you quote the source when you cite information.
- Proofread properly.
- Do a lot of research and then write the article after carefully selecting the material.
- Write an article by putting yourself in the shoes of readers.

2) Example of a newspaper article (JOCV working on environmental education in Fiji, the third batch of JOCV in 1998)

Concept: Learn about the "environment" while having fun.

Title: ENVIRONMENT FUN

Themes for each article: Write about a theme related to the "environment" and "people's lives," while trying to make a connection to the readers' lives.

<Key points>

- Write about something which is linked to the readers' lives.
- Write an article which makes people feel like reading it at first glance.
- Use many illustrations (collect and store clip art when you can).

The theme for this article is related to the theme used last time, "wetland."

"Introduce"
It is about mangrove which is a type of wetland familiar to readers.

"Develop"
Distribution and ecological features of mangrove, the roles of mangrove such as for the prevention of coastal erosion

"Wrap-up"
Connection with readers' lives: usage as firewood and medicine

Distribution map
Make a link to the mangrove forests which are far away from readers so that they can feel familiar with them, too.

Quote the sources of the citations and references.

One theme can be written about in a two-part series.

Illustration
Two types of mangrove, a full picture of the tree

Illustration
Growth process of mangrove

Game using letters to learn about biodiversity around mangroves

Event information, etc.

Proofread properly including checking the spelling.

Publisher information Contact

"Introduce"
About the mangrove in Fiji – a topic which is more familiar to readers

"Develop"
The wonder of mangrove: why they grow in sea water

"Develop"
Utilization of the mangrove: It can be used to make pillars for houses because of the high tannin content in the stems. It can also be used as a dye.

"Wrap-up"
Role of mangrove as a key organism which supports the ecosystem around it: Readers can also learn from the illustration.

Source: "ENVIRONMENT FUN" Fiji's Sunday Post, May 20 and May 27, 2001

E.g.) Employ the theme of the ecology of mosquitoes in a season where dengue fever is prevalent, choose topics which are of interest at the time of the summer holidays, etc. The JOCVs consulted with the counterpart every month and decided on the theme for the following month.

Conditions: The article is published every Sunday on one page (A3 size), targeting elementary school and junior high school students. The article contained a game every week.

Evaluation: Readers sent letters to the project regarding the articles. Teachers and students at the schools sent messages about the articles saying that they were looking forward to more new articles. School teachers were utilizing the articles as educational materials for their classes.

3.10 Instructor training

Instructor training is important for the continuous implementation of high-quality environmental education. There are various forms of instructor training, including a workshop lasting for several hours, a course containing first-hand learning experience which lasts for several days, OJT, etc. In any of these cases, develop practical content by introducing methods and activities which can be used in the field straight away in addition to the theory of environmental education, while considering the needs of the target trainees. Use activities where the participants can actively take part in, such as practical activities and group discussions so that they can deepen their understanding further. Encourage the participants to create a network with the other instructors using the opportunity of the instructor training. This will be helpful for information exchange and mutual support between the

Hold training on weekdays

In many developing countries, it is very difficult to attract people if you organize the training on weekends for the voluntary participation of school teachers. Plan the training on weekdays to secure a higher participation rate of the target population. Also, obtain consent from their workplaces and the institutions involved beforehand.

instructors after the training ends. It is recommended that a system is developed so that regular training sessions can be held because such training will help the participants to continuously improve their abilities and strengthen the networks.

(1) Implementation procedures for the instructor training programs

1) Plan

- Investigate the implementation situation for environmental education in the local area, the textbooks, abilities of program promoters, challenges that they are facing, etc.
- Extract problems, select the target participants and consider the content and the lecturers.
- Consult with the target participants, their supervisors, and the involved institutions about the implementation of the program, and obtain their consent.
- The basic flow of the program will be “introduce-develop-review.”
- Teach the essential points to the participants because it is difficult to explain in detail “what environmental education is” in a limited timeframe.
- Provide useful materials because there is a great need for practical methods, activities, and reference materials which can be used straight away. It will be helpful to distribute reference information such as a list of relevant government ministries and agencies, organizations, involved parties, books, and the internet sites. It will also be useful for the participants to present to each other their first-hand experiences.
- Include methods which encourage the participants to actively get involved and learn, such as practical activities and group discussions. Setting up opportunities for them to gain experience and summarize their thoughts is useful for proactive learning.
- Set the time and the venue so that it is easy for the target population to participate. Secure the venue.

2) Do

- See 3.2 when you are implementing the training using seminars and workshops. Also, please refer

to 3.1 if you are going to include first-hand learning experience in the training.

3) Check

- See 3.2 when you are implementing the training using seminars and workshops.
- When you conduct the training by observing the lessons taught by the participants, encourage the participants by finding and pointing out the positive aspects of their lessons. The lessons can be evaluated using the following points: the instructors' knowledge, skills, their attitude in the lessons, the results of the program (the degree to which the goals have been achieved), etc.

4) Act

- What participants can learn will be limited in a one-time training session. In order to provide continuous services, hold training sessions regularly in order to brush up the instructors' skills. The network between the participants can also be strengthened as they will see each other at several sessions. The networking of instructors is beneficial, because they can help each other by using the network when they face problems in the field and need advice, or at times when they need extra personnel. It also has a positive effect on the participants' motivation.
- It is recommended that follow-ups are conducted by visiting the participants' workplace, where you can help them put into practice the ideas that they gained during the training.

(2) Example of an instructor training program

1) Guatemala: environmental education training (workshops and OJT) organized by JOCV (the first batch of JOCV in 2003)

Target participants: Teachers at three pilot schools (20 teachers of the fifth and sixth grades as well as the school principals)

Procedures: (1) In the first year, the JOCV and the counterpart to the JOCV implemented environmental education together (the

JOCV conducted the first hour and the counterpart conducted the second hour). The teachers of the fifth and sixth grades participated as observers and filled in an impressions sheet.

- (2) The project planned the workshops and OJT so that the participating teachers can implement the environmental education in the second year.
- (3) The project sent out documents which explained the workshop plan to the Ministry of Education in the relevant district (departamento) and obtained their approval for holding the workshops on weekdays so that all the target teachers could participate in the training (the fifth and sixth grades were given days off on the workshop days).
- (4) The project produced a seven-hour packaged program. The JOCVs and the counterpart conducted seven hours of model classes in the workshop (on one day). The project produced and distributed a textbook using photographs and illustrations in a comprehensible manner which explains the scenarios, how to write on the blackboard, instantly usable activities, etc. for the seven-hour lessons.
- (5) The teachers of the fifth and sixth grades conducted the seven-hour environmental education and the JOCVs participated as observers (the lesson schedules were adjusted so that the JOCVs could participate).
- (6) The project produced an evaluation table which includes the following sections: "Did the program offer first-hand learning experience?" "Was the teacher able to communicate with the students?" "Was the teacher able to utilize an unexpected event in the lesson?" "How was the volume of the voice?" and so

on. Comments were made focusing more on positive points than the points that needed to be improved, in order to encourage the teachers.

2) Malaysia: example of the instructor training targeting park staff (in the Bornean Biodiversity and Ecosystems Conservation Program), collaboration between JICA expert Sato and JOCVs¹⁶

Title: Training for Environmental Education Facilitators (TEEF)

Target participants: 12 instructors of environmental education at Sabah Parks, the State Government of Sabah, Malaysia

Period: The workshops were held for six hours a day, once a month over a period of 11 consecutive months.

Features of the program:

- Participants learned from each other.
- Training was flexibly conducted in accordance with the participants' level of understanding, physical and mental condition.
- Team-facilitation was conducted with JOCVs, who had a trusting relationship with the participants.
- The training was conducted using the learning cycle of experience → review → generalization → practical application.

Plan

- ☐ 1.5 to 3 days of preparatory workshops were held with 1 to 3 members of JOCV (for environmental education) 1 to 2 weeks before the implementation of the training.
- ☐ The following were the aims of the preparatory workshops:
 - a review of the last training (analysis of the output products),
 - the reconfirmation of the needs of the participants,
 - the reconfirmation of the approach to be

employed,

- the development of new activities, the creation of educational materials,
- the decision on the people responsible for each session and the development of the next program by conducting micro-facilitation.

Do

- ☐ The orientation was conducted first. In the orientation, the following were conducted: ice-breaking, explanation about contents of the training program of the day, confirmation of the rules for mutual learning and how to use the venue.
- ☐ At every break-time, the team facilitators shared their opinions about the participants' degree of understanding and their physical and emotional condition. They then built a consensus on how to proceed with the activities which followed the break-time.
- ☐ The project stressed proper time management, and so they would stop at the finishing time even if one session had to be omitted.
- ☐ Reviews by the participants (ORID questions: objective, reflective, interpretative, decisional) were conducted during the program.
- ☐ A group photo which included all the participants was taken.

Check

- ☐ A 3 to 4 hour review meeting was held the day after the training. The participants, facilitators, and observers were able to participate in the meeting.
- ☐ The contents of the review meeting included:
 - the confirmation of the activities being implemented,
 - the confirmation of tools and skills which were learned and practiced in the training, analysis of
 - the results of the review activities carried out by the participants,
 - the production of a summary text for the training session,
 - accounting,

¹⁶ Based on a material made by Mr. Hiroyuki Sato, JICA expert of The Bornean Biodiversity and Ecosystems Conservation Program

-taking photographs of the output products (results written on large pieces of paper) for the record using a digital camera, etc.

- ☐ The framework for the review included the “program, personnel, funds, organization, and evaluation” or “participants, facilitators, logistics, and facilitation.”

Act

- ☐ The participants will put what they have learned in the TEEF into practice when they teach environmental education to the visitors who come to the parks or to students in the schools which are close to the parks. The challenges that they face in the field will be fed back to the TEEF so that further improvements can be made to the next program.

Chapter 4

Examples of Activities and Ideas for Environmental Education

Environmental education can be much more effective by adding creative ideas and introducing effective activities (methods). This chapter introduces effective activities and ideas which are often utilized in actual environmental education on the ground.

“4.1 Facilitation and interpretation” explains facilitation and interpretation, which are most important parts of any environmental education.

“4.2 Ideas about how to proceed with the program” introduces creative ideas which can be used in the “introduction” and “reflection” stages. All programs have “introductions” and “reviews.” By adding some creative ideas into these parts, the program can proceed smoothly and can give the participants with a strong impression.

“4.3 Useful activities” introduces various activities which can be used in the “development” stage. The activities which are introduced here are only a few examples. You can modify these examples to meet each purpose and obtain ideas about other activities from different reference materials, so that you can expand your repertoire.

“4.4 Appealing exhibitions” introduces some tips for the creation of effective exhibitions.

4.1 Facilitation and interpretation

(1) Facilitation

When trying to accomplish something as a group, using the following methods is called “facilitation”. It is a method that encourages the participants to express their opinions and relate their experiences, that promotes deeper understanding and greater awareness, and that presents simple objectives, clarifies the tasks, suggests ways to eliminate obstacles, and guides the participants through

each step while watching over the whole process in order to ensure that the process reaches its objectives. Those who facilitate are called “facilitators.” In environmental education, it is important to encourage the awareness of the participants rather than providing knowledge to the participants unilaterally. Therefore, facilitation has an important role to play because it taps into the participants’ opinions and leads to the participants becoming more aware.

It is important for the participants to “express their opinion” in the program. If you cannot express your opinion, then you cannot take actions either. However, it requires courage and experience to express personal opinions in public. The situation depends on the country, but many people have difficulty and feel embarrassed to do so. The reasons are as follows: they have never learned how to “express their opinion” at school; due to the seniority system they feel hesitant to express their opinion; or they simply do not know how to “express their opinion”. Therefore, it is necessary to employ facilitation techniques by utilizing creative ideas so that the participants are encouraged to give their opinions. In addition, by using facilitation technique, it can provide hints which will help to summarize the discussion..

The section below shows various methods which encourage the participants to offer their opinions. It is important that, even when these methods are utilized, the facilitators always keep in mind the basic cornerstone of facilitation which is “good listening.” For example, even if the opinions are different from one’s own intention, instead of unilaterally rejecting the opinions of the participants, the facilitators should receive the opinions of the participants positively by saying that it is an interesting opinion.

Facilitation skills

- Ambiance designing skills – create an ambiance and connections
- Interpersonal skills – accept others and encourage them to share ideas
- Structuring skills – engage people and organize them
- Consensus building skills – summarize and share

Reference: From the Facilitators Association of Japan, (<http://www.faj.or.jp/>)

1) Brainstorming¹⁷

This is a method which enables everybody to express their opinions freely and which brings out excellent ideas.

- i) Choose one moderator and one person to write down the ideas.
- ii) The moderator explains the topic.
- iii) Bring out as many opinions as possible from the participants. Do not criticize the opinions at this point and allow the participants to offer any opinions. Concisely write down the expressed opinions on poster paper, or a white board, etc. which can be seen by everybody. When people start to run out of opinions, the moderator summarizes the opinions expressed so far. The moderator then encourages the participants to add more opinions by asking the participants about the points which the moderator wants to have deeper discussion about, or by proposing new points of view.
- iv) Stop the discussion after everybody has offered opinions from various points of view and the participants have started to run out of opinions.
- v) The moderator goes over the opinions expressed during the brainstorming and then conducts a Q&A session about these opinions. Avoid criticizing, and lead the Q&A session so that the opinions can be developed further.
- vi) Add the new opinions and ideas which come out during the Q&A session onto the paper/

whiteboard. It helps to write them down with a different color pen next to the items which came out during the previous discussion.

2) KJ Method¹⁸

The KJ Method is a method for organizing ideas and making a group action plan. The KJ method was named after the developer, Mr. Jiro Kawakita.

- i) The moderator explains the topic.
- ii) Each person thinks about the topic individually and then writes down his/her ideas on small cards or memo pads. Each card/page should contain one idea.
- iii) Collect everybody's cards, place them on a poster paper, etc. and then group them into categories.
- iv) Add arrows and words explaining the connections which indicate the relationships within/between the groups in order to organize problem solving elements.

3) Ideas to encourage opinions and questions

This section introduces useful ideas which can be utilized in facilitation, although they are not established methodologies.

Writing on paper

Writing on paper helps people to organize their thoughts. Participants do not feel embarrassed if written opinions are presented by other people.

- i) Prepare paper and pens.
- ii) Ask the participants to write, for example, a “self-introduction,” “impress-ion of today's session,” etc. on paper.
- iii) The participants show the card to the person next to them or in a small group and discuss it. If the cards are shown to a group, ask them to speak as if they were talking to the person sitting furthest away. If the topic is something that may be difficult to share, facilitate the discussion in a way that only those who wish to speak up do so, instead of forcing all of them to share their ideas.

¹⁷ Ecosystem Conservation Society - Japan (2001) *Kankyo-kyouiku ga wakaru jiten(The Complete Dictionary of Environmental Education)*, Kashiwa

¹⁸ Ibid.

If the topic is suitable to be presented, it is a good idea to collect all the papers, shuffle them and redistribute them so that each person reads someone else's words. This can help those who get embarrassed when speaking about their own opinions since the words they are reading out are not their own. They can also feel motivated to properly communicate other people's opinions.

- iv) If the participants are asked to write about their impressions and opinions of the program, those can be collected later on so that they can be used in the program evaluation.

Sample self-introduction sheet

- (1) Name (full name, nickname)
- (2) Affiliation or occupation
- (3) Common questions (a way for people to remember his/her name, what he/she likes, reasons for participation, etc.)

Asking for questions

Be prepared to take questions at any time by saying, "Please interrupt me at any time if you want to ask a question." This helps adjust the program to the needs of the participants even during the program. It also helps to improve the program for the future. In particular, make sure to ask for questions whenever it is appropriate, such as at the end of an activity or after explaining something. If you always do this regularly, the participants will gain a better understanding of when to ask questions since the participants might be hesitant to ask questions even if they do have some. Ask for their impressions about the program or ask, "Do you have any questions?" and then wait for a while. You can also ask them to write down questions and give them to you before a break and then answer them in front of everybody after the break. If you receive a good question personally during the break, then talk about it with everybody after the break.

Speaking from the bottom of a hierarchy

It would be ideal if all participants could talk on an equal level, but giving opinions on an equal level might be difficult in some cultures, or when there are differences in position, age, experience, etc. among the group members. There are cases where the participants cannot oppose the opinions of the people who are higher in the hierarchy. When you notice an atmosphere in which the participants are having difficulty in speaking out due to it being a mixed group of people from different levels in the hierarchy, make an arrangement so that the people who are lower in the hierarchy can speak first. During the "reflection" stage after the program has finished, it is also important to make an arrangement so that an intern can speak first, the program officer next and then the program organizer at the end.

(2) Interpretation

As mentioned above, in environmental education, it is important to draw out the awareness of participants. However, it is not possible to draw out knowledge and information that the participants do not have. Therefore, communicating correct information also becomes important. However, instead of forcing information on people unilaterally, it is important to take an attitude that supports and facilitates the participants in gaining knowledge and information. "Interpretation" means transferring information about nature, culture and history (heritage) in a simple and clear manner. It also means a specific act or skill which communicates the meaning behind the knowledge itself¹⁹. Interpretation is important in environmental education.

Those who conduct interpretation are called "interpreters." Although the interpreters communicate knowledge about nature and what can be learnt from nature, it is not necessary for them to have complete knowledge and information about the natural environment. Part of

¹⁹ Kathleen Regnier, Michael Gross, Ron Zimmerman (1994) *The Interpreter's Guidebook - Techniques for Programs and Presentations*, Interpreters Handbook Series, 3rd Edition, UW-SP Foundation Press, Inc., translated into Japanese under the supervision of the Japan Environmental Education Forum

interpretation is also to inform the participants about ways to conduct their own research.

The following explains the main methods which are used in interpretation²⁰.

1) Talking (Story telling)

Talking (story telling) is the basic point of interpretation. You are required to do “talking” on many different occasions. It is important to follow the flow of “introduction-development-reflection” when you construct your talk.

Introduction: This part introduces the topic of the program. The purpose of this stage is to arouse the interest and the expectations of the participants, and draw their attention to the next stage, “development.”

Development: This stage explains the core message of the program by using specific examples. It is effective to use props, slides, visual aids, parables, guiding people using images, talking about your actual experiences, etc. These will help to attract the attention of the participants and make the talk easy to understand. However, it is important not to include too much information, so that your talk can raise valid points and these points will be properly understood by the participants.

Reflection: End with a summary of the message and phrases to initiate actions. It is also effective to use quotes from poems and books which inspire the participants’ emotions and thoughts.

It is good to insert “questions” at all stages in order to avoid unilateral talk. There are different types of questions as shown below and you can use these in accordance with your purpose.

“What” type of questions: e.g. “Do you know what illegal logging is?”

This is the basic form of question. The intention is to ask for specific information and effectively involve the participants in the program.

“Why” type questions: e.g. “Why do you think illegal logging is happening?”

The purpose of these questions is to ask the participants to organize their ideas based on their knowledge and presumptions.

“What do you think” type questions: e.g. “What do you think could be done to prevent illegal logging?”

The purpose of these questions is to ask the participants for their values, choices, and judgment, and it provides them with opportunities to express their feelings and opinions.

2) Props

Props are useful aids which help the participants imagine the background of what you want to explain. The props that you can use for this purpose include the following.

- **Specimens, animal bones/horns, bird wings/eggs, etc.**

When you want the participants to learn about wild flora and fauna (especially mammals) that they have had few chances to encounter, it is useful to show them and let them touch the specimens, bones, etc. This inspires the participants' imagination and the experience becomes more memorable. You can use samples, photographs, illustrated guidebooks, etc. when it is difficult to show the real materials.

- **Something that can make animal noises, such as a whistle**

Use instruments such as a whistle or birdcall that produce the sounds of a deer or a bird. They not only attract the attention of the participants, but can also be used to help describe the animals.

- **Picture-story shows**

When the topic has a broad scope which might be difficult to grasp with just a verbal expression, such as the food chain or global warming, you can employ a story-telling method by using visual aids such as pictures and photographs. You can also use picture-story shows in the classroom. However, participants feel more willing

²⁰ Ibid.

to listen when the story is told in the field, surrounded by nature, than they do in a classroom.

- **Magnifying glasses and binoculars**

Participants can see what they do not normally see through a magnifying glass or binoculars and can make new discoveries. This experience can draw the participants' attention to things that they overlooked or to things that they have not seen before.

- **Ancient tools, etc.**

When you are communicating about history, using materials from that time such as ancient tools can trigger participants to imagine the past better.

4.2

Ideas about how to proceed with the program

This section introduces creative ideas which can be used in the “introduction” and “review” stages of a program. Effective “introduction” and “review” will make the participants feel comfortable to participate and deepen their awareness.

(1) Creative ideas for the introduction (ice-breaking, understanding the participants)

The introduction is the first impression people have of the program and is therefore very important. For example, if people feel as if they are being forced to participate, the rest of the participation process might not go so well. Also, asking someone to say something may give pressure since everybody does not know each other. Thus there are many pitfalls. The essential purpose of the introduction is to give ease and create a comfortable atmosphere in which everyone can enjoy participating without feeling pressured. This process of creating a comfortable atmosphere is called ice-breaking.

It is also important to understand the participants during the introduction stage. When designing a program, you should try getting as much information about the participants as possible such as their age, gender, occupation, background, whether they are travelers or locals, how much they know about nature, their motivation for participation, etc, in order to tailor a program which

matches the interests of the participants. However, you might not always be able to identify the participants beforehand. Moreover, there is a limit to what information can be collected beforehand. Therefore, it is important to try to obtain information about the participants when starting the program. Similarly, the participants would also like to know more about the other participants that they are going to enjoy the program with. Getting to know each other helps to create a comfortable setting and an atmosphere in which people feel happy to participate.

The following introduces some activities that can be used for ice-breaking and to better understand the participants.

1) Greetings and self-introduction

Greeting cheerfully not only makes participants feel comfortable, but also provide some kind of reassurance. When participants are from different countries and regions and the languages they use are different, participants can teach greetings in their own language to each other so that they can feel closer to each other. After teaching each other the different greetings, they can also teach each other about words which are related to nature as part of the introduction for sessions about first-hand nature experiences.

Self-introduction is also effective in order to get to know each other and to create a comfortable setting. Self-introduction can be more fun if you ask them to include words which are related to the natural environment in addition to their names, such as “I am XX and I like acorns.” This can create an enjoyable atmosphere while also providing a means to further understand the participants.

2) Nice to meet you²¹

This is an activity to get to know each other better. Participants write down some questions about nature on cards and then ask those questions to other participants and find out how others relate to nature. Then they can also have discussions on the written questions. This

²¹ Japan Nature Game Association (2004) *Nature game leaders handbook –activities-* (JNGA quotation approval number 000038)

creates a friendly atmosphere and people can share their experiences of nature.

This activity targets the 10 years old or over age range who can read. The standard time is about 20 to 40 minutes, but you can take more time if many elderly participants are included.

- i) Prepare <Nice to meet you> cards, writing instruments, and a means of signaling to the participants

<Nice to meet you> Cards have questions such as;

“Have you ever raised an animal or plant? Yes/No What was it?”

“Have you ever met an animal in the forest? Yes/No What was it?”

“What is your favorite animal? Why?”

“What kinds of things would you like to eat in the forest?”

“Have you ever picked any fruit? What was it? How big was it?”

Besides such already prepared questions, it would be interesting to ask them to write down some additional similar questions.

- ii) Explain the rules while demonstrating how to participate.

1. Pair up with neighbor and ask one question from each person's card.
2. Talk a little about the answer received.
3. Then ask a question to another person.

- iii) Pair up and get started.

- iv) After the ending signal, talk about what kinds of answers were received.

3) Wild Animal Scramble²²

This is a game to guess the creature on the card pinned to a person's back by having that person ask questions to others. The game can arouse an interest in the ecology of living creatures and creates a friendly atmosphere. This activity can be carried out regardless of the weather because it can be conducted anywhere and therefore is a useful activity on a rainy day. An

age range of seven years old or over is recommended because they will ask questions and answer questions about animals.

- i) Prepare the number of creature cards and clothes pegs for participants.
- ii) The leader puts a creature card on the back of each participant, and show it to the other participants.
- iii) Explain the rules, showing an example.

Rules : 1. Pair up with neighbor, greet each other and show the creature card on the back.

2. Ask each other one question to guess what the creature is on him/her back. Next, change the pair and ask again.

3. The participants who could guess the answer will tell the program promoter what the animal is.

4. If the answer were wrong, ask again. If correct, Put your card in front of you, and answer the questions from the other participants.

- iv) Explain to the participants not to tell each other what animal is on each others backs, and start pinning the creature card to the back of each participants.

- v) Ask the participants to exchange ideas as much as they can, about the possible questions to guess what the creatures are.

Questions should be asked for in the form of yes/no/close/ I don't know , that makes the questions classified and interesting.

Sample questions: Habitat → Do I live underwater?

Food → Do I eat grass?

Size → Am I small?

Form → Do I have wings?

- vi) Give the starting signal, and make the participants pair up with neighbor.

- vii) If there were some people not coming up with an answer after approximately 10 minutes, promote the people around the participant to tell more hints.

- viii) After the ending signal, if there were still

²² Ibid. (JNGA quotation approval number 000039)

some people not coming up with an answer, promote all the participants to tell hints and help the participant to get the answer by himself.

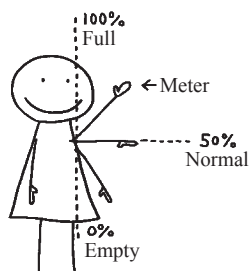
- ix) Talk about the awakening of the creatures participants realized thorough the program.

4) Concentration check

It is used to attract the attention of the participants when they start gathering and talking here and there.

- i) The instructor explains the following. "I would like to check the level of your concentration. Please clap your hands when my right arm and left arm cross."
- ii) The instructor moves the right arm and the left arm in a big vertical movement and let them cross. The instructor then checks to see if the participants were able to clap their hands. He/she then includes some variations to make it fun such as crossing the arms faster or pretending to cross the arms but stopping just before crossing the arms.
- iii) Due to the sound of the clapping, those who were talking will start paying attention and everyone will start concentrating on the game. This game can create a friendly atmosphere because some of the participants clap hands at the wrong time and this causes laughter.
- iv) When everyone starts clapping, do it to a rhythm, and at the end cross them many times so that it will end with everyone applauding. When finishing the game, the instructor can move on to the program by saying, "What great concentration! (Be sure to commend the participants.) Now let's start the program ..."

5) Energy level check



The participants' physical condition and level of motivation cannot be predicted at the planning stage. Therefore, their physical condition and motivation should be

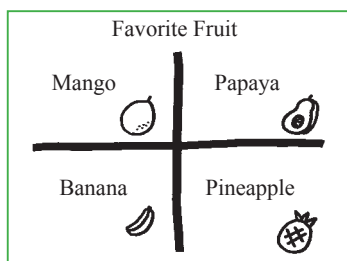
checked on the day and the program promoter should try tailoring the program to the physical and mental condition of participants. However, when there are many participants, it is difficult to talk to each participant and to check all the participants' physical and mental conditions. "Energy level check" can be played with many people and so you can identify those who may need support, even if there are many participants.

- i) The instructor asks the participants the following.
"To check your energy level, please stretch out your left arm. If you are full of energy, raise your arm as high as possible, but if you don't have much energy, raise your arm lower. Prepare your answer in your head as to how energetic you feel, and when I say, "Ready, set, go!" move your arm to the level that you feel. OK?" "Ready, set, go!"
- ii) Check everybody's left arm, and speak to those that have lowered their arm. "It seems very low, but is everything OK?"
- iii) If the person is really sick, let him/her rest or choose to rest or not.
- iv) Repeat the same process with the right arm to check their motivation (expectations).
- v) Finally ask them if they have anything that they would like to tell you or ask you.

6) Grouping and flag raising

This activity can be played by a large number of people and it is useful in understanding the general character of the participants.

- 1) Divide the room into four by using the four corners. If the activity is conducted outside, mark four places.
- 2) Start asking questions with only two possible answers such as "Is the number of letters in your name an odd number or an even number?" The participants will then become used to dividing themselves up according to the answer.
- 3) When the participants get used to the rules, increase the number of options for answers. For example, you can ask them to choose their favorite



foods or creatures. You can also allocate the answers “Yes,” “No,” “Sometimes” and “I don’t know” to each of the four corners

and then ask questions such as “Have you ever volunteered before?” and “Do you think about the environment?” By moving between the corners and grouping themselves, the participants in the same groups can feel solidarity.

If it is difficult for the participants to move around due to the position of chairs or desks, it is possible to use the “flag raising method” in which the participants are given cards with four different colors (The cards should be A5 size or bigger; hold them together with a paper clip), so that they can raise one of the cards that represents their own answer. Make sure that both side of the cards have colors so that the people behind can see the colors, too. The “flag raising method” does not give a sense of solidarity of being part of a group. However, as it does not require moving, it can be used immediately during the program, and it also enables you to quickly see the general tendency of the group. Be sure to collect the cards at the end of

the program and use them again later.

(2) Creative ideas for the review and wrap-up

The “review/wrap-up” part of a program is an important process, because the experience and awareness that participants gained during the “development” part of the program becomes real learning through this process. A program which has only been “generally fun” can hardly lead to learning. The participants can start organizing their thoughts and awareness when they express in their own words the awareness that they gained, such as what inspired them, what they discovered, as well as expressing their feelings when they found that they understand something new and found themselves liking something new. In addition, by sharing the awareness of individuals with others, the participants can also notice points of view different from their own and can gain a wider perspective. The depth of learning is largely dependent on how and to what extent the “review” is conducted.

There are many ways to conduct a “review.” The following explains some of these methods.

1) Example of the common review process

- i) Ask each person to write down memorable awareness on a piece of paper.
- ii) Divide the participants into small groups of two

BOX4-1 Good Listening

Listen carefully to the participants during the review. The participants can organize themselves and have a deeper understanding of their experience and awareness when the program promoter not only makes them give presentations, but also “listens well.”

<Four basic attitudes for “good listening”>

- 1) Observation: Try to understand the speaker by carefully observing his/her facial expressions, gestures, etc., as well as the intensity of the words and the choice of words.
- 2) Attentive listening: Accept the speaker’s feelings and values with an open mind, rather than being obsessed with your own preconceptions and values.
- 3) Confirmation: Without interrupting the participant, choose an appropriate time and repeat what the speaker said (as if you are a mirror). Use your facial expressions and gestures effectively in addition to your words. Check the participant’s reaction and confirm if he/she thinks that you fully understood what he/she said. This will help the participant feel comfortable. This process also helps the participant to organize his/her thoughts and also realize new feelings.
- 4) Empathy: Try to imagine the speaker’s feeling which you have just talked about. Imagine that you have the same feeling inside you. “Empathizing with someone” has the effect of opening that person’s heart. When the speaker feels that someone has understood him/her well, he/she can face their own feelings.

Reference: Behavioural Science Method Structured Association Technique – Health Counseling Text Volume 1 Basic & Advanced Course, Munakata, Tsunetsugu, Mariko Komori, Sayuri Hashimoto, Health Counseling Center International, 2000

to four people. Each participant in the group reads out what he/she wrote, and then receives comments from other members. By having a dialogue the participants will notice points of view different from their own and see what they have overlooked by listening to what the other participants became aware of.

- iii) Each group presents a summary of the discussion and then the program promoter summarizes the whole review.

2) Folding poem²³

The participants can look back at what they felt during the program and can share the experience by writing a group poem.

- i) Prepare paper and writing instruments.
- ii) Explain the rules, showing an example.

「Let's make a poem by a group. First, let's decide the order to pass around in the group.」

- Rules :
1. The first person writes the first line, and give it the next person.
 2. The second person writes another line that would connect to the first line, and writes another original line by changing in thinking
 3. The second person fold the first line so that the next person cannot see it, and give the paper to the third person.
 4. The third person will only look at the line of the second person, write another line that would connect to the line that the second person wrote, and writes another original line by changing in thinking, and fold the paper that only the last line is to be seen.
 5. Follow the order decided, and the Last person will give the paper to the first person and writes the last line.

- iii) Divide the participants into small groups and tell them their theme of the poem.

- iv) Start the program by the group.
- v) Read the whole poem within a group and share what each person experienced or felt.
- vi) Each group makes a presentation, and share experience.

3) Summarizing experience on a wall newspaper²⁴

The participants summarize what they experienced in the program and what they discovered through research on a wall newspaper. Through summarizing their experience and discoveries, their awareness becomes learning.

- i) Let each person write his/her discovery and what they became aware of freely on a wall newspaper. Inserting illustrations and diagrams will make the newspaper more specific and fun to look at.
- ii) The participants can make the content more detailed by adding what they studied in illustrated guidebooks, etc.
- iii) Put up the completed wall newspapers and share what they became aware of and what they learned with the other participants.

4.3 Useful activities

This section introduces various activities which can be used in the “development” stage of the program.

(1) Activities which use the five senses

Human beings tend to rely on vision and forget about using the other senses. Therefore, activities which intentionally use the five senses help people to notice things that are normally overlooked or discover something new in what they have taken for granted in the past. These activities can include searching out the smells of nature and listening to different sounds with their eyes closed. Using the five senses can facilitate the awareness of the participants and you can communicate your message more easily compared to communication which only uses

²³ Japan Nature Game Association (2004) *Nature game leaders handbook –activities-* (JNGA quotation approval number 000040)

²⁴ Committee of teachers guide for nature sanctuaries (2003) *Teachers Guide for Nature Sanctuaries - First Step –for the hours of comprehensive studies* Office of Communication with Nature, Nature Conservation Bureau, Ministry of the Environment, Government of Japan

writing and words. The following briefly explains the activities which use the five senses.

1) Training the five senses²⁵

This training stimulates the participants' sensitivity to become familiar with nature and become more sensitive to receiving its messages. This is used to raise the interest of the participants at the beginning of the program. You can play this activity anywhere with any number of participants.

- i) Prepare items which represent a hand, nose, mouth/tongue, ear, eye and heart (six items).
- ii) Then, explain to the participants that you are going to introduce them to six items which can be used to familiarize themselves with nature. You can say, "Today, I prepared six items which we can use to enjoy nature. Before I explain about them, please find and pick one leaf that you like." If you are using this activity in a nature reserve, etc., make sure that picking leaves is allowed in the area beforehand.
- iii) When everybody is back, explain the six items to them.
 - a) Show them the item which represents the hands.
"The first item you can use to become friends with nature is your hand." "Use your hand to learn the shape and texture of the leaf."
 - b) Show them the item which represents the nose.
"Then how does the leaf smell? If you rub the leaf a little bit it gives off more smell."
 - c) Show them the item which represents the mouth/tongue.
"How does the leaf taste?" Ask them to lightly bite or lick it without putting it entirely in the mouth. You must not force someone who does not want to do this part.
 - d) Show them the item which represents the ears.
"Now, the ears. Close your eyes and, until I tell you to stop, count how many different sounds you can hear." When everyone's eyes are closed, change your clothes or appearance, such as by taking off your hat. After 20 seconds,

ask them to open their eyes and ask how many sounds they heard or what kinds of sounds they heard.

- e) Show them the item which represents the eyes.
"When you were listening to the sounds with your eyes closed, something changed in my appearance. Can you tell what it was?" Ask them to say or guess what was changed. Praise the person who answered correctly, saying "It's evidence you use your eyes well."
- f) Then, show them the item which represents the heart.
"The last item is an essential item. It is the heart. Without the heart, we cannot feel anything even when we come across various things in nature."

2) Caterpillar Walk²⁶

Blindfold everyone and make a human caterpillar, and then take a walk in nature with the guidance of the leader. Feel nature with the senses other than vision and concentrate your mind.

Choose a flat area such as a woodland or a park because the activity involves blindfolding the participants. One "caterpillar" should include two to five people. Take into consideration the heights of the participants when forming a group. The length of this activity is about 60 minutes.

- i) The group forms a line.
- ii) Blindfold all the members. Make sure not to cover their ears with the blindfold. The group forms a "caterpillar" line with each member putting both hands onto the shoulders of the person in front of him/her.
- iii) The program promoter leads the "caterpillar" to take a walk in nature while encouraging the members to use their five senses.
Hearing: "What sort of sounds can you hear?
Listen to the sounds of birds, insects and the wind."
Smell: "What can you smell? Rub a leaf and

²⁵ Ibid.

²⁶ Japan Nature Game Association (2004) *Nature game leaders handbook –activities-* (JNGA quotation approval number 000041)

sniff the smell.

Feel: “Touch the bark of a tree. How does it feel?”

“From which direction is the wind blowing? In which direction is the sun?”

“How does the ground feel?”

Taste: “I brought nuts. Let’s taste them together.”

iv) At the end of the walk, everybody slowly takes off the blindfolds.

v) The participants go back the way they walked, this time with their eyes open, and talk about what they felt during the activity.

3) Bingo Rally²⁷

In this activity, the participants look for items in nature based on the descriptions on bingo worksheets and gain awareness while playing the game.

- i) Create a bingo worksheet based on the items which can be found at the site where the program is to be carried out. You can group the items into objects for observation such as “insects,” “birds,” “leaves,” etc. or the senses, such as “sounds of animals,” “nice smells,” “red color,” etc. What can be observed varies depending on the season or the weather. Therefore, it is necessary to adjust the content in accordance with the situation.

Bingo Worksheet

What surprised you	What jumps	Red nut or fruit
Yellow flower	What is thin and long	A black bird
What has good smell	What is smooth	Rough-edged leaves

Scoops: 1. I saw bugs fighting!
2.
3.

ii) Distribute copies of the bingo worksheets to the participants and ask them to find the items described on the bingo worksheets.

iii) When the participants find an item on the bingo worksheet, they draw a picture of what they have found on the sheet. If the participants find something interesting which is not listed on the bingo work sheet, it will be fun to include the item as a “scoop”.

iv) At the end of the activity, everybody comes together to talk to each other about what they found. During the presentation, ask them to talk about the situation when they found each item.

Note 1: When the time for this activity is limited or the participants are not used to drawing, you can prepare bingo worksheets which already contain illustrations or photographs and then let the participants find the items on the bingo worksheet.

Note 2: If the participants are good at drawing, you can ask them to prepare a bingo worksheet with illustrations and explanations. Let them exchange the bingo worksheets among themselves so that they can play this game using the other members’ bingo worksheets.

(2) Activities which give direct experience/simulated experience

Learning through lectures (so-called classroom lectures) has been widely used due to the advantage it has in communicating large amounts of information to large numbers of learners at one time. However, there are also disadvantages. For example, it does not encourage the learners to learn proactively. Moreover, it tends to emphasize knowledge and does not necessary lead to action. In order to encourage the learners to learn proactively, it is effective to employ direct experience. This enables the participants to learn through personal experience and feelings and therefore they can learn more effectively.

²⁷ Committee of teachers guide for nature sanctuaries (2003) *Teachers Guide for Nature Sanctuaries - First Step -for the hours of comprehensive studies* Office of Communication with Nature, Nature Conservation Bureau, Ministry of the Environment, Government of Japan

1) Role playing²⁸

Set up a situation that is close to reality and let the participants play different roles. This trains the participants to understand different perspectives and opinions and to think of desirable solutions through acting and responding to each other. The participants can learn through experience that consensus building is important in solving environmental issues.

- i) Set the scene and roles while taking into consideration the participants' age and regional characteristics.
- ii) Explain to the participants the objectives and procedures for role playing. Then, allocate the roles to the participants.
- iii) The participants understand their roles and start to practice their acting. In order for them to understand their roles, the program promoter provides the necessary information or the participants do research into their roles.
- iv) The participants perform their roles in the role playing.
- v) After finishing the role playing, ask the participants about their impressions of the roles they played, as well as allowing them to exchange opinions about the issues raised in the role play. Facilitate the discussion so that they

²⁸ ECO learning library "Participatory studying technique" <http://www.eeel.jp/data/guide/06.html> (page in Japanese)

can have a discussion from various angles rather than reaching a conclusion.

The participants can get carried away in playing their roles and this can lead to a tense atmosphere. Therefore, care is needed in order to maintain a relaxed atmosphere. There are cases where those who play the easy roles or certain other participants talk much more than some others. The program promoter should try to avoid such circumstances.

2) "What would you do then?"³⁰

Think of various incidents and issues in the familiar natural surroundings from the perspectives of the animals and plants. Through role playing the participants will become aware of the environmental issues around them and will start thinking about answers to these issues. The program nurtures the idea of looking at things from the point of view of the natural animals and plants instead of only having human-centered thinking.

Anybody can participate in this activity if the content is adjusted in accordance with the participants' ages. However, this is best suited to elementary school

³⁰ Committee of teachers guide for nature sanctuaries (2003) *Teachers Guide for Nature Sanctuaries - First Step -for the hours of comprehensive studies* Office of Communication with Nature, Nature Conservation Bureau, Ministry of the Environment, Government of Japan

BOX 4-2 Case of the "Project for the Galapagos Islands Marine Reserve Environment Conservation Plan"²⁹

A role playing activity about the Junta de Manejo Participativo (JMP, Participatory Management Board) for the Galapagos Islands was conducted by high school students.

- 1) The students were divided into groups, namely the Parque Nacional Galápagos (PNG, Galapagos National Park), the Charles Darwin Foundation, fishermen's unions, the Guide Association and the Tourism Association, which are the members of JMP.
- 2) The students made fact-finding inquiries to the relevant organizations and gained an understanding of their roles.
- 3) Under the guidance of the facilitator, the students held a simulated meeting. What was happening in the Galapagos Islands in reality was used as the topic. The real members of the JMP were invited as advisors, and they sat behind each group of students. The real members of JMP participated in strategy meetings which were held in between the discussions, and they also gave advice to the students.
- 4) In the reflection stage, the participants discussed what can be done to conserve the marine environment of the Galapagos Islands.

By holding the simulated meeting, the students were able to deepen their understanding by doing their own research into various issues concerning the management of the marine reserve.

²⁹ JICA Project on Conservation of the Galapagos Marine Reserve(2004.1–2009.1)

students who are at least ten years old.

- i) Prepare a nature check sheet, cards, marker pens and a list of forest incidents.

Nature Check Sheet		
Forest Creature Research		
Find as many as possible!		
Blossoming flower	Sucks flower nectar	Lives in the prairie
Eats leaves	Eats insects	Lives underwater
Active during the night	Flies in the sky	Makes a noise

- ii) Break into groups (3 to 5 persons per group).
Use the nature check sheet to observe nature.
- iii) Each group talks about the creatures they saw and their living situation (what they eat, their natural enemies, where they live, etc.)
- iv) Assign one item from the check sheet to each group.
- v) In each group, each person becomes responsible for one creature that they found. On the cards that were distributed, write down the name of the creature (animals, plants, insects, etc.) you are responsible for. Example: "I am a killfish" from the group "Live underwater"
- vi) Let all the participants sit in a group and tell them, "You live in a fictitious forest called XX. In this forest, various incidents happen. Please think carefully about what you would do (or what would happen to you) when these incidents happen. Carefully consider the ecology of the creature that each of you is responsible for. Then, please show us what you would do by using gestures, so that everybody can know what you would do." Then, show them the information about the incidents which has been written on cartridge paper and appoint one person per group to express what they would do.

The list of forest incidents

Incident 1

One day people came to the forest. They cleared the forest and made fields to cultivate rice and crops. People made a pond and canals in the forest to use it for their fields.

Incident 2

To use as fertilizer in the fields, people cut some underbrush in the forest and made compost with the dead leaves.

Incident 3

The people sprayed herbicide because they had trouble with the weeds in their fields.

. . . .
. . . .

- vii) The appointed person tells with words and gestures what would happen to the role the person is playing if the incident were to happen.
- viii) After he/she explains, the program promoters add supplemental remarks and comments from the ecological position of that creature. Repeat this process several times.
- ix) Finally, from among the situations presented, discuss which situations would have a greater impact on living creatures and which ones would not.
- x) Wrap up the activity by giving them the message, "Think together of a natural environment where all animals and plants can live together in harmony."

3) Paper tower

Many of the phenomena which are occurring in the natural environment are not commonly seen or encountered in daily life because the scale of the incident is too large, or it takes a long time. One such phenomenon is the ecosystem. By producing a "paper tower" and pretending that it is the ecosystem, one can understand how fragile the ecosystem is.

Elementary school students age ten or older are suitable for this activity, because they would have already learnt about ecosystems at school. The participants make groups with five to six people in each

group. Having more than one program promoter is ideal, but otherwise you can ask some of the participants to assist you. This activity should be conducted indoors with no wind.

- i) Prepare the following materials for each group: 20 sheets of A4-size paper (it does not matter if they have writing on both sides); a stopwatch; a rope which is long enough to measure the height of the tower; and clips to be used for marking. The clips should be marked so that they can represent each group. (If paper is not available, find other materials such as empty cans or clay or twigs, etc. Try to utilize what is available in order not to produce extra garbage.)
- ii) The program promoter explains the rules.
“Each group will make a tower as high as possible using the paper provided within a specific time (10 - 20 minutes). You can fold and cut the paper. When you get to the point where you cannot make the tower any higher, we count for five seconds. If the tower has not collapsed after five seconds, we can record the height of the tower on a rope by using a clip.”
The program promoter(s) should also check the time and that the rules are being followed, and should confirm the completion of the towers.
- iii) When a tower is about to be completed, the program promoter (or an assistant) takes the rope to the group, counts for five seconds and records the height by using a clip. The groups can make as many new attempts as they want, as long as it is within the time limit.
- iv) After the time is up, place all the ropes together in order to compare them and let everybody applaud the group which was able to make the highest tower. Then, ask them to discuss the means they used to make the towers higher.
- v) Each group discusses what they thought about when working together to make the tower and then presents a summary of the discussion in front of everyone.
- vi) The program promoter wraps up the activity by saying the following. “Let’s pretend that this

tower is an ecosystem. One which has a pyramid shape is very unstable. If human beings change something by force or exploit only a part of the pyramid, the ecosystem can easily collapse.” The program promoter can suggest, “Let’s think about what we can do to help to save these towers.”

4) Experiencing local industries and community lifestyles on eco-tours

Some eco-tours incorporate programs in which the participants experience local industries such as agriculture and fisheries, as well as local community lifestyles. Through such experiences, the participants can interact with local people and this can increase the participants’ desire to know more about the area and to protect the environment of the area.

In order to conduct this type of program, it is necessary to cooperate with local farmers and fishermen. Therefore, it is important to always maintain trustful relationships with the local people.

Incorporating agricultural work into eco-tours

- i) Invite the farmers who will cooperate with the program.
- ii) Plan a program for experiencing agricultural work in cooperation with the hosting farmers. By incorporating seasonal farm work, various types of experience can be enjoyed throughout the year. This will help to attract regular visitors. Participants will also be pleased if the program includes opportunities to enjoy the harvested food by having activities such as cooking fresh vegetables straight from the garden, processing the harvest to make liquor or jam, etc. It is important that you do not put too much of a burden onto the farmers when planning the program.
- iii) Conduct a tour on a trial basis and review the procedures, the points to be improved, as well as the expenditure and the fees.

BOX 4-3 Case of the Kiritappu Wetland Center³¹

At the Kiritappu Wetland Center in Hokkaido, the center incorporates traditional knowledge and techniques of the local fishermen and mothers into the eco-tours. For example, on one of the tours, the participants of the eco-tour visit a fishing port and experience cutting and trimming salmon at a fishermen's cottage, under the guidance of fishermen. The processed salmon is cooked using a local traditional recipe called "chan-chan yaki" and then the participants and the fishermen eat the dish together. This type of tour was possible because the staff at the center have developed a trusting relationship with the fishermen over many years.

³¹ the Kiritappu Wetland Center <http://www.kiritappu.or.jp/center/> (page in Japanese)

5) Research activities

When we want to make plans, carry out something, or assess the problems in order to improve the situation, it is important to understand the actual condition. In the research activities, the participants look up information in the literature, conduct on-site interviews and questionnaire surveys, etc. based on a specific study topic. They then compile the research results. By conducting their own research, the participants make discoveries, learn facts and develop intellectual curiosity. By examining the results, they can develop their ability to analyze problems. However, some people might conduct research from a one sided point of view and this could lead to a lack of credibility in the research results. There might also be large differences in the quality of research results between individuals. Therefore, care is needed in order to avoid such a situation.

When conducting a research program, it is necessary to specify the form of the output, objectives, methods and content as well as the deadline before the research is started. If outside support is required, the relevant people/organizations should be contacted beforehand. Rather than just conducting the research and forgetting about it afterwards, provide an opportunity to present the findings so that the learners can share them and evaluate each other. For certain topics, inviting comments from experts will deepen the participant's understanding.

The following explains an example of map making.

<Map making>

Make a map out of the discoveries made in the field. Different methods can be used such as plotting the

discoveries on a regular map, or describing the subject area as an original map. Making maps encourages the participants to reflect on the discoveries of the research and to nurture their skills in reorganizing information, as well as developing expressiveness. By becoming more aware of the local environment through map making, the participants will become more interested in the surrounding nature and will also become more observant and perceptive in the field.

Forest Richness Map³²

In this activity, the participants learn about the benefits of a forest using their own standards and senses. Through this activity, they can recognize the diverse valuable properties of forests.

The activity is conducted in groups with five to eight people in each group. The participants conduct research inside a forest and make maps at a site where they can spread poster paper.

- i) The participants break into groups, research the richness of the forest, and discuss what they saw and where the observations were made.
- ii) Collect and organize similar ideas and decide the theme which represents the characteristic. Pay attention to points such as seasonal changes.
- iii) The participants look at all the findings of the research and decide on an overall theme for the forest, such as "the forest of XX."
- iv) The participants draw a map of the paths in the

³² Japan Federation of Forestry Unions(2002) "*Familiarity·Awareness·Making Forest Environmental Education Program Case Study 2 -Local Government*"

forest and write about the content and features of what they found in the forest, etc. on poster paper. They can add photographs, illustrations and samples, as well as using letters of different sizes and colors in order to make the map easy to understand.

- v) After completing the map making, each group presents their map to everybody and the participants discuss the richness of forests.

4.4 Appealing exhibitions

In environmental education facilities that provide the visitors with the chance to understand and enjoy nature, the presence of something to communicate its messages, such as an exhibition, is essential. Examine fully the concepts of exhibition facilities and then think of designs and exhibition techniques that could be used to clearly express the concepts. To make an interesting exhibition, here are some specific examples of planning and creating exhibitions that attract and surprise the visitors, stimulate the five senses, and reach people's hearts.

When planning an exhibition, we must be careful about the points described below so that the exhibition will not become a unilateral provision of information from the perspective of the researchers and the planners.

(1) Important points when planning an exhibition

The following points should be considered in order to create an appealing exhibition.

- ✓ There are clear messages that you want to communicate in the exhibition. There are clear sub-topics for each section.
- ✓ There are clear relevancies between the displays, so the flow of the exhibition is easy to understand.
- ✓ Necessary materials to communicate the messages are in place (such as samples, quality reference materials, etc.).
- ✓ The exhibition is easy to see and easy to understand (with large-size letters, at the right height and content of displays for the main target population).
- ✓ The exhibition appeals to the five senses (such as

visual displays, displays which have sounds or movement, displays which can be touched, etc.).

- ✓ The exhibition is interactive (such as touching, flipping, quizzes, a stamp rally, etc.)
- ✓ The exhibition offers fun and surprises.

In addition to the exhibits, the presence of staff who can guide and give explanations to the visitors can make it possible to provide a tailor-made service which meets each visitor's needs.

Even if the exhibition is of high quality, regular visitors will stop coming if the content of the exhibition is always the same. Therefore, the content of the exhibition should be changed regularly in accordance with the seasons or themes. If replacing the entire exhibition is difficult, a possible option could be to make part of the exhibition into a special exhibition section which will be changed regularly, so that visitors can still enjoy something different.

(2) Configuration of exhibits

There are various kinds of exhibits including display panels, graphics, specimens/samples, 3-D models, dioramas, multimedia such as computers and images.

1) Display panels and graphics

This is a type of exhibition which uses photographs, illustrations, explanations and combinations of these elements. They are relatively easy to



A series of screens printed with one picture can duplicate a large landscape (JICA Global Plaza).

make. Therefore care is needed not to make them boring or merely explanatory. The size of the letters should be large enough (Over 24 point) so that people standing further back can read them. Explanations should be made simple so that those who are not experts in the subject can easily understand them. The amount of information should be kept to a minimum. People will not read long explanations.

Cloth with photographs or illustrations printed on

them can also be used. The photograph above shows hanging screens made of thin cloth. They can be hung in the windows because the sunlight can shine through the screens and so the inside of the building will remain illuminated.

Display panels are normally hung on the ceiling or on the walls. When deciding the locations and methods of hanging the panels, it is important to ensure sufficient strength which can support the weight of the panels. The life of panels displayed at sites which receive strong sunlight will be shortened, because these panels lose their color faster.

2) Specimens and samples

As the saying goes, “Seeing is believing,” looking at the actual objects such as specimens of animal bones and insects helps people to understand more about the objects.

Including exhibits which can be touched is also recommended because feeling the object’s texture and weight by holding it in addition to looking at it will help to further understand about the object.

Displaying the objects alone will not allow the visitors to fully understand them. Therefore appropriate and brief explanations should be added to the display. The messages should be simple and clear. The designs and labels should also be simple but should draw the visitors’ attention. The easier it is to understand the displays, the longer the visitors will look at them.

3) Models and dioramas

When actual objects cannot be displayed, making models can reproduce the objects better than using photographs. Homemade models can keep the production costs low. Complicated models and large-scale models often have to be outsourced to professionals. This will cost more than homemade models. The budget

available and the materials to be used should be taken into consideration when deciding on the size of the model.



Ladies carrying firewood on their heads (JICA Global Plaza)

4) Stereoscopic display (*Kakiwari*)

A stereoscopic display (*kakiwari*) is a picture or scenery painted or printed on a wooden board or panel. It can be constructed 3-dimensionally by overlapping some parts of the display. Since it gives a 3-dimensional feeling and can be positioned freely, its texture tends to look more realistic than pictures.

5) Multimedia

Moving images can show the landscapes of nature and the lives of different creatures which cannot be displayed at an exhibition facility. Visitors can gain a better understanding of the reality of nature through moving pictures than through photographs. Combining moving images with interviews and music can make a strong impression on visitors. Moving images can be shown using a projector and a screen or by using a VCR. If the video contains only general images, it can be set so that it is automatically repeated.

Images can also be shown on a computer. Computers can be set up in a small space, they can be used to show images and the visitors can look through reference materials on them. Simple quizzes can be displayed for the visitors in order to make the exhibition more interesting.

6) Interactive exhibits

In order to further improve the above mentioned exhibitions and to make them more attractive, it is a good idea to incorporate arrangements which let the visitors touch exhibits and gather information. Exhibits which use these methods are called interactive exhibits. The interactive exhibits can involve part of the explanation being hidden so that visitors have to flip a cover in order to read what is written underneath. The exhibits might involve the visitors using magnifying glasses,



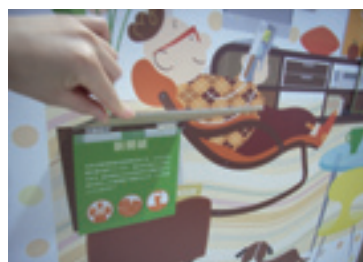
Display of objects which were collected from woodland nearby (Lake Tanuki Nature School)

or touching the exhibits to find out more about them. Furthermore, the exhibits might let the visitors look at the exhibits by following a stamp rally. At a stamp rally, the visitors will become more motivated if small prizes

are provided. If the target population is children, the heights of exhibits should be low enough so that the children can touch them and the weight should be light enough so that the children can move them.



Picture books
This asks questions and then provides the answers in the following pages. (JICA Global Plaza)



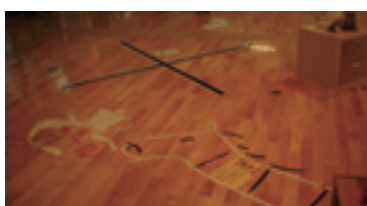
Flipping exhibits
The front side is a picture, and the back shows figures on the environmental impact and the affecting environmental problems. (JICA Global Plaza)



Descriptions on 3-D models
Exhibit with pictures and message on the top of plastic cases shaped like tree stumps with related models inside. (JICA Global Plaza)



Sand through a magnifying glass
Exhibit of different types of sand from all over the world. Visitors can view them through a magnifying glass. (JICA Global Plaza)



Utilizing the small space
Quizzes and board games created on the small space of the floor..You can deepen exchanges with visitors, by holding an event. (Lake Tanuki Nature School)



Information board for the gate to Walking in Nature
Updating the Information board daily informs the visitors taking a walk. (Lake Tanuki Nature School)



Quiz rallies
Cards prepared for quiz rallies, and Quiz pinned up, making the time walking around the museum enjoyable. (Lake Tanuki Nature School)



Children checking their answers at reception.
Those who give the correct answers are given a present. (Lake Tanuki Nature School)

If you have any questions more about nature games introduced in this chapter, please contact with Japan Nature Game Association.

Japan Nature Game Association
1-20-13-1F, 1-20-13, Shinjuku, Shinjuku, Tokyo, Japan 160-0022
<http://www.naturegame.or.jp>



Chapter 5

Brushing up your Environmental Education Skill

Environmental education does not call for special qualifications or talents; anyone can be a good educator once the essential points are mastered. Using environmental education is easy; however, one must collect the information according to the constantly changing environment and continue brushing up skills in order to create programs that suit the needs of the participants.

Reading this book will not be enough. With this book as a start, find out more information or learn about different methods in seminars and develop your own approach to environmental education. You must also continuously update the information you have. In addition, exchanging information and knowing people to consult with will help you become more comfortable with your activities. In everyday life there are many tips that you can use for developing programs. Develop a habit of using all the five senses and taking notes of your awareness. Besides environmental education, there are other programs that use similar methods, such as development education and health education. It will also help to refer to information from these other areas.

- (1) Gaining experience as an intern: Learn through OJT (on-the-job training) for 6 to 12 months.
- (2) Participating in instructor training programs: A series of certain lectures will qualify the participants as leaders so that they are able to utilize the activities in the guidebook (e.g. Nature Games, Project Wild).
- (3) Getting involved in programs as a participant: The best method of learning is to see the programs of other instructors and imitate them.
- (4) Participating in seminars: Many of these are held on an irregular basis so be sure to always look out for details.

However, attending seminars and collecting information will not alone enable you to remember what you learn or

to maintain your motivation. The best way to absorb what you have learnt is to put into practice the experience that you gained at the seminars and the information that you learned as soon as you can. Even if it ends in failure, your skills can be improved in the process of trial and error.

There are several ways to brush up these skills. The best way is actual implementation. However, even if your level is not enough to actually implement programs, or if you are alone, there are still several ways to develop your skills. In order not to lose opportunities, you should always be aware of ways to acquire information, such as through discussions or seminars on environmental topics. Please refer to the "Support in Environmental Education: Links and Reference Books" in the pages that follow.

5.1 How to collect information

It is recommended that you collect as much information which might be useful as possible in Japan because it has many related organizations, well-established libraries and good communication systems. You can also consult with the people that you got to know through various events as well as with your former instructors.

- Collect information through e-mail newsletters

This will enable you to gain the latest information as well as information about seminars.

- Collect information through the internet

There are many organizations and groups which conduct environmental education around the world, although some parts of the world have poor internet connections. Participating in e-mail lists enables you to learn from cases that other members have experienced and to consult with other members.

- Read books

Reading books about various subject areas helps, in addition to environmental education books. Picture

books are also useful in some cases.

<Collecting local information>

The information sources that you can utilize vary depending on the country or the region. You should try learning about the relationships between people in the target area, their concepts of time, their customs, the general feeling of the area. It is also useful for environmental education to go out to different places with curiosity and make friends with many people.

- Learn about the culture and the customs through living everyday life

Each activity in everyday life such as riding on a bus, shopping and going out is an opportunity to learn about the culture and the customs.

- Expand relationships with people (networks)

It is useful to create various networks such as networks in the workplace and in your private life. This can also expand the network to the friends of your friends.

- Make an activity map

Write the locations of the stakeholders and the locations of the people/organizations that you are visiting on the local map that you normally use. This may also help you to understand the relationships between the stakeholders.

- Visit people and places in various areas

Information that you gain from areas other than the target area for your activities can also be useful. Such information may help you to gain useful ideas for your activities and new perspectives for your activities.

5.2 Reference books and websites

Reference books

Nature Experience Program

Asimov, Isaac (1989) *The Ocean Book -Aquarium and Seaside Activities and Ideas for All Ages* –. John Willey and Sons Inc

Basile ,Carole G. et. al. (1997) *Nature at Your Doorstep -Real World Investigations for Primary Students-*. Teacher Ideas Press

Barrett, Katharine and Carolyn Willard (1998) *Schoolyard Ecology: Teacher's Guide* LHS GEMS

Beals, et. al. (2001) *Environmental Detectives* LHS GEMS

Cornell, Joseph (1998) *Sharing Nature with Children* Dawn Publications

Cornell, Joseph (1989) *Sharing Nature with Children II* Dawn Publications

Corness, Joseph and Michael Deranja (1995) *Journey to the Heart of Nature -A Guided Exploration* - Dawn Publications

Council for Environmental Education (2000) *Project Wild K-12 Activity Guide* Project Wild

Ellis, Brian Fox and Deborah Wallen (1997) *Learning from the Land -Teaching Ecology Through Stories and Activities-* Teacher Ideas Press

Fredericks, Anthony D. and Shawn Shea (1996) *Exploring the Rainforest -Science Activities for Kids* - Fulcrum kids

Hocking, Colin (1990) *Global Warming & the Greenhouse Effect* LHS GEMS

Hocking, Colin et. al. (1999) *Acid Rain* LHS GEMS

Hogan, Kathleen (1994) *Eco Inquiry -A Guide to Ecological Learning Experiences for Upper Elementary/Middle Grades-* Kendall/Hunt Publishing Company

Hosoume, Kimi and Jacqueline Barber (1995) *Terrarium Habitats* Great Explorations

Johnson, Rebecca L. (2000) *A Walk in the Rain Forest* Carolrhoda

Miller, Lenore (1986) *The Nature Specialist -A Complete Guide to Program and Activities* -American Camping

Association

- Murdoch, Kath (1994) *Ideas for Environmental Education -In the Elementary Classroom* - Heinemann
- Parrella, Deborah and Cat Bowman Smith (1995) *Project Seasons -Hands -On Activities for Discovering the Wonders of the World* - Shelburne Farms
- Platt, Rutherford (1992) *1001 Questions Answered About Trees* Dover Publications
- Project Wild (2003) *Project Wild Aquatic Education Activity Guide (K-12 Curriculum and Activity Guide)* Council for Environmental Education
- Road, L. Michael (1993) *Environmental Science Activities Kit -Ready to Use Lessons, Labs & Workshops for Grades 7-12-* Jossey Bass/ Wiley Imprint
- Sawyer, Susan et. al. (2000) *Hands-on Nature -Information and Activities for Exploring the Environment with Children* Vermont Institute of Natural Science
- Scheder, Catherine M. (2002) *Outdoor Living Skills Program Manual -An Environmentally Friendly Guide* - American Camping Association
- Scheder, Catherine M. (2002) *Outdoor Living Skills Field Guide Levels I, II, III, IV and V* American Camping Association
- Sheehan, Kathryn. et. al. (1991) *Earth Child -Games, Stories, Activities, Experiments & Ideas About Living Lightly on Planet Earth* - Council Oak Books
- Sneider, Cary I. (1999) *Teacher's Guide: OOBLECK -What do scientists do?-* LHS GEMS
- Strang, Craig et. al. (1999) *On Sandy Shores: Teacher's Guide -Marine science Activities for Grades 2-4-* LHS GEMS
- The Science Museum of Minnesota (1992) *Tropical Rainforest -An Activity Guide for Teachers-* Science Museum of Minnesota

Environmental Education

- Carson, Rachel (2002) *Silent Spring* Houghton Mifflin
- Elkington, John et. al. (1990) *Going Green -A Kid's Handbook to Saving the Planet-* Puffin Books
- Goodall, Steve (1994) *Developing Environmental Education in the Curriculum* David Fulton Publish
- Heimlich, Joe E. (2002) *Environmental Education -A Resource Handbook-* Phi Delta Kappa Educational Foundation
- Knapp, Clifford E. (1998) *In Accord with Nature -Helping students from an Environmental Ethic using Outdoor Experience and Reflection-* ERIC
- Matre, Stave Van and Bill Wailer (1983) *The Earth Speaks -An Acclimatization Journal-* The Institute for Earth Education
- Tillman, Diane (2001) *Living Values Activities for Young Adults* Health Communications, Inc
- Pederson, Anne (1991) *The Kid's Environment Book -What's Awry and Why-* John Muir Pubns

Interpretation

- Beck, Larry and Ted Cable (2002) *Interpretation for the 21st Century -Fifteen Guiding Principles for Interpreting Nature and Culture-* Sagamore Publishing
- Brochu, Lisa (2003) *Interpretive Planning -The 5-M Model for Successful Planning Projects-* American Camping Association
- Carson, Rachel (1998) *The Sense of Wonder* HarperCollins
- Cornell, Joseph (1995) *Listening to Nature -How to Deepen Your Awareness of Nature-* Dawn Publication
- Evans, Brent and Carolyn Chipman Evans (1998) *The Nature Center Book -How to Create and Nurture a Nature Center in Your Community-* National Association for Interpretation

- Gross, Michael and Ron Zimmerman (2002) *Interpretative Centers -The History, Design and Development of Nature and Visitor Centers-* UW-SP Foundation Press Inc
- Ham, Sam H. (1992) *Environmental Interpretation -A Practical Guide for People with Big Ideas and Small Budgets-* Fulcrum Publishing
- Knudson, Douglas M. et. al. (1995) *Interpretation of Cultural and Natural Resources* Venture Publishing
- Leslie, Clare Walker et. al. (1999) *Into the Field -A Guide to Locally Focused Teaching-* The Orion Society
- Lewis, William J. (1960) *Interpreting for Park Visitors* Americas Natl Parks
- Merriman, Tim and Lisa Brochu (2005) *Management of Interpretive Sites -Developing Sustainable Options through Effective Leadership-* Inter Press
- Shamir, Ilan (2001) *The True Nature of Designing and Promoting Successful Products: Field Notes 2- Marketing Workbook* Your True Nature Inc
- Smith, Gregory A. and Dilafruz R. Williams (1998) *Ecological Education in Action -On Weaving Education, Culture and the Environment-* State University of New York Press
- Thomashow, Mitchell (1995) *Ecological Identity -Becoming a Reflective Environmentalist-* The MIT Press
- Tilden, Freeman (1977) *Interpreting Our Heritage* The University of North Carolina Press
- Trapp, Suzanne et. al. (2006) *Signs, Trails and Wayside Exhibits -Connecting People and Places-* UW-SP Foundation Press
- Regnier, Kathleen et. al. (1992) *The Interpreter's Guidebook -Techniques for Programs and Presentations-* UW-SP Foundation Press

Other

- Chambers, Robert (2002) *Participatory Workshops - A Sourcebook of 21 Sets of Ideas and Activities-* Earthscan Pubns Ltd
- Hart, Roger A (1997) *Children's Participation -The Theory and Practice of Involving Young Citizens in Community Development and Environmental Care -* Earthscan
- Marina, Lachecki et. al. (1990) *Teaching Kids to Love the Earth* Pfeifer-Hamilton Pubs
- Montgomery, David (2000) *Native American Crafts & Skills* The Lyons Press
- Redleaf, Rhoda and Audrey Robertson (1999) *Learn and Play the Recycle Way -Homemade Toys that Teach-* Redleaf Press
- Smith, Heather and Joe Rhatigan (2002) *Earth Friendly Crafts for Kids -50 Awesome Things to Make with Recycled Stuff -* Lark Books

Reference websites

<Multinational and bilateral doner agencies >

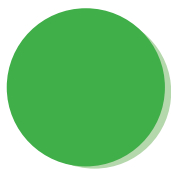
institution	title	URL	content	language
GEF (Global Environmental Facility)	Global Environment Facility	http://www.gefweb.org/	The Global Environment Facility (GEF), established in 1991, helps developing countries fund projects and programs that protect the global environment.	EN, SP, FR
JICA	JICA Library	http://www.jica.go.jp/english/resources/library/index.html	Some of the JICA Reports are available in PDF format.	JP, EN
UNDP	UNDP	http://www.undp.org/	UNDP is the UN's global development network, an organization advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. Its HP carries UNDP policies, project information and so on.	EN, SP, FR
UNEP	UNEP	http://unep.org	UNEP is promoting the wise use of the natural assets for sustainable development. Its HP carries environmental information for governments, scientists, civil society, business persons, children and youth.	EN, FR
UNESCO	UNESCO	http://www.unesco.org	UNESCO was founded in 1945 for the goal of building peace through education, social and natural Science, culture and Communication.	EN, SP, FR, CH, AR, RS
UNESCO	UNESCO-Education for Sustainable Development	http://portal.unesco.org/education/	In December 2002, resolution 57/254 on the United Nations Decade of Education for Sustainable Development (2005-2014) was adopted by the United Nations General Assembly and UNESCO was designated as lead agency for the promotion of the Decade.	EN, SP, FR
UNESCO-Etxea	Manual de Educacion Ambiental	http://www.unescoeh.org/ext/manual/html/portada.html	UNESCO Etxea is a NGO founded in 1991 whose main goal was to expand the ideas, programs and actions of UNESCO in the Basque Country. In this site, there are datas which are about Environmental Education, Water, Climate, Biodiversity, Forestry, and so on.	SP
USAID	GreenCOM	http://www.greencom.org/	GreenCOM is the strategic environmental communication project of the U.S. Agency for International Development, providing services to USAID missions and environmental and agricultural program managers worldwide.	EN
World Bank	DEPweb	http://www.worldbank.org/depweb/	"The educational programme that is for sustainable development, for the secondary school students. There is the thesis of sustainable development, and it introduces the hints for thinking for sustainable development from the aspects of the social, economic, environment and others aspects."	EN, SP, FR
	Education for Sustainable Development Toolkit	http://www.esdtoolkit.org/default.htm	The Education for Sustainable Development Toolkit is an easy-to-use manual for individuals and organizations from both the education and community sectors.	EN

<NGO, private institutions etc. >

association	title	URL	content	language
AFF (American Forest Foundation)	Project Learning Tree	http://www.plt.org/	Project Learning Tree (PLT) uses the forest as a "window" on the world to increase students' understanding of our environment; stimulate students' critical and creative thinking; develop students' ability to make informed decisions on environmental issues; and instill in student.	EN
CEE (Council of Environmental Education)	Project Wild	http://www.projectwild.org/	Project WILD is one of the most widely-used conservation and environmental education programs among educators of students in kindergarten through high school.	EN
CEE (Council of Environmental Education)	Flying Wild	http://www.flyingwild.org/	Flying WILD, a new program of the Council for Environmental Education, introduces students to bird conservation through standards-based classroom activities and environmental stewardship projects.	EN
CEE (Council of Environmental Education)	Wet in the City	http://www.wetcity.org/	WET in the City is an urban environmental education program of the Council for Environmental Education that focuses on water resources. The program provides an opportunity for young people to participate in engaging, hands-on activities.	EN

association	title	URL	content	language
CI	Conservation International	http://www.conservation.org/xp/CIWEB/	Conservation International (CI)'s mission is to conserve the Earth's living natural heritage, our global biodiversity, and to demonstrate that human societies are able to live harmoniously with nature.	EN
Cornell Lab of Ornithology	Urban Bird Studies	http://www.birds.cornell.edu/programs/urbanbirds/about/ubs_UBPAboutEN.html	Urban Bird Studies is a group of projects to help us learn more about birds in cities. Data are collected by citizen scientists across North America and in many other countries. Scientists at the Cornell Lab of Ornithology use the data to answer scientific questions about urban birds.	EN, SP
Development Education Association and Resources center	DEAR	http://www.dear.or.jp/english/english.html	DEAR is a network organization which works with members at local and national levels to promote Development Education.	JP, EN
Fundacion Vida Silvestre Argentina	Fundacion Vida Silvestre Argentina	http://www.vidasilvestre.org.ar/serveduca/index_eng.asp	The Fundación Vida Silvestre Argentina (FVSA) is a non-profit and independent private institution, with a mission of promoting the preservation of the biodiversity, the sustainable development and the change of consumption patterns that predate the natural resources.	SP, EN
GP (Georgia-Pacific)	Educational in Nature	http://www.gp.com/EducationalinNature/index.html	Designed to foster awareness about the environment, Educational in Nature provides information for students, teachers and parents alike.	EN
IUCN	IUCN	http://www.iucn.org/	The Union's mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.	EN
IUCN	Commission on Education and Communication	http://cec.wcln.org/	The Commission on Education and Communication (CEC) is part of the World Conservation Union (IUCN), the world's largest conservation network. We are a global, voluntary membership network that connects several hundred expert educators and communicators from all sectors.	EN
IUCN	2006 IUCN Red List of Threatened Species (Red Data List)	http://www.iucnredlist.org/	The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria.	EN
Japan Environmental Education Forum	JEEF	http://www.jeef.or.jp	Japan Environmental Education Forum (JEEF) is a charitable organization consisting of people who are engaging or/and interested in environmental education.	
Lawrence Hall of Science	Great Exploration in Math and Science	http://www.lawrencehallofscience.org/gems/	Great Exploration in Math and Science (GEMS) publishes science and math curriculum, offers specialized workshops, and maintains an international support network.	EN
Los Cuartos	Los Cuartos	http://www.cuartos.org.mx/english/index.phtml	Los Cuartos is an Environmental Education Center in Mexico. It provides school camps, guided tours, and environmental workshops.	SP, EN, FR
NAAEE (North American Association for Environmental Education)	NAAEE	http://www.naaee.org/	The North American Association for Environmental Education (NAAEE) is a network of professionals, students, and volunteers working in the field of environmental education throughout North America and in over 55 countries around the world. since 1971.	EN
National Audubon Society	Audubon	http://www.audubon.org/educate/index.php	Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity.	EN
Sharing Nature Foundation	Sharing Nature Foundation	http://www.sharingnature.com/	The Sharing Nature Foundation was established in 1979 and uses creative nature activities to give people joyful and inspiring experiences of nature. This site contains information about programs for adult leaders, books and resources, Flow Learning™, and Sharing Nature Worldwide activities.	EN
The National Trust	The National Trust	http://www.nationaltrust.org.uk/main/	We preserve and protect the coastline, countryside etc.. in a range of ways, through practical caring and conservation, through learning and discovery, and through encouraging millions of people to visit and enjoy their national heritage.	EN

asociation	title	URL	content	language
World Resources Institute	Earth Trends	http://earthtrends.wri.org/	EarthTrends is an online collection of information regarding the environmental, social, and economic trends that shape our world. Committed to the principle that accurate information drives responsible decisions by governments and individuals.	EN
WWF	WWF	http://www.panda.org/	Everything that you wanted to know about conservation and its role in our lives. Find out about endangered species, tackle environmental issues and come to grips with fundamental principles of evolution. All tailored to meet your educational requirements.	EN



References

- Abe, Osamu (1993) *Children and Environmental Education* Tokai University Press
- Committee of teachers guide for nature sanctuaries (2003) *Teachers Guide for Nature Sanctuaries - First Step –for the hours of comprehensive studies* Office of Communication with Nature, Nature Conservation Bureau, Ministry of the Environment, Government of Japan
- Council for Outdoor and Nature Experiences (2002) *Nature Experience Activities leader's hand book~ Know the power and educate personally*
- Ecosystem Conservation Society Japan (2001) *Kankyo-kyouiku ga wakaru jiten (The Complete Dictionary of Environmental Education)* Kashiwa
- Ishimori and Maita (2001) "Comprehensive study on eco-tourism" *Senri Ethnological Report 23*
- Japan Federation of Forestry Unions (1999) *Fureai, Manabi, Tsukuru (Familiarity, Awareness, and Make) Forest Environmental Education Program Case Study –Local Government*
- . (2000) *Omoi, Tsudoi, Hajimeru (Get together, Study, and Make) Forest Environmental Education Case Study*
- . (2001) *Egaki, Hagukumi, Furikaeru (Draw, Grow, and Look Back)*
- . (2002) *Shitashimi, Kizuki, Manabu (Familiarity, Awareness, Making) Forest Environmental Education Program Case Study 2 –Local Government*
- . (2004) *Shinrin kankyo kyouiku wo hajimeyou (Let's start Forest Environmental Education) Forest Environmental Education Case Study – Beginning*
- Japan National Committee for Pacific Economic Cooperation Council (PECC) (1999) *Development of eco-tourism and effects of the development in Fiji – the case of development of the Abaca village –.*
- Japan Nature Game Association (2004) *Neichaa geemu sidouin handobukku Dai-roku-ban – Rironhen (The Sixth Edition of Handbook for Nature Game Instructors – Theory)* Nature Game Research Institute Cooperation
- . (2004) *Neichaa geimu sidouin handobukku – akuvitiizu (Nature game leaders handbook –activities-) Nature Game Research Institute Cooperation*
- Kimura, Yuko (2003) *FOREST Fiji*
- Maita and Kaizu (2001) "Development of eco-tourism and its experimental trial in the Fiji islands" *Senri Ethnological Report 23*
- McLean, Kathleen (2003) *Planning for People in Museum Exhibitions* translated into Japanese by Ishima Machi and Ashiya Minako, Tamagawa University Press
- Ministry of the Environment (2004) *Eco-tsuurizumu Saa Hajimeyou! (Eco-tourism Let's begin!)*
- Munakata, Tsunetsugu et. al. (2000) *Health Counseling Volume 1* Health Counseling Center International
- Regnier, Kathleen et. al. (1994) *The Interpreter's Guidebook - Techniques for Programs and Presentations: Interpreters Handbook Series, 3rd Edition* UW-SP Foundation Press, translated into Japanese under the supervision of the Japan Environmental Education Forum
- Shizen taiken katsudou no [hyouka] kennkyukai (Nature Experience Activity's 「evaluate」 society) (2001) *Shizen taiken katsudou puroguramu hyouka handobukku (Nature Experience Activities Program Evaluation Handbook)* Council for Outdoor and Nature Experiences
- The Kiyosato Educational Experiment Project (KEEP) Association (2001) *Shizen taiken katsudou / Kikaku unnei handobukku (Experiences in Nature/Plan • Management Handbook)* KEEP Association

