Activity Handbook for Environmental Education Volunteers

— To address the environmental problems of daily life —

March 2011

Secretariat of Japan Overseas Cooperation Volunteers (JOCV),
Japan International Cooperation Agency (JICA)

Preface

Since volunteers in environmental education began to be dispatched in the late 1990s, approximately 400 workers have been sent all over the world, and they have engaged in activities to raise environmental awareness. While some volunteers still conduct their educational activities at marine parks, forest parks and schools in urban areas on the theme of rich natural environments, or so-called "green" issues, an increasing number of volunteers are now working for "brown" issues, which are more closely related to our daily life, such as waste problems. Japan once caused rapid environmental degradation, including pollution, as we achieved high economic growth. Now, many developing countries are facing huge challenges such as ever-increasing waste which is a byproduct of development and economic growth, and deterioration in sanitary conditions caused by the waste.

These huge environmental challenges cannot be solved completely by one person alone; however, we should be able to solve these problems gradually but steadily through cooperation with local residents and fellow volunteers. It is our sincere hope that this handbook will be helpful for volunteers who will be working to address environmental problems in developing countries which are becoming increasingly serious.

We would like to express our deepest gratitude to the authors of this handbook, ex- volunteers who supported us in editing and providing relevant materials and information, and everyone else involved in its publication.

March 2011

Secretariat of Japan Overseas Cooperation Volunteers (JOCV),
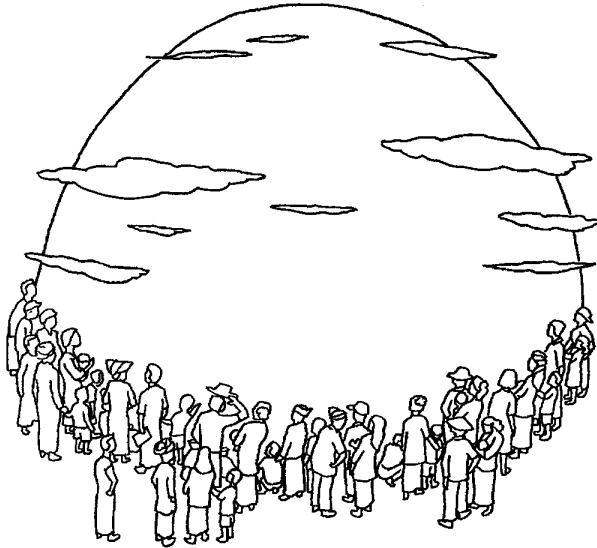Japan International Cooperation Agency (JICA)

Contents

Chapter 1
Environmental Problems and Environmental Education in Developing Countries

"Environmental education activities in developing countries" may sound appealing, but many of our volunteers may feel anxious as to whether their environmental education activities are well received in the country to which they are dispatched. This chapter will help us to deepen our understanding of what kinds of themes need to be discussed, what kinds of approaches should be taken, and what kinds of perspectives should be introduced in offering environmental education when working towards improvements in the quality of our daily life, as well as to raise our awareness of the characteristics and implications of environmental problems in developing countries. Environmental education is expected to cover activities of daily life as well as those related to our abundant natural environment. Now we will look closely at the points that should be considered to avoid imposing our values or becoming complacent about our environmental education activities, and the approaches that can be adopted in environmental education.

1. A Complex Mixture of Environmental Problems caused by Global Interdependence

1. A complex mixture of worldwide problems

When we hear the words "environmental problems", each of us will have different images in mind. Not only topical climate change issues and biodiversity issues, but water pollution, air pollution, and ground subsidence which cause serious problems for our living environment are also environmental problems. In addition, overgrazing, overcultivation and deforestation caused by poverty can be seen as regional environmental problems. It is believed that the issue common to these environmental problems is their "mutual dependency". In other words, environmental problems are closely interrelated with each other, forming a "complex of problems".

Further, other points common to environmental problems are: (1) they evolve over a long period of time, (2) they cause changes in the global environment, which have a far-reaching impact on our lives, industries, nature and so on, and (3) they are interconnected with each other through air, water, the ecosystem, and international economic activities. Consequently, the global environmental degradation results in a threat to human survival, creating a "negative circulation pattern".

■ Figure 1-1 Global environmental problems - a complex mixture
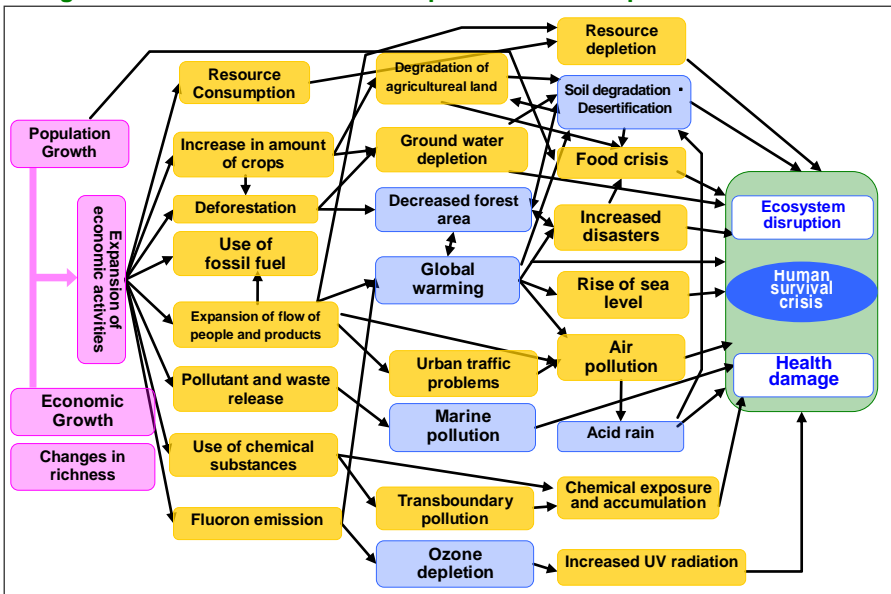
Source: Ministry of the Environment, Government of Japan (1993)

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2. The history of international environmental education and the Millennium Development Goals

It is said that the first international discussions on environmental problems took place at the United Nations Conference on the Human Environment (known as the Stockholm Conference) in 1972. The significance of environmental education was also started to be emphasized. At the Tbilisi Conference (Intergovernmental Conference on Environmental Education) held in 1977, basic concepts and guiding principles of environmental education were presented and still remain as basic principles of today's environmental education (Appendix 1, P126).

On the other hand, the concept of sustainable development presented in the late 1980's asserted that there was a close relationship between environmental problems and development. The concept made a significant influence on international discussions and environmental education from the 1990's onwards. Now environmental education has advanced from the conventional one based on nature and science to the Education for Sustainable Development (ESD), which puts focus more on relationships (connection, involvement, expansion and deepening), values, attitudes and group actions in order to balance environment, economy and society.

In 2000, the United Nations Millennium Summit held at New York adopted the Millennium Development Goals (MDGs) as the goals for the international society of the 21st century, which had eight development goals including peace and security, development and poverty, environment, human rights and good governance, and special needs for Africa, which presented a clear direction for the 21st century (Figure 1-2). In the MDGs, education and training were also regarded as the most significant approach (Human Development Approach) to achieve its goals.

■ **Figure 1-2   Millennium Development Goals (MDGs)**

Goal 1 : To alleviate poverty and hunger

Goal 2 : To realize universal elementary education

Goal 3 : To promote gender equality and improve status of women

Goal 4 : To reduce the death rate of children

Goal 5 : To improve health of pregnant women

Goal 6 : To prevent epidemic of HIV/AIDS, malaria and other diseases

Goal 7 : To promote environmental sustainability

Goal 8 : To advance global partnerships for development

3. Differences in environmental disruption between developed and developing countries

So, how does environmental disruption occur in developing countries? The growing number of population in developing countries is causing serious "poverty" and "shortsighted development". In addition, "poverty" forces people to put their life first, making them neglect the balance between economic activities and nature and consequently causing many environmental problems such as slash and burn shifting cultivation, overcultivation, overgrazing, and deforestation. The rapid population growth also causes the population shift to urban areas in large scale, putting priority on "shortsighted development". As a result, commercialization of agriculture, forestry and fisheries, expansion of service industries and tourism, and haphazard urban developments are promoted, whichcauses inevitable industrial pollution in air and water, and ground subsidence. As this shows, environmental disruption in developing countries is deeply connected to development and poverty.

In developed countries, on the other hand, a different pattern is seen in environmental disruption. The "enlarged economic activities" in developed countries increase their use and disposal of both national and international resources, involving developing countries in their pattern of environmental disruption. "Advanced economic activities" geared by technological development create another pattern of environmental disruption specific to developed countries such as mass production of hardly decomposable substances.

■ **Figure 1-3 The structure and implications of environmental disruption in developing countries – behind poverty**
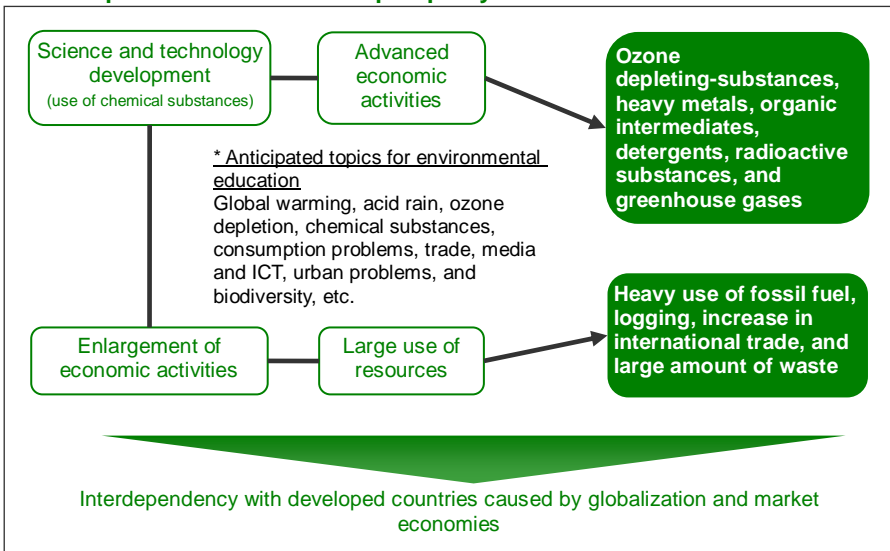

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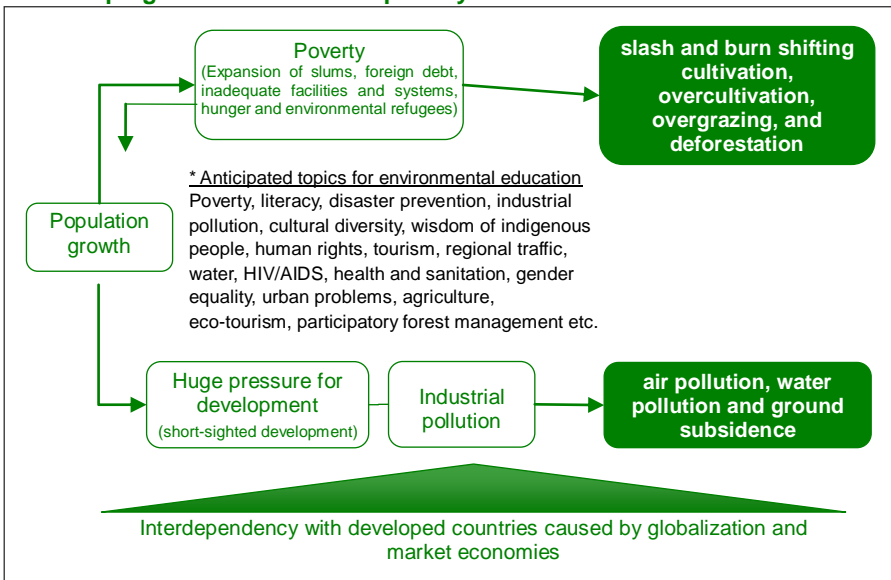
In this way, environmental disruption in developed countries is happening behind their wealth (their large-scale and advanced economic activities).

In light of these points, we need to understand more deeply the perspective of developed countries (economic activities becoming advanced and large-scale) as well as those of developing countries (population growth, poverty and short-sighted development) in order to grasp environmental problems in developing countries. We also need to understand more about their interdependency (globalization and market economy). However, we can find that many examples of environmental education activities in the style of developed countries actually ignore such needs. When we conduct environmental education activities in developing countries, we have to consider their relationship with developed countries as well as deepen our understanding of population growth, poverty and shortsighted development. Then we need to develop education practices in terms of human development, as opposed to economic and social development, which puts emphasis more on individual and group empowerment (individuals or group feel that they themselves control their own life and can influence the way how equal and fair society can be realized) and raising awareness of social changes, as well as in terms of problem-solving based on nature and science, such as water and air.

■ **Figure 1-4   The structure and implications of environmental disruption in developed countries – behind prosperity**

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2. Environment of Daily Life and Introductory Themes

1. Access to and quality of water

It is vital for the life of local residents in developing countries to be able to access water and maintain its quality. Water is indispensable for agriculture and livestock as well as for drinking and daily life. Collecting water is tended to be seen as a women's job, and this can deprive women of access to education.

Furthermore, in many areas, water is not usable because it is polluted by industrial waste and heavy metals, or due to eutrophication caused by domestic waste water as well as poor hygiene. Environmental education is expected to cover social aspects of these issues as well.

2. Waste and sanitation

Waste dumping in developing countries is a serious issue which directly leads to sanitation problems. Dumping can cause not only water pollution but also various infectious diseases. Moreover, it is closely related to deterioration in social security and creation of slums. The issue, therefore, is also seen as a social and economic problem. On the other hand, landfills are often an important source of living for poor residents, where they can secure their income.

It is not easy to solve waste issues in developing countries where environmental management systems and proper waste collection systems by local government do not exist, unlike Japan. Besides, reducing the amount of waste temporarily by "incinerating" can also cause the culture of mass production and consumption to take root. Environmental education needs to cover the following important activities: (1) to make waste be regarded as a resource (selling sorted items and using them for agricultural purposes as compost), (2) to consider waste at the stage of purchasing goods and service (green purchasing), (3) to reduce the total amount of waste (promoting use of eco/reusable shopping bags and the culture of "not to buy unnecessary things".

3. Overcultivation, overgrazing, deforestation and natural environmental disruption

Under globalization and the market economy, many people are hugely influenced by a money economy. Local residents in developing countries obtain their income from the sale of their services and convertible asset, and by overusing their limited land in order to gain cash income. Overcultivation, overgrazing and deforestation can be understood as the results of overuse of land for cash income.

Overuse of land can cause soil degradation and irreversible disruption to the ecosystem, such as rapid decrease in forest areas in dry or humid regions, wetlands, and mangroves. Activities to reduce the burden on land, including reducing the frequency of cultivation and density of grazing, and planting native trees, will be effective to restore the indigenous ecosystem and to prevent soil degradation and moisture evaporation. It is crucial that environmental education encourages local residents to participate in activities and discussions for the restoration of the environment, not just volunteers working for it. It is also required that local residents develop an awareness of the central role they play in it.

4. Urbanization and environmental problems

Globalization, market economy and population growth are the main causes of many people moving to urban areas. A rapid shift in the population to urban areas brings about short-sighted development and results in many kinds of industrial pollution and environmental degradation.

Excessive use of ground water for factories triggers ground subsidence and other problems, such as water pollution and eutrophication caused by industrial and domestic wastewater; air pollution by exhaust gas from automobiles and motorcycles, and smoke and soot from factories; and soil contamination by wastewater from factories and inappropriate handing of chemical substances. Car-centric traffic systems and the use of non-eco-friendly vehicles can worsen traffic congestion, noise problems and air pollution. On top of this, expansion of slums in urban areas is also being caused by the move of poor people to those areas. Urbanization is indeed causing a mixture of complex problems environmentally, economically and socially.

5. Natural disasters caused by climate change

Worldwide climate change impacts greatly on the regions in developing countries as well. It can be said that various natural disasters, including extremely cold spells, floods, typhoons and droughts all over the world, are part of global environmental problems. Prevention of natural disasters should also be included in environmental education activities. You need to be imaginative enough to associate global contexts with local contexts.

3. Environmental Education in Developing Countries

1. Importance of environmental education

What are the objectives of environmental education? Raising awareness, obtaining knowledge of the environment and its problems are of course important ones, but, in terms of interdependency between developing countries and developed countries, acquiring problem-solving skills, fostering a sense of values, building a certain lifestyle (attitude), and promoting participation in actions and activities to build a sustainable society, should also be set as the objectives of environmental education.

At the Tbilisi Conference held in 1977, five objectives of environmental education were presented: awareness, knowledge, attitudes, skills and participation (see Figure 1-5), as well as guiding principles (Appendix 1, P126). They are still regarded as the basic principles of environmental education today.

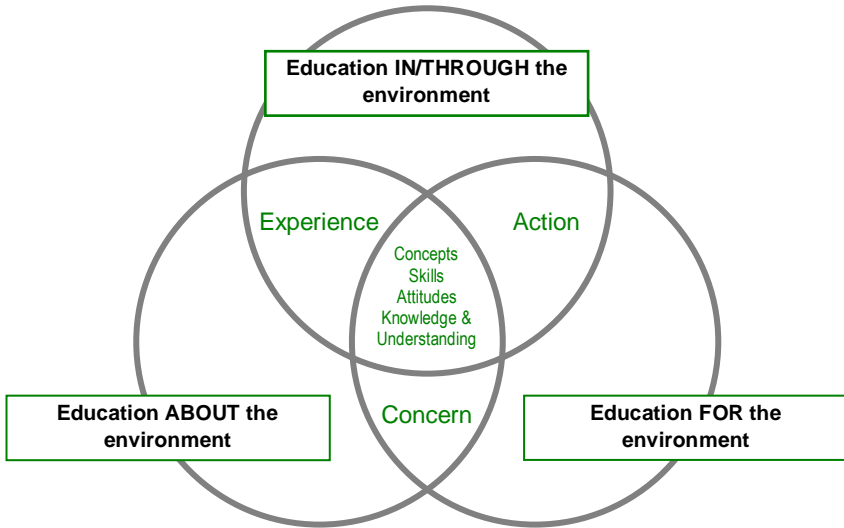## 2. Three approaches in environmental education

Environmental education is aimed at any age from children to adults, and has three major approaches (Figure 1-6). It is necessary to consider which approach is the most appropriate for different grades, ages and purposes. Moreover, when deciding which approach should be taken, understanding the significant difference in the role of educator among the various approaches is also essential (Figure 1-7).

■ **Figure 1-5   Five objectives of environmental education**

(1) Interest (Awareness)	To encourage social groups and individuals to develop an interest and awareness of the environment as a whole and its associated problems
(2) Knowledge	To support social groups and individuals in obtaining various experiences and basic understandings of the environment and its associated problems
(3) Attitude	To encourage social groups and individuals to develop values and consideration for the environment, and the willingness to participate in activities for conservation and improvement in the environment
(4) Skills	To encourage social groups and individuals to develop the skills necessary for clarifying and solving environmental problems
(5) Participation (Involvement)	To provide social groups and individuals with opportunities to participate actively in activities of all levels towards solving environmental problems

Source: UNESCO-UNEP (1978)

■ **Figure 1-6   Three approaches in environmental education**

Education IN/THROUGH the environment

Experience

Action

Concepts
Skills
Attitudes
Knowledge &
Understanding

Education ABOUT the environment

Concern

Education FOR the environment

Source: Palmer & Neal (1996)

■ **Figure 1-7   Three approaches in environmental education and the role of educators**

Approach	Characteristics	Role of educators
Education IN/THROUGH the environment – sensitivity learning / direct experiences	Sensitivity learning through direct experiences in nature or with people (society, culture and economy). Mostly used for pre-school children. Learning activities through direct experience, such as field experience.	Organizer of field experience
Education ABOUT the environment – knowledge transfer / theoretical	Acquiring knowledge and skills about nature or people (society, culture and economy). Mostly used for school children. Knowledge-transfer-type learning activities through lectures, etc.	Systematic knowledge transfer
Education FOR the environment – group activities / participatory / interactive	Activities and participatory learning about nature and people (society, culture and economy). Mostly used for adults. Participatory and interactive learning through workshops, etc.	Co-participant / co-pursuer

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3. Ten Perspectives of ESD

From the late 1990's onwards, international discussions about "Education for Sustainable Development (ESD)" have been taking place mainly in Europe. The ESD, which is also closely related to environmental education, focuses on (1) learning about relationships, (2) values and group activities (3) establishing a cycle of learning process and cooperative process, and (4) citizenship and empowerment. Its active and creative concepts continuously pursue "sustainability" in the ecosystem, culture and spirit, and social fairness (See Appendix 2, P127). The ESD's perspectives which focus on "connection", "involvement", "expansion" and "deepening" need to be adopted in environmental education.

4. Environmental education in developing countries – its importance and perspectives

What perspectives are required in environmental education in developing countries? Here are some suggestions to be considered based on the author's own experience.

(1) Improving the quality of basic education to break away from the spiral of poverty

It is vital to have a perspective of "the achievement of equal opportunity in education and gender equality to promote high-quality *basic education*[1] ", as the prerequisite for successful environmental education in developing countries. It is the spread and implementation of the equality in gender and education that can contribute to environmental improvements (raising awareness; and improvements in health, sanitation and *functional literacy*[2]) and social changes (improvements in *critical literacy*[3] *and* communication skills, and more opportunities for women to participate in social activities and to make group decisions). In other words, enhancing the quality of basic education through improving the literacy rate and promotion of extra-curricular activities as well as school education will help to stop the whole spiral of poverty (Figure 1-8). It will also contribute to reducing the birth rate through appropriate family planning and hygene management, making women more involved in the society, making residents use natural resources more effectively, and building a society where both men and women can participate actively.

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[1] Basic education – Activities which enable people to acquire basic knowledge, values and skills for lifelong learning. In Japan, it refers to primary education, pre-school education and adult literacy, etc. However, this is not a fixed concept as the definition of basic education differs from country to country.

[2] Functional literacy – The ability to act in a family, group and society using literacy.

[3] Critical literacy –Socially vulnerable people's ability to understand their suppressed situation objectively, form a critical view of the society, and build a new society with improved conditions.
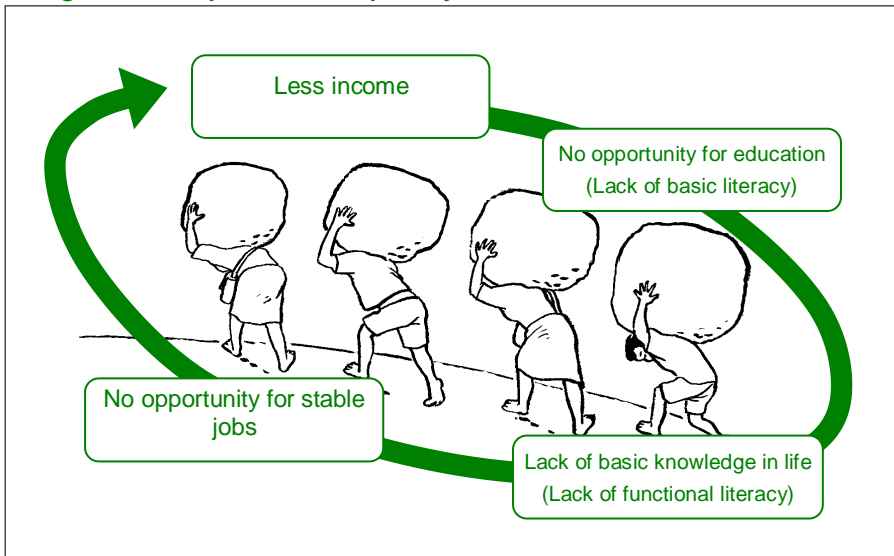
(2) Use of regional wisdom

The problems relatively common to education in developing countries are said to be the following two points: (1) Excessive emphasis on acquiring knowledge mainly through classroom lectures, (2) No connection between school education and regional traditions/wisdom of life. This means that it is not an exaggeration to say that traditional education, which had been contributing to making the region more sustainable, has now been destroyed by modern education which puts more focus on acquiring knowledge. In other words, utilizing regional resources and opportunities is the key to obtaining regional knowledge and involving local people in activities for building a sustainable society.

(3) Use of the "knowledge transfer" approach

There are some reasons why environmental education in developing countries puts more focus on acquiring knowledge (Figure 1-9). The "knowledge transfer" approach (Education ABOUT the environment) itself can be effective to some extent; however, it becomes much more effective when combined with other approaches.

■ **Figure 1-8　Reproduction of poverty**

Less income

No opportunity for education
(Lack of basic literacy)

No opportunity for stable jobs

Lack of basic knowledge in life
(Lack of functional literacy)

(4) Alternative approaches

It would be very difficult to foster personnel who can act with their own judgement if they only have fragmented "knowledge" through the "knowledge-transfer" approach. The "Education IN/THROUGH the environment" (sensitivity learning/direct experience) approach focuses on people's sensitivity and awakening though their participation and experience., while the "Education FOR the environment" (group activities/participatory/interactive) approach emphasizes communication skills through conservation activities by groups in which people develop their own opinion, respecting different values, and achieving a consensus in problem-solving. These approaches are similar in terms of creating new knowledge. However, they are often unrecognized or regarded as less important approaches in developing countries. It is essential that these approaches are introduced in environmental education, and that children, relevant organizations, educators and local residents understand the advantages and significance of the approaches.

(5) Environmental education with the five senses (whole language)

It is sometimes challenging to understand things only through written or spoken words. If we use, however, all of the five senses we have; sight, hearing, touch, smell and taste, we might understand much better and more easily. Environmental education with the aid of the five senses will contribute to the development of senses other than sight and hearing on which we tend to reply heavily. Moreover, sharing experience of the development with fellow participants will enable us to share the excitement. This type of education is said to be effective in activities targeted to adults as well as children.

■ Figure 1-9 The reasons why the "knowledge-transfer" approach is adopted in developing countries

(1) Few teaching materials	The only way of learning is copying what teachers wrote on the blackboard to notebooks, as published materials are very limited.
(2) Abilities of teachers	Teachers do not have knowledge and skills to develop regional and experimental teaching materials, curriculum, and participatory programs.
(3) Education emphasized on Acquiring knowledge	Participatory education and field education are not seen as important, as parents are expecting their children to acquire knowledge and skills. Education is regarded as a measure to succeed in a standardized test, therefore parents have no interest in other contents which are not relevant to the test.
(4) A large number of students in a class	"Knowledge-transfer" is the most effective approach when there is too many students in a class.

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(6) Constructivism
- from past experience

Constructivism means that education should adopt approaches in which learners are allowed to construct their own knowledge, not approaches in which educators "transfer knowledge" unilaterally, based on the idea that learners construct their own knowledge from their background, such as daily life, and knowledge and attitudes they already have. In this theory, learners will be able to associate their own experience easily with activities in environmental education if an appropriate learning environment is provided. Questions and answers in relation to their own experience is the key for learners to internalize knowledge.

(7) Respect for regional-specific style of learning
- dance, conversation and songs

For effective environmental education, both the "learning style" of learners and planning, and the communicative and educational skills of educators, are equally important. Western education puts more focus on reading and writing, but in developing countries, education includes many activities to learn culture and traditional skills through communicative methods, such as dance, conversation and songs. In this style, people communicate with each other deeply without relying on basic literacy, such as reading, writing and arithmetic, and traditional wisdom is also successfully handed down. It is also significant to examine what methods of communication which do not rely on reading and writing can be effective. Besides, in many cases, small group sessions within the region or community are more appropriate to make communication better. It is necessary to carefully consider the size and type of groups as well as the individual learning style.

(8) Development and use of teaching materials for environmental education

Teaching materials play a key role in delivering the message of environmental education in an attractive and clear way. It does not mean, however, that any materials can satisfy the role. Good materials must be developed under a detailed syllabus, or "curricular units", in order to deepen the understanding of learners. Further, careful consideration is needed when deciding the type (motivating, guidance, participatory or follow-up), contents and use of the teaching materials based on the learning objectives. It is necessary, before developing the materials, to examine who will be the targets, what are the objectives and what types are appropriate, taking account of the current situation.

It is also possible to get local people involved in the process of material development or to make a contribution to activation of the communication between them (participatory material development). Making a video about the village will contribute to stimulating communication among local residents in the process of clarifying local values. If the volunteers' own experience and information from Japan are added to existing local materials, they will become original materials created in cooperation with local residents.

(9) Finding and getting key persons involved for effective environmental education

In order to make environmental education effective, it is vital to obtain cooperation from key persons in the area. The activity reports from our volunteers show that key persons can be leaders of organizations, staff members of regional NGOs, teachers, and local residents, as well as the counterparts of the partner organization. However, they will not act proactively without a reliable relationship. Hence, it is essential to develop good and close relationships with key persons or would-be key persons through daily life and various activities.

(10) Environmental education focusing on various "connections"

Through a series of environmental education activities, acknowledging that "everything is connected with each other" is important. The various "connections" are: (1) the "connection" between phenomena (within nature, between nature and human beings, interrelationships among the environment, economy and society), (2) the "connection" between entities (interdependency of various entities in the area), (3) the "connection" in local contexts (history, culture, spirituality and life), and (4) the "connection" in global contexts (globalization and market economy). New but also important ones are: (5) the "connection" between knowledge and attitude/activity (recognizing the importance of attitude and activity in a knowledge-focused learning style) and (6) the "connection" with daily life (association with lifestyle).

(11) Effectiveness
- environmental education with a sense of ownership

It is crucial in effective environmental education that participants/learners act proactively. Without this, it would be impossible to expect environmental education activities to be sustainable. Presenting the results of their own environmental activities as tangible results will heighten their feeling of the effectiveness of their activities, and also make them and their group more proactive.

For example, waste separation activities can go a step further to exchange the sorted items for cash at junk shops, and then purchase communal resources, such as soccer balls and musical instruments. This means presenting tangible results, and will surely and significantly raise participants/learners' sense of effectiveness and ownership. Even if the results have no monetary value, the same effect can be expected, if the values of their activities are manifested.

(12) Empowerment
- environmental education focusing on social changes

Empowerment means that socially vulnerable people, such as women, immigrants and the disabled, become independent and have their voices heard through acquiring knowledge and skills and improving their own living conditions. It is significant for them to believe their own potential and become confident and hopeful, and accept the life of their own and others positively. John Friedman, who advocated the concepts of empowerment, argued that basic elements in empowerment are: (1) living space, (2) leisure time, (3) knowledge and skills, (4) appropriate information, (5) social structure, (6) social network, (7) work and measures to make a living, and (8) funding. He also stated that each element is independent, but also interdependent with other elements.

The concept of empowerment can be introduced in environmental education in developing countries in terms of promoting independence and improving the society. However, careful consideration will be required when investing different resources at the different stages of empowerment.

(13) Relationship with international educational initiatives

It is necessary to consider consistency with the Millennium Development Goals (MDGs) when working for environmental education in developing countries. The initiatives towards achieving the MDGs include Education for Sustainable Development (ESD), Education For All (EFA), which emphasizes equal educational opportunity, and the United Nations Literacy Decade (UNLD), in which literacy is regarded as the key learning tool (Figure 1-10). It is important to understand that environmental education in developing countries is not just educational activities related to the environment, but activities which have deeper meanings for learning and education (the links to international educational initiatives).

5. Environmental problems of daily life and environmental education in developing countries

As mentioned earlier, environmental problems are a mixture of complex problems which are deeply related to each other. Further, environmental education in developing countries cannot be effective and sustainable without considering the economic aspect and social context, not just emphasizing the environmental aspect. In addition, environmental problems are also closely related to population growth and development. It is necessary to acknowledge that the level and range of activities to improve the environment differ depending on the type of stakeholder, such as individual, organization, local community, nation and international society.

Given these conditions, it will not be suitable to work in developing countries in the same way that environmental education is delivered in Japan. The advice is: first understand the current conditions of the local area; then carefully consider the connections within the natural world, the relationship between nature and human beings or between human beings, and social structures; and finally plan, develop and implement a program getting the stakeholders and counterparts (hereafter called CP) involved.

It is not possible to make environmental education effective without volunteers paying enough attention to "connection", "involvement", "expansion" and "deepening", and continuously trying to learn from developing countries. Volunteers need to have "imagination" to think both locally and globally, and "creativity" to develop environmental education activities suitable for the actual situation.

Picture of an environmental education class in a local elementary school
Ms. Noriko Miyazaki (Dispatched to Bolivia in 2006)

■ Figure 1-10　Links with International educational initiatives

| International educational initiatives	Links with environmental education
Millennium Development Goals (MDGs)	Eight goals and 18 targets of Millennium Development Goals (MDGs) are regarded as an important framework for international development and cooperation, and were agreed at the United Nations. The clauses on provision of elementary education and gender equality in education relate to two categories of both MDGs and EFA.　Literacy, quality of education and other aspects of basic education, including non-formal education, are presented as requirements for achieving MDGs.
Education For All (EFA)	Six goals of Education For All (EFA) mention basic education for all children and adults, and the essence of its clauses. Basic education must be accessible to every age of both genders. It must provide appropriate learning and life skills, and continually endeavor to improve its quality. It is obvious that basic education is regarded as making a positive impact on the quality of life and poverty, but it would be a challenging task to consider the nature of these impacts and the most appropriate content for education. In other words, in EFA, its main objectives are providing education, and advancing its projects. It is considered that the basic goals of education should be discussed socially and politically, and are actually being so discussed.
United Nations Literacy Decade (UNLD)	The United Nations Literacy Decade (UNLD) is part of FEA. Literacy is mentioned in all six goals of EFA, and is also a prerequisite to achieve the goals. Literacy needs to be used as an important learning tool in every style and stage of education. Without paying enough attention to achieving high literacy, providing systematic learning activities cannot be meaningful. UNLD can also impact on other things than educational process by connecting with various aspects of daily life strategically.　Acquiring and using literacy can make people more confident and motivated, encourage them to participate in the society and boost their cultural self-esteem. While there are these intangible effects, there are also tangible effects of improving the health of mothers and children, the birth rate and the income level.

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Chapter 2
Get Your Activities Started
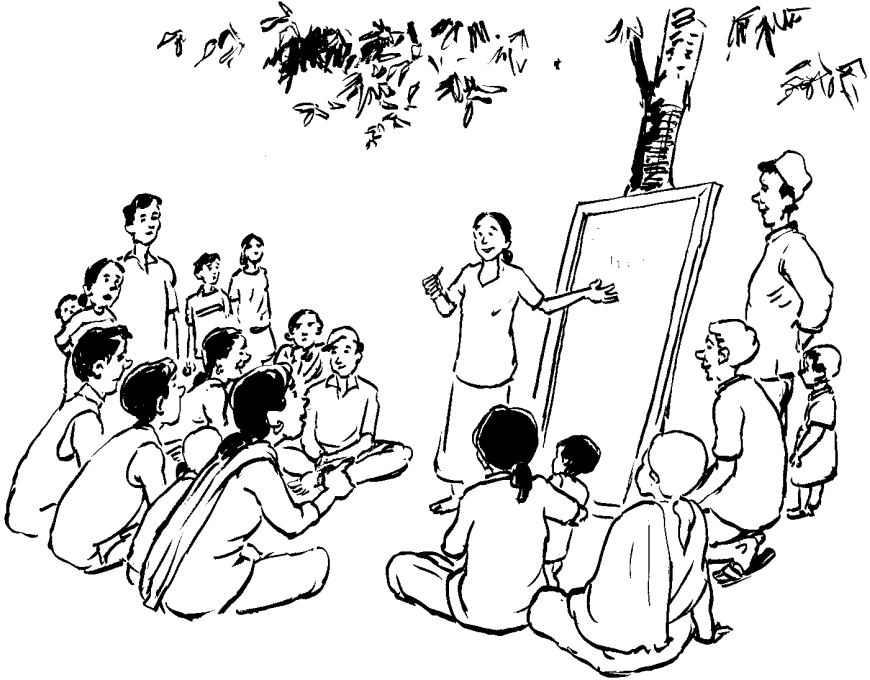
O nce you have become familiar with the life in the country, it is time to start your activities. It has been a long time since the moment you heard about the moving activities of the JICA Volunteers. You have come a long way; from your decision to apply through to training sessions before departure.

"I want to work for people in developing countries. I should be able to do something for them!" Now finally you can act with your determination, not just thinking about what to do or how to do. This chapter will help you to make your activities as effective as possible.

1. Resources for activities

1. What is "resources"?

Let's get your activities started. Where do you start? Well, hold your horses a bit. Otherwise, you may go round in circles. Before you actually start, look for the "resources" you can use for your activities.

Then, what is "Resources"? You may know that "people, goods, money, and information" are often called "resources" in the field of economy and management. Several years ago, the 5th one, "vision" joined the group. International contribution seems to have nothing to do with the areas of economy and management, but it is very useful to have some knowledge of economy and management to make international contributions, in terms of "organizational activities in which people act together with one "vision" to obtain optimum results for all the people involved".

2. "Resources" in developing countries

However, your fields of activities are in developing countries. You cannot use "people, goods, money, and information" as you do in developed countries. Developing countries usually do not have enough material resources. You may be wondering who can be resources; what can be resources; and where and how you can access them in a whole new world. Even if you could find them, you may not necessarily be able to use them. Unfamiliar language, lifestyle and conditions often occupy your mind leaving no room for noticing possible resources right in front of your eyes.

The first thing you must do is to identify what are the resources in developing countries in order to avoid overlooking "unexpected" or "country-specific" resources, or failing to use them successfully.

3. Draw up a list

Making a list of resources around you is the first step. This will help you to identify resources in developing countries. Figure 2-1 shows typical examples of each type of resources. Use this as a reference, and create your own list. You may want to modify the classification according to the situation in the country you were sent to.

Resources….

Writing out can help you to organize your ideas, and also make you more aware of what you are doing. Keeping a record is a good idea as it will help you to look back on your activities, and will become a great resource for your further activities.

Writing and recording may not be valued in developing countries, but try to keep recording your activities. The priceless experiences you are going to have for the next two years will surely become one of your "resources".

■ **Figure 2-1   Examples of resources for activities**

Type	Items	Examples
People	Key persons/friendly persons	Local residents including the mayor, the religious leaders, teachers, coordinators, children and their mothers
Goods	Materials・tools	Automobiles, computers, printers, trash bags, fax machines, copiers, picture cards, big empty cans (reuse for rainwater storage), used clothing (reuse for cleaning, or remake into eco-bags), and used oil (recycle into soap)
Money	Funding	Budgeted public funds, organizational funding, and donations (See Figure 2-2, p. 28)
Matters	Opportunities	Town festivals, eco-themed events, and outdoor events in a natural environment, such as at beaches or in the mountains.
Matters	Places	Regular meetings held in the neighborhood
Information	Explicit knowledge (knowledge・skills)	Compost and biomass energy
Information	Implicit knowledge (culture, wisdom, know-how and something valuable that local people have inherited and cherished)	Wisdom of life (e.g. orange peel can effectively remove kitchen grease) and "knowledge of the region" (e.g. relationships between soil conditions/groundwater veins and vegetation, and adjusting time of seeding and harvesting according to subtle changes in weather and climate)
Yourself	Your special skills and character strengths	I like/am good at drawing, singing, dancing, DIY, etc.

4. Characteristics of each type of resource

Now you have some ideas about what resources are. Next, we will look at the characteristics of these resources in more detail.

(1) "People" as resources

First, we look at "people". "Key persons" are the people who are helpful to you or influential in decision-making of local communities or organizations. So, who are they, where are they, and how can you meet them?

Well, coordinators, CPs, and the local people are all key persons and possible "resources". However, we are going to focus on the key persons in our environmental educational activities.

We tend to forget to look at churches, temples, and other religious or holy places where local people come and pray. The Japanese seem to regard and accept religion as part of culture, judging from the fact that we visit shrines on New Year's Day, have wedding ceremonies at churches, and hold funerals at temples. On the other hand, for religious people, religion means a lot more, sometimes even their whole life. So, try to collect as much information as possible, but not too intrusively, on churches and temples in your neighborhood. Then try to find out who are the leaders of community groups.

Remember, key persons can be anybody, not only "persons in charge". People as "resources" are those who share our visions and work with us to realize our ideals. Try to find people who are willing to help you and work together.

(2) "Goods" - look around with the spirit of "MOTTAINAI"

Wangari Maathai, the first Kenyan woman who received the Nobel Prize in the field of environment, founded the Green Belt Movement in 1977. One of its main projects is planting trees, and has been making great efforts for eradication of poverty, and for women's rights and democracy in Kenya. She visited Japan in 2005, and was deeply impressed by the Japanese word "MOTTAINAI".

She thought that "MOTTAINAI" perfectly represented the 3Rs of environmentally friendly activities, "Reduce, Reuse and Recycle", and also "Respect" for Mother Earth. So much so, she advocated spreading the word globally as "MOTTAINAI", and then the word revived as a buzzword, making huge impacts on Japanese society.

The spirit of "MOTTAINAI" will surely be useful for activities in developing countries where funding and goods are limited. In recent years, the word gained more Rs; "Rethink" about our consumption of resources, "Remake" things according to needs, and "Refine" everything you can think of. Keep finding your own Rs. Another tip is to ask people to barter or donate unnecessary "goods" or items before you buy brand new products.

(3) "Money" – how do you obtain funding?

Fortunately, you have found "people" and "goods" for your activities, but sometimes you need some "money" for specific activities. The local governments usually budget much more for development of infrastructures than for environmental projects.

However, there are other methods to obtain funding than this budget. Figure 2-2 shows the type and example of funding. Do some research on the current status of funding in your local area. Then try everything you can do for fund-raising.

The renowned Mother Teresa was a person full of various fundraising ideas. For example, she hit on an idea of a raffle with a prize of a super luxury car. The car was originally presented by an American billionaire to Paul VI, for him to use during his stay in India. Then the Pope left the car to Mother Theresa as a gift. The raffle tickets sold like hot cakes raising enough money to build the "Town of Peace" for leper patients (Oki, 2010).

Some of our ex-volunteers successfully raised money necessary for their activities through raffle tickets or other fundraising events in which participants can enjoy themselves. However, please bear in mind that organizing a raffle may be illegal in some countries. Asking for donations is not the only way to raise money. Do not give up, use your imagination.

■ Figure 2-2   Source of funding

Type of source	Examples
Public budget	Budget of administrative offices for public projects related to environment and volunteer expenses
Organizational funding	School funds, funds as part of CSR activities of private companies, financial support from NGOs, and donation from charities run by religious groups
Funding acquired through grant applications	Funding offered by various organizations, agencies, and research centers. Successful funding application is required for this type of funding.
Donation	Donations from organizations and individuals. (When asking for a donation, give a copy of a newsletter to enhance the level of their understanding of your activities. This will also work as an educational tool for international understanding.)
Other	Funding through fair trade or businesses.

(4) Lots of "opportunities"
- make the most of festivals and gatherings

You will have great "opportunities" in many "places" when local people gather together for festivals and meetings. Try to join in these gatherings as much as possible.

Even if the topic of a meeting seems to have nothing to do with your activities, just try attending it. You will be able to know much about the local culture if you look carefully at the way people behave in the meeting – for instance, are men and women sitting together? Are women speaking out actively? You may see gender inequality there or find out who is influential.

Festivals often work as community bonding through praying and offering thanks together for a good harvest. When you have opportunities to attend weddings or funerals, smile or cry with the local people. It is not necessary for you to play any particular role. You just need to be there, and share joy and sorrow with them. They will be happy to accept you as a member of their community.

You can even organize your own event or meeting. It does not need to be related to environmental education. As an ice-breaker, it can be an "Evening for Japanese Culture" for instance. Do not give up. If at first you don't succeed, try, try again until you can finally find out what they are interested in.

(5) Local values

You must also know what things are important for the local people in order to succeed in environmental education as well as to understand the different culture. Even if you teach them what the 3Rs mean in environmental education or show them how to separate waste, they may not necessarily act as you told them: this is often a discussion subject in developed countries.

Why don't they? Because humans don't act on the knowledge and theories they are given. KNOWing and FEELing is a different matter. In order to FEEL the necessity for conservation, they have to understand how their behavior affect themselves, or, to put it another way, they think it is important for them to receive any rewards now for themselves rather than to save them for future generations.

The rewards can be something intangible, for example, their newly-acquired values, ethics, and morals, as well as tangible ones like money. What they are spending their spare time and energy most on shows what is important for them or what they FEEL comfortable with. To understand this, it is essential to know what they are cerebrating or commemorating in their events or festivals including as to whether these dates are public holidays. These events often reveal the local people's views of nature or the environment, and their inner motivation for their behavior. So, it will be a good idea to create a "local events calendar" not to miss these important opportunities.

千載一遇

Once-in-a-lifetime opportunity.   An opportunity that may not come again.

(6) Realize your full potential
- rediscover your strengths

Last but not least, we will look at ourselves. It is often overlooked, but you have great "resources" inside you that never run out. Your determination, dreams, and aspirations are also "resources". Another inner resource you have is your character strengths. You should be good at what you like doing. Don't you feel good when you are doing what you love? That is the power to make other people happy as well.

Please do make the most of your strengths. For example, if you love music, you can put your message in your song, or if drawing is your specialty, why not try making pictorial teaching materials? Perhaps you will be able to create tempting recycle bins for children with your DIY skills. If you are a sports lover, you can plan and organize a sporting event yourself, and invite the local people to join in and enjoy it together. This will certainly help you to succeed in your activities.

Fortunately, our ex-volunteers left treasures for us – their original teaching materials, and their activities that are still carried on in many local communities. You do not need to act all by yourself nor start from scratch. If your local community already has had our ex-volunteers, you can start by following their footsteps. Then you can do your activities in your own way, making use of their advantages.

Getting his message across with his song
Mr. Mikito Yoshioka (sent to Nepal in 2008)

2. Plan Your Activities

Now, let's start planning your activities. You can do it on your own, but it would be much better if you plan activities with the local people. Try setting up a project as this will enable you to share your aims with them, produce much better results than expected, and, moreover, make your relationship with them stronger and closer. It may not be easy to reach an agreement about many things, but it will be rewarding to tackle the challenges together. Even if you cannot produce any visible results, you must have built wonderful relationships with the local people through your activities. This is what international cooperation is all about.

1. PCM and PDM

Before we actually start working or setting up a project, let's learn about how we should manage projects.

At JICA, we mainly use the method of "Project Cycle Management (PCM)" to manage our technical cooperation projects. The PCM uses the "Project Design Matrix (PDM)", a table of project concepts, for planning, implementation and evaluation, to ensure consistency of operation and management of projects. It is one method to coordinate the tasks in large-scale projects, and may not be required in your activities.

However, you will often hear those words once you are sent overseas as a volunteer for international cooperation, especially when you are involved in joint projects with NGOs and other international organizations. As many of those organizations also adopt this method for their projects, it will be useful to know that "PCM" and "PDM" are used in relation to project management and operation.

2. PDCA

What you should know about is "PDCA", a tool used to set up better goals and enhance the quality of project activities. The word represents a cycle of four steps: Plan (P), Do the work (D), Check and evaluate the operation against a set of criteria (C), and Action for further improvements (A) (Figure 2-3).

The PDCA is widely used as a tool to improve the quality of projects or activities in various fields at various levels, from grassroots activities to national and international initiatives. It is also used in PCM and PDM.

3. Plan and draft your project

JICA has a regulation that requires its volunteers to submit five activity reports on their activities over a two-year period of their assignment. The activity report has three purposes: (1) to support self-management and evaluation of their activities, (2) to share information among stakeholders, and (3) to disclose information to all people.

At the 2nd submission of your report at the 6th month of your activities, you are also required to submit a specified "Activities Plan" form. The form has sections to write the objectives of the partner organization for which you are working and your own objectives. So try to set up your project and plan your detailed activities to fill out these sections. Then for the 3rd and 4th submissions at the 12th and 18th month respectively, write about your own Check and Action of PDCA. The final 5th one should include the overall evaluation of all your activities over the past two years in the "Table of results of your activities".

When you have set the objectives of your project including your future vision, aspiration and dream, turn them into a "concept. This is the very first step of planning.

■ **Figure 2-3   The cycle of PDCA**
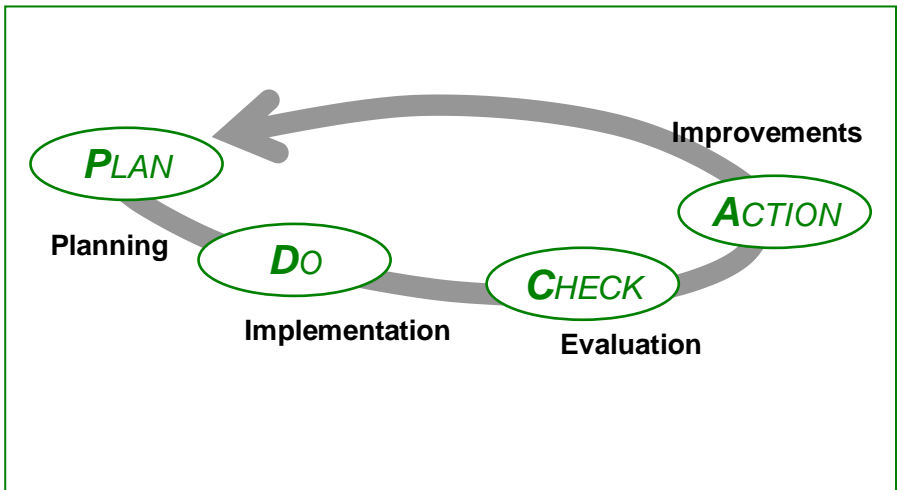
The "Concept" is the whole structure of your project visualized in the common language of the local people in order to share your vision with other people. In other words, the concept is the representation of the status when the objectives of your project have been achieved utilizing numbers, drawings and photographs as well as words.

When you develop your concept, be objective. The next page shows evaluation criteria for projects for your reference. Examine whether your project can satisfy these criteria, especially two criteria specifically set for environmental education projects.

The next stage is planning or designing, in which you decide your approaches, details of your activities, and draw up a schedule. This step is called drafting.

At drafting, you need to consider what resources and measures are to be adopted and what approaches are appropriate. It is like making an itinerary for your journey as you will allocate each process a specific time frame until the day you finally achieve your objectives. You cannot expect your project to always proceed as planned. Sometimes you may face unexpected accidents or be disrupted, and be forced to modify or redesign your plan. Even you may need to redevelop your concept from scratch.

If this happens, use the PDCA effectively and accordingly to achieve your objectives. It is important for your project to involve the local people, and promote their active and proactive participation.   The process of reaching agreement is more important than the actual results.
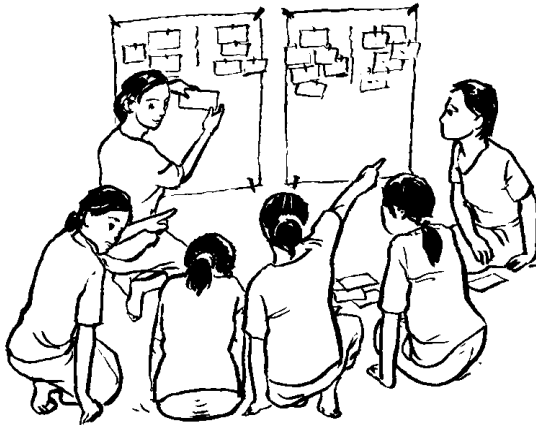
4. Evaluation criteria for projects

When we set up a project, we expect it to run effectively and efficiently, and produce better results. The PDCA requires a set of "evaluation criteria for projects" in order to work as a tool to improve your project. Evaluation criteria should be clear and concrete, as this will affect the quality and progression of projects.

The "JICA Guideline for Project Evaluation" sets five evaluation criteria (Figure 2-4). These criteria are used for general projects. Projects for environmental education should also be evaluated by an additional two criteria.

■ Figure 2-4   Five evaluation criteria for projects (five DAC evaluation criteria)

Relevance	Legitimacy and necessity of the project, such as whether the objectives are relevant to the needs of the beneficiaries, the approaches for problem/challenge-solving are appropriate, and the project is consistent with the policies of both the partner country and Japan.
Effectiveness	Whether the project achieved its objectives, and benefits are brought about to the beneficiaries and society concerned.
Efficiency	Whether the resources supplied for the project are being used effectively in terms of the results produced.
Impact	Long-term impacts and ripple effects caused by the project, and the level of achievement of objectives.
Sustainability	Whether the effects brought about by the project are still in place and developing in a sustainable manner.

Source: "Evaluation Systems at JICA", JICA

■ Figure 2-5   Additional evaluation criteria for environmental education projects

| Beneficiaries' satisfaction	Feel of ownership, feel of effectiveness, and deepening of learning
Participatory process	Gender inequality, rights of minorities, consideration to decision-making, and community building

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These five criteria for general projects can be regarded as being for "evaluation of the project itself", and two additional criteria for environmental education as being for "evaluation of learning experience through the project". The "evaluation of the project itself" is based on how the project was carried out, and how effectively and sustainably the project was developed.

The "evaluation of learning experience through the project", on the other hand, is based on what kinds of learning experience were given to the people involved, regardless of direct or indirect involvement, and how this enhanced the qualifications and abilities of each individual.

As our projects are in the field of environmental education, we have to consider the levels of "beneficiaries' satisfaction" and "involvement of local residents" from the viewpoint of "evaluation of learning experience through the project". This is because both these two levels are determined by the proactive response of local people who are influenced by the environmental education project.

We will now examine why these levels are so important, taking a look at the history of environmental education.
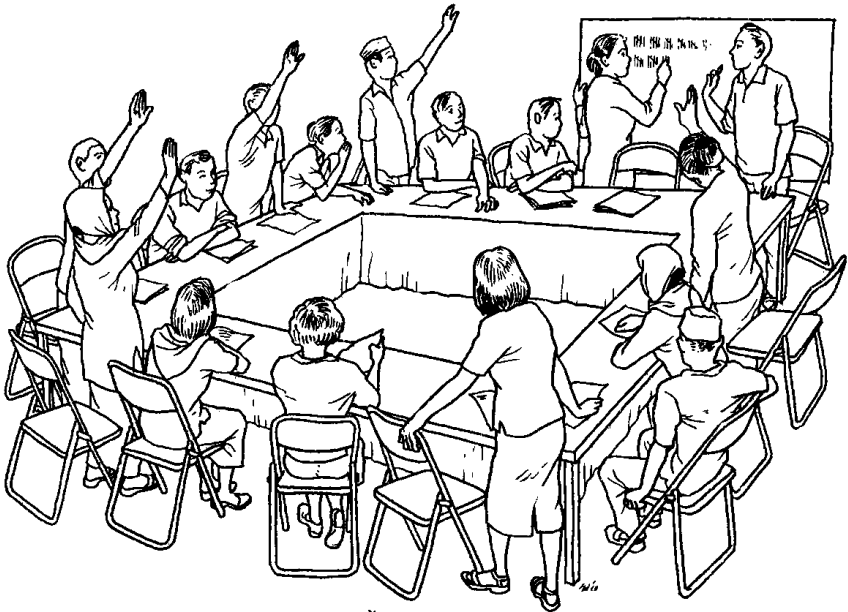
The five objectives of environmental education - awareness, knowledge, attitude, skills and participation - set at the Tbilisi Conference in 1977, remain its principles. Environmental education has been carried out under this framework, but its approaches and the style of learning process have gradually changed (Sato, 2010). For about two decades from the mid 1970s, its main approach was "knowledge-transfer", by which experts, researchers and teachers transfer their knowledge to learners. This approach, however, reflects neither social contexts nor region-specific situations although it can play an important role to improve the environment. This caused an alternative approach to emerge: on-site training in the actual field, in which teachers work as organizers of field activities. In recent years, the participatory and the interactive approaches, in which learners can obtain and internalize their knowledge through group activities, are drawing attention (*Ibid*).

Adopting only one approach may not be the answer. The important things are: everyone involved in the project can feel ownership and effectiveness; their learning is deepening; and participants are increasing in number, coming from a wider area, and well communicating with each other.

5. "Two criteria for learning experience" for environmental education projects

We have looked at the reasons why the "evaluation of learning experience through the project" is important as well as the "evaluation of the project itself". It is difficult, however, to actually evaluate learning experience. Here we will look, therefore, more closely at the two evaluation criteria, the "level of satisfaction of beneficiaries", and the "level of involvement of local residents".

The first one, the "level of satisfaction of beneficiaries", is closely linked with the "feeling of ownership, the "feeling of effectiveness", and the "deepening of learning". The "feeling of ownership" means that everyone involved can feel the project is his/her own for him/herself. The "feeling of effectiveness" means that he/she can feel his/her activities are producing positive effects and results. The "deepening of learning" means that he/she can learn more and more deeply about the ever-changing environment by adjusting or applying his/her activities according to the situation.

The second one, the "level of involvement of local residents", is evaluated from the viewpoints of "gender inequality", "rights of minorities", "consideration to decision-making" and "community building". This is because environmental education in developing countries needs to put more focus on human development with enough attention to empowerment of individuals and society, and social changes, rather than on

problem-solving based on natural science.

Shortsighted development can make poverty worse among the weak of society, forcing them to receive none of the benefits globalization is bringing about. Worsening and expanding poverty is one of the main causes of environmental problems in developing countries. It is important to make sure that the socially vulnerable, i.e., women and minorities, are involved in the activities and empowered in order to solve local environmental issues on a fundamental level.

6. Put more focus on the process of your project

Evaluating a project from the viewpoint of learning experience means that the learning process is regarded as much more important than learning outcomes themselves.

The first section of this chapter has mentioned that there have been many arguments that acquiring knowledge through environmental education does not necessarily lead to environmental conservation. Think about the results and the process of a project: if the process failed to raise people's awareness of conservation even though the results are positive ones, their conservation activities will not continue unless they are forced to by others. On the other hand, if the project was successful in strengthening people's ties, and in making them understand the meaning and importance of working together for the same objectives, even though the results were not as good as expected, they will surely be working together in future projects and produce excellent results.

Environmental activities need continuous cooperation, and environmental education requires a long time to achieve visible improvements in the environment.

The evaluation criteria of "level of satisfaction of beneficiaries" and "level of involvement of local residents" will help the project to be more aware of its long-term effects in addition to the current outcomes. These two criteria will also make it possible to evaluate the intangible effects of the project, and help to find something intangible but crucial to solve environmental problems. Moreover, they will help to find a more effective and appropriate way or system to enhance the level of satisfaction and involvement of local people. This can be explained by the recent shift from the knowledge-transfer type to the participatory and interactive types, which put more focus on experience and field activities, in the approaches towards environmental education; and by the fact that the increase in the level of knowledge and ability is influenced mainly by the proactive response from the learners. In short, satisfying these two criteria will help the project to also meet the "evaluation criteria of the project itself", which include effectiveness, efficiency, and sustainability.

7. Empowerment

The word "empowerment" is often used in various situations in both Japan and developing countries. According to a dictionary, it means "to give authority to do something, to develop abilities and gain skills" (Shogakukan, 2001). In the context of development in developing countries, it originally means "to give power" to the poor and the weak of society.

However, in a broader sense, empowerment can also include to teach computer skills, such as how to use Excel, to our counterparts. Further, to give them the knowledge and skills for a document management system can also be regarded as a type of empowerment. As these examples show, empowerment is used with a wide range of meaning in various contexts.

You will also often hear "capacity building" and "capacity development", which have a similar meaning to empowerment. At JICA, "capacity building" refers mainly to development of organizational or individual abilities and skills, while "capacity development" includes development of new systems and policies, and improvements in existing social systems in addition to what "capacity development" refers to. "Capacity development" is defined as a "process in which developing countries at various levels, including the levels of the individual, organization and the community, develop their abilities to cope with challenges" (JICA, 2006).

We have looked at so many things including various terms, but this basic knowledge is just a general framework for our activities. You may have to be more flexible, rather than sticking to your knowledge, depending on the actual situation.

However, having the framework as explicit knowledge is certainly useful in reorganizing and integrating project activities according to the changing situation, and clarifying the relationship between the overall vision and small details of the project, and your own position and role.

8. Operation of your project (structure, rule-making and points to remember)

Once you have completed the itinerary of your project, think about how it should be managed. The first thing you need to do is to form a project committee which shares, advances and modifies, when necessary, the cycle of the project. It may sound a big deal as you may imagine something like a large official organization. However, no matter what the size of a project, cooperation activities are part of all projects, even grassroots activities. So, do set up a committee even of just a few members.

When you think how to organize the project, including members of the committee, their roles and management policies, ensure that these match your concept well.

Do not base everything on general theory for organizations: you should think about what is the best way or method to realize your concept considering local circumstances. "Fairness" and "transparency" should be set as the principles of operation. So, ideally, the rules should be made and agreed by all members, but "fairness" and "transparency" can often interfere with activities in some regions and cultures. You do not need to rush: start slowly by analyzing the people involved in the project, such as who they are and what their characters and personal problems are, or analyzing the issues, such as what caused them, how serious they are, and how they are related with each other. If the existing rules become unsuitable due to changes in the situation, they should be modified or new ones should be created.

Another thing to remember at the

time of operation is that you should try very hard in every way to meet those two evaluation criteria for learning experience, and to keep people motivated and mentally satisfied. To enhance the feeling of ownership, you should support their way, speed, and values of doing things even though these seem very different from those of yours. You may need a great deal of patience, but you should think that you are playing a supporting role, and that your duty is to keep them motivated and enhance their abilities. To bolster their feeling of effectiveness, you should try to make their achievements visible.

In addition, try to record every single effort regardless of the results. The record of your footsteps, for example, what went well or what went wrong, will become a valuable resource for our future volunteers as well as for you.

BOX 1   From economic development to environmental conservation - Ripple effects brought about by a project

In 1991, a small irrigation pump was installed in a village of indigenous people in the Dang District of Gujarat state in India. This was the beginning of the "participatory irrigation project". The project was planned by a local educational support group to save the villagers from hunger. Although the group was promoting education, the villagers were too poor to come to school. Due to the harsh natural environment, they had no harvest in the dry season. It was common that all they could eat for a day was one chapatti and one chili.

In the second year since the installation of the pump, they were able to have two crops a year for the first time. The harvest in the dry season saved the people from starvation, and children started to go to school. At the same time, people's minds started to change gradually as well as their economic conditions. They became able to rear cows and the new "milk project" started, in which they sold their milk through the local daily cooperative association. The milk gave them additional income, improved their health, and made children more able to concentrate at school, leading to improved academic performance. In addition, the adults started to learn reading and writing spontaneously as signatures and simple calculations were necessary in selling their milk, which caused a rapid increase in adult literacy rate. They used to seem powerless to change their situation, but through these experiences, they realized that they had the power to change for the better. They are now working for commercial cultivation, and have a hope for a better life and future.

The project was not originally started for environmental education, but now people's aspirations for a better life is the drive to start learning about the use of biomass gas and how to make natural fertilizer from cows' manure instead of buying expensive chemical ones to become more cost-effective. These movements originated from their economic aspirations, but now they are voluntarily launching new initiatives that can make a great contribution to conservation. Moreover, the number of children per household has become fewer compared with neighboring villages, as now people think that it is better to have fewer but more educated children than more children as a work force.

It has been pointed out that both economic poverty and environmental issues in developing countries are closely related to population growth. This whole process which started from alleviation of poverty, led to improved living and educational standards, and then progressed to conservation activities and decreased birth rate, gives us many suggestions for our international cooperation activities. Now the people of this village are managing their own irrigation project themselves without any help from support groups.

Mami Yoshikawa
Fellow, Tokyo City University
* See Mami Yoshikawa (2008) for more details

3. The points to remember for your activities

We have already looked at how to find resources in developing countries, how to set up your project, and the PDCA. In this chapter, we will look at what you should keep in mind before starting your activities, and other practical advice for your actual activities.

1. Everything has stages!
- look carefully at subjects

When we visit a foreign country, we are firstly astonished by visible differences, such as unfamiliar clothing, food and houses. Then we gradually notice various invisible differences: for example, the way the local people behave, think, feel and express their opinion. It will be a pleasure and excitement to be able to experience diverse values with your whole body in a different culture. As you understand the difference, you will feel closer to your local community and more comfortable living there.

However, you have to understand the problems of developing countries as well as their culture. We already looked at 13 points to consider when conducting environmental education activities in Chapter 1, but here we will look in detail at the most important point to bear in mind in terms of environmental education projects. It is that the local people for whom we are going to work are suffering from economic hardships regardless of their extent. Especially, if you are in an area of serious economic poverty, you should never forget to think about what extreme poverty can do to people's daily life and force them to endure.

Poverty does not necessarily mean economic hardships: for instance, it has been pointed out that social problems in developed countries, such as solitary deaths and suicides, symbolize "spiritual poverty", and we often hear the words, "cultural poverty". We know that economic and spiritual poverty are different, however, how much or deeply do we, as citizens of developed countries, understand what economic poverty means? Now we can obtain a huge amount of information about developing countries through the Internet, TV and books. The heartbreaking pictures of street children and scavengers move us so deeply that we feel we should do something for them. However, we do not know well what "economic indicators" or "poverty line" shows as we have grown up in material wealth without experiencing poverty at first hand. Moreover, we do not even know that economic poverty has various levels.

As we have seen in the second section of this chapter, "empowerment" is widely used in various contexts. In the context of development in developing countries, it originally meant the "power given" to the poor

and the socially vulnerable. A researcher examined the process of empowerment in this context through international cooperation in a village of a developing country, and pointed out that the process had several stages.

There are no clear boundaries between each stage, but to make it easy and simple to understand, the process is divided into five stages according to characteristic changes of the people (Figure 2-6).

■ **Figure 2-6   Stages in the process of empowerment**

1st stage: Basic Needs Level "Desperate situation" Survival crisis	"Living hand-to-mouth", people can only afford basic needs for survival, such as food, clothing, and shelter.
2nd stage: Access Level "Questioning about current situations", first hope for a better life	Asking oneself what caused the current condition and what should be changed for the future, and raising questions about poverty, people start to look at their situation objectively.
3rd stage: Awareness Level "Development of social awareness"	Development of awareness of issues, people start to attribute their situation to social systems, and expand their social network through economic activities and the use of services.
4th stage: Participation Level "More energy for improved living conditions"	People start to participate actively in social activities with their aims in mind
5th stage: Control Level "Beginning of proactive attitudes"	Empowerment has progressed in many aspects - people can act positively to improve their life and further promote their activities.
Final stage: Transformation (Mutual Change) "Scrap and Build"	Changes in social structure and various relationships, such as between the strong and the weak of the society.

Source: Summarised by the author based on Kukita (1998)

We can see from figure 3-6 that economic poverty has several stages, from extreme poverty that puts people on the verge of death, to moderate poverty that allows them only to survive but not to have educational opportunities. The important thing is to know that people's state of mind and inner spirit, such as motivation and hope for life, differ greatly as well as their priority in terms of what they want and need for life, and the length of their spare time depending on their level of poverty.

2. Prioritize the challenges to be tackled

In the past, in international cooperation, no careful consideration was given regarding the levels of poverty in the area concerned. However, if we pay more attention to the process of empowerment, and prioritize our activities according to the level of urgency in various aspects, we can make our activities more effective. For example, when people are in absolute poverty and desperately need water, food, clothing, and shelter more than anything else, providing literacy education and textbooks may push them into a more difficult situation even though education is surely essential for human beings.

Some people may fortunately have a job, but their daily wage can be just enough to buy food for their family for the day. Many people cannot even take a day off because they have no savings. They have no choice but to live from hand to mouth. They cannot afford to invest their time and money for a better future escaping the cycle of poverty. It is also a distinctive problem of the people in this cycle of poverty that they have lost their motivation or aspiration to change their current situation, and even hope for their future.

3. Get multiple effects with one effort!

If the area you are working for is in this state, it is not a good idea at all to ask them to take part in your project, as this will force them to sacrifice some of their precious working hours for living. It will be quite difficult for them to take a break from farming in order to participate in the project. You have to respect their time for living more than anything else. They will not be able to participate in the activities unless they are guaranteed to get the money they should have received as wages if they had worked, or food as a substitute for the money.

Besides, we cannot expect them to be as keen on our project as we are. We cannot pay any compensation for their participation in the project, nor motivate them enough to participate just with words. Even if they can take some break from their labor, there will be many challenges to set up a project for environmental education, not for economic development, and work together towards our objectives.

Even if this is the case, do not panic: think about a project which can

produce "two outcomes from one effort". This type of project enables you to accomplish two tasks, i.e., "improved living standard and improved environment", simultaneously. As you may remember, Wangari Maathai from Kenya founded the Green Belt Movement, and successfully promoted the system of "the more you plant, the more you earn". As a result, many trees were planted and women became more financially independent, leading to positive ripple effects in gender issues and conflicts.

Well, you do not need to work at this level deserving of a Nobel Prize. You just have to remember that this example shows us what is the most important, what is the top priority in the life of people in developing countries, and what types of rewards can motivate them. Failing to notice the hidden message in this example is just "MOTTAINAI", isn't it?

It would be a good way of motivating the local people if you could set one of the main objectives of your project as helping them in their work to make a living, as this can be a reward for them.

However, do not forget that we are here to promote environmental education. If you find any link to conservation in your activities to help the daily life of local people, develop it further in the direction of conservation activities. BOX 1 on p.41 shows an interesting example in India.   The most interesting point is that the project originally aimed to save the people financially, then successfully raised

their awareness, and finally people became proactive in conservation activities motivated by the financial rewards. This example is not of our activities, and required a longer period of time. However, this gives us much inspiration for our activities at any time and place, like the example of the Green Belt Movement, in terms of understanding people's needs accurately and prioritizing the tasks correctly.

Chapter 3
Tips for Your Activities

D eveloping teaching materials, tackling waste issue, visiting local schools, organizing events: these are the activities many of our volunteers conduct for environmental education. If you know some tips, you can make your activities run more smoothly or avoid troubles. In this chapter, we will look at these tips for your activities.

1. Development of Teaching Materials

Until now many of our ex-volunteers have developed various teaching materials based on local needs (Figure 3-1). Many other teaching materials have also been developed by international and Japanese projects. Here, we will look closely at the types; features; process of development, dissemination and use; and consideration points of teaching materials.

1. Preparation for development of teaching materials
(1) Purposes of development

First of all, why do we have to develop teaching materials for environmental education? The purposes of the development include; (1) to clarify the challenges to be tackled and the aims to be targeted, (2) to acquire the knowledge and skills which can be utilized in daily life, (3) to review their attitudes in daily life, and (4) to use the materials for the improvements in their attitudes and behaviors in the future.

In addition, if local residents are involved in the development, the process will help: (5) to clarify and share regional resources and values and (6) to activate communication among local people. Before you actually start developing teaching materials, you need to clarify who the targets are and what the purposes are for the development.

(2) Clarification of needs

When developing teaching materials, it is essential to understand the needs of learners. So, you should start with understanding the daily life of learners.

To have meetings with them will help you to understand the learners' needs more deeply. Effective methods to get a clear picture of their needs include; (1) to have conversation with individuals and groups and to ask questions (structured or non-structured), (2) to visit individuals and groups (to understand their living environment and conditions, and to clarify their problems in daily life) and (3) to create opportunities for focus group discussion and dialogue (key persons of the area, youth groups, women's groups, and teachers).

Understanding the needs will also reveal what individuals and groups are hoping for their living environment in the future as well as clarify the challenges they are currently facing. Learning processes need to be developed in a creative manner to improve the current issues as well as to realize better living environment for local residents.

(3) Blueprints for teaching materials (Curricular units)

After you clarify the purposes and the needs, the next step is to design your teaching materials with curricular units. Examine each element of curricular units to develop concrete and attractive contents (Figure 3-2).

■ **Figure 3-1   Teaching materials for environmental education developed by our fellow volunteers**
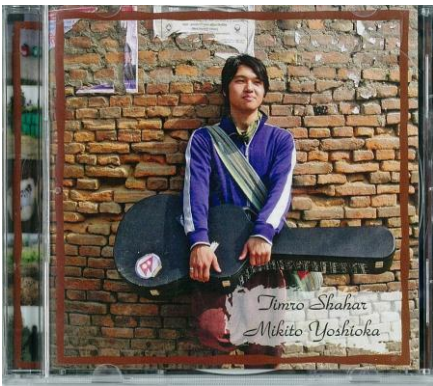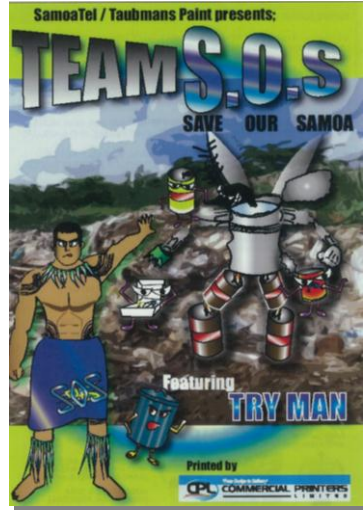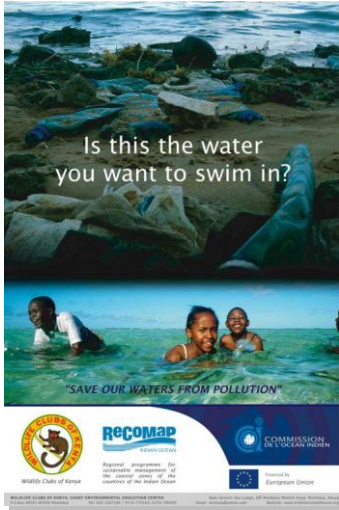
Top left: A poster to raise awareness of ocean pollution (Kenya)
Bottom left: A song to raise awareness of waste (Nepal)
Top right: A comic book to raise awareness of waste (Samoa)
Bottom right: A calendar to promote home composting (Nepal)

■ Figure 3-2 Blueprint for teaching materials in environmental education (Curricular units)

Selection of themes	· Select themes for teaching materials	
Targets	· The illiterate, the new literate and the adult literate · Elementary education, secondary education, and higher education · Citizens, children's parents, and their family members · Students on teacher-training course, and teachers · Workers for private companies, media, local governments, NGOs, and social education · Members of local community (generations, genders, and allocation of roles)	
Objectives	· Interest (awareness), knowledge, attitude, skills, and participation (involvement) See Figure 1-5 "Five objectives of environmental education" (p.12)	
Types of teaching materials based on learning contents	· Motivating-type	Teaching materials which make learners interested in the themes and motivated to learn.
	· Participatory-type	Teaching materials which enable learners to deepen their understanding in an enjoyable way through activities.
	· Guidance-type	Teaching materials which give learners concrete knowledge and skills for problem-solving.
	· Follow-up-type	Teaching materials which connect entire learning process together and give a comprehensive explanation and implications as well as additional information
Format of teaching materials	· Texts and pictures (Examples: posters, wall newspapers, pamphlets, books, magazines, flip charts, picture cards, card games, *sugoroku* game, board games, and the Internet) · Folk media (Examples: plays, shadow plays, storytelling, puppets, and songs) · Experiments and observations · Audio-visual (Examples: DVD, VCD, radio, TV, music, photos/slides, YouTube)	
Contents and storyline of teaching materials	· Introduction, main body, and review/conclusion · Supplements (Examples: activity forms/worksheets, relevant information, and definitions) * Some teaching materials may not require storyline.	

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2. Development of teaching materials

(1) Selection

When you need teaching materials for environmental education, you do not always need to create them from scratch. Firstly, look around your local area to see if there are any existing materials developed based on the local needs by our ex-volunteers or local groups/international NGOs. What is important when you use the existing teaching materials is to check whether they can satisfy the learning needs of your targets. In the development of teaching materials for environmental education, you will need to choose and utilize the most appropriate existing teaching materials for learners as well as to create new ones.

(2) Adaptation

Existing materials which can possibly meet the learning needs of your targets may require some adaptation. First, you have to assess them in terms of use of language, level of terminology, amount of text, images used, learning style, history and culture, format, storyline, concepts, size and supplementary worksheets. Then you make adaptation in order to make the materials best meet the needs of learners. It can be said that adaptation is certainly representing a respect and consideration for the local culture and values.

(3) Development

If you cannot find existing teaching materials that can meet the learners' needs or possibly meet them by adaptation, you should develop your own materials. Many excellent teaching materials have been developed both in Japan and abroad. Try developing your own ones for your environmental education activities using these various teaching materials as references.

臨機応変

To take action depending on situations. To change the way of handling according to circumstances.

3. Teaching materials based on different learning objectives

(1) Motivating-type

The feature of the "motivating-type" is that they promote learners' motivation to become interested in the learning themes. Examples of this type include; beautiful works of art and posters, photographs of disastrous environmental disruption, and scientific experiment shows with simple materials which can intrigue children. Many of teaching materials which put more emphasis on raising awareness and increasing interest level appeal to the sense of beauty and value, and deep psyche of learners. This type of teaching materials is very effective as an introduction to environmental education in order to achieve its various objectives.

(2) Participatory-type

The feature of "participatory-type" teaching materials is that learners can deepen their understanding through participation in activities in an enjoyable manner. Examples of this type vary from *sugoroku*, *karuta*, card games and posters with fun to puppets, picture cards, songs and dance, which can be enjoyed in a large group. Materials and tools for experiments and observations belong to this type and can be used in laboratories and fields. This participatory-type will give a fresh experience to the children in developing countries who can only think of textbook as teaching materials
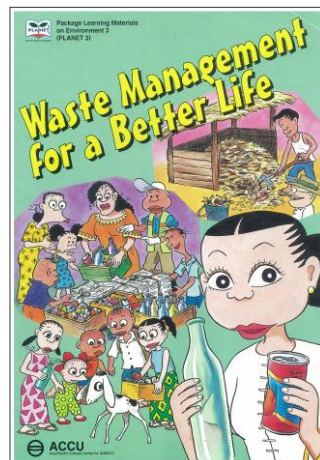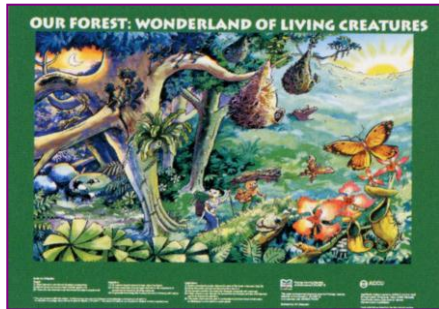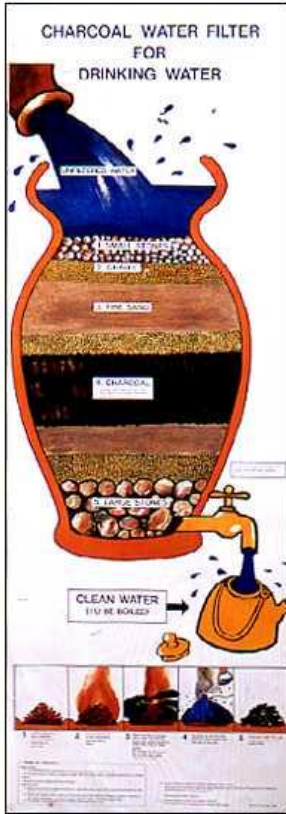
(3) Guidance-type

The feature of "guidance-type" teaching materials is that they present clearly the knowledge and skills required for problem-solving. This type can directly contribute to improving the quality of life of people in developing countries as it gives them specific knowledge and skills to tackle their daily problems. This type covers a variety of knowledge and skills which can be used immediately in daily life, including water filtration, hygienic cooking methods, composting of food waste, cultivation of medical herbs and cash crops to boost income. As acquiring knowledge and skills for daily life in developing countries is also relevant to environmental education in a broad sense, this type can be associated with activities in other educational fields, such as hygiene, infectious diseases, tree planting, science and mathematics.

(4) Follow-up-type

The feature of "follow-up-type" teaching materials is that they connect entire learning process together and give a comprehensive explanation and implications as well as additional information. This type enables learners to interconnect what they have learned/acquired through a series of environmental education activities with each other, and give learners further information for their deeper understanding. It can also be said that this type gives correlations among five objectives of environmental education; interest, knowledge, attitude, skills, and participation, and bridges the gaps between knowledge and skills; and attitude and behavior. This type can contribute to the learning process which puts an emphasis on "relationships" as this presents a comprehensive explanation and implications about the interdependence of environmental issues; and the balance of environment, society, and economy.

■ **Figure 3-3 Teaching materials based on different learning objectives [Source: Teaching materials for functional literacy (ACCU)]**

Top left: About drinking water processing (guidance-type)
Top right: Game cards (participatory-type)
Middle right: Poster (motivating-type)
Bottom right: Comic book (follow-up-type)

4. The spread and use of teaching materials

Below are some points which need to be considered when disseminating and using the teaching materials developed for environmental education. In developing countries, where the living environment and learning needs of local residents are diverse, you should consider the following.

(1) Digital divide

In terms of getting messages from environmental education across, you should pay attention to various kinds of digital divide, which can be seen between learning styles, residential environments, languages used as well as genders and generations (Figure 3-4). You have to examine learning environments in light of the digital divide for the effective use of teaching materials.

(2) Dissemination and diffusion

You should put more focus on "diffusion" rather than "dissemination" as the purpose of teaching materials. Dissemination of teaching materials is just to spread them physically, and can be effective in terms of spreading the importance of the themes, while diffusion of teaching materials can meet various learning objectives by associating with relevant teaching materials, education activities, and local contexts as well as can make the contents on the themes deeper. In addition, diffusion of teaching materials can be used to promote sharing of information and communication between learners. Therefore, it can be said that diffusion is a process of development through communication channels between the members of a local community.

(3) Communication channels

Communication channels mean the routes to the targets through which messages are delivered. It is one of the important strategies for the diffusion and effective use of teaching materials to decide what types of communication channels should be adopted. When you develop strategies, you will need to examine what kinds of communication methods to be adopted for the target learners you have decided in your blueprint (curricular units) for teaching materials.

■ Figure 3-4   Diverse digital divide

Social/economic elements:	Different learning styles depending on the levels of education, income and literacy; culture and customs
Difference in learning ability:	Different learning abilities due to age, generation, and working environment
Gender gap:	Digital divide in genders etc.
Digital divide within a country:	Urban areas and farming villages, social strata etc.
Digital divide in the world:	English-speaking countries and non-English speaking countries etc.

The mass media and interpersonal channels are both part of communication channels. For environmental education activities, however, attentive communication through interpersonal channel is required. You have to find out the people who have the relationship of trust, or have common ground or interests with your target learners.

(4) Packaged teaching materials

There is a close relationship between various objectives of environmental education and the types of teaching materials for environmental education. Adopting different types of teaching materials based on the learning objectives enables you to develop the teaching materials which can achieve the objectives. In most case, however, environmental education activities are functioning as a program in which a variety of activities are interconnected with each other. In these cases, it is necessary for the teaching materials to be packaged. Learning processes can develop deeper by using combined teaching materials of all four types, "motivating-type", "participatory-type", "guidance-type" and "follow-up-type.

(5) Utilization of teaching materials and face-to-face education (blended approach and facilitation)

Just disseminating teaching materials cannot produce any educational effects. Face-to-face communication is absolutely essential to promote sharing of information and associate the themes with local contexts through teaching materials. Besides, it is also necessary to have facilitators, who help learners to learn more and deeper, so that learners can discuss about the themes of teaching materials to make their understanding deeper. In short, teaching materials are not the only one to be developed; it is also required to develop human resources who are able to make the most of the teaching materials to deepen the learners' understanding.

(6) Participatory development of local teaching materials

Teaching materials for environmental education can be developed by one volunteer alone; however, it is necessary to examine who can work together for the development and how the materials should be developed. Especially when developing teaching materials utilizing the local resources, the involvement of the local residents will be hugely meaningful. This kind of teaching materials can be; a clear map of local resources, a hazard map which clearly shows the danger zones in the area, creation of wall art with children in which they depict their future, songs and dance to get the environmental messages across, a local environmental activity calendar, and a local folklore picture-card show. Involving local residents in the process of developing teaching materials for environmental education is also significant in terms of clarification and sharing of local resources and values, and of communication between the members of local community. Development of teaching materials with an emphasis on participation and dialogue will also lead to the enhancement of the local residents' sense of ownership naturally.

5. Teaching materials for environmental education as a method of information sharing and communication

As we have looked at so far, teaching materials for environmental education have various types and features. We have also looked at the process of development of materials, processes of diffusion and utilization, and the points to consider. Teaching materials themselves are the messages from environmental education and can also work as an information sharing and communication tool. The fact that our volunteers, in cooperation with the local people, develop the teaching materials which can satisfy the needs of the target learners is an excellent learning process itself. Teaching material development never ends. It is vital to keep enhancing the quality of teaching materials with continual improvements.

6. Know-how to succeed in development, diffusion, and utilization of teaching materials

When you develop, diffuse, and utilize teaching materials for environmental education, we advise you to consider the following perspectives on the next page in addition to what we have already looked at earlier (Figure 3-5). Do share your knowledge with the people involved and the fellow volunteers, accumulating know-how on development, diffusion, and utilization of teaching materials.

■ Figure 3-5   Know-how to succeed in development, diffusion, and utilization of teaching materials

(1) Social compatibility (consideration for local contexts)
・ Consideration for historical and cultural contexts (Examples: acceptability of personification, depiction of the sun and natural objects, preference in color, portrait and graphics, acceptability of languages and special characters, and preference in the format of teaching materials) ・ Consideration for geographical contexts ・ Consideration for regional-specific learning styles (Examples: songs, conversations, and dance)
(2) Main characters in teaching materials development (main developers of teaching materials)
・ Children as main characters (Examples: messages for their juniors, and audio-visual teaching materials, such as art and songs) ・ Volunteers as main characters (Examples: volunteers' experiences in Japan, teaching materials developed with volunteers' expertise and special skills) ・ Developed by volunteers and CPs (Examples: creation of picture-card show, and inserting into shellbooks in local language) ・ Developed in cooperation with local residents (Examples: collaboration on wall art, and creation of songs and dance)
(3) Recruitment of participants (involvement of people)
・ Fund-raising, teaching material development, and events (Examples: securing corporate sponsorship) ・ Activation of communication between members of local communities (Examples: making a video brochure for the community) ・ Clarification of local values (Examples: map of local resources, use of local wisdom and proverbs as teaching materials) ・ Development of audio-visual teaching materials (Examples: clip art and photo language which do not require letters)
(4) Impacts (enhancement of learning effects)
・ Consistency in the messages (Examples: connection, involvement, expansion, and deepening) ・ Familiar things in daily life as teaching materials (Examples: calendars, notebooks, eco-bags, maternity health record books, diaries, comic books, school songs, wall art, parodies of songs) ・ Consistency in characters (Examples: adequate placement of characters based on their roles and functions, and consistency in characters) ・ Development of audio-visual teaching materials which accommodate the illiterate and multilingual societies (Examples: photo language, shellbooks, and picture-card shows) ・ Clarification of the messages (Examples: classification, chronological, comparison, causalities, causality loops, priorities, the whole picture, indicators, and two-dimensional axe) ・ Messages towards the future and sharing of ideal model (Examples: creation of wall art, slogans, motivating-type teaching materials)
(5) Enhancement of efficiency (efficient delivery of messages)
・ Development of posters as teaching materials ・ Creation of songs and dance ・ Use of common properties as teaching materials (Examples: school building and ground, classroom walls, bulletin boards and signage, and trash boxes) ・ Use of local media (Examples: bulletin boards and wall newspapers) ・ Use of mass media channel (Examples: videos and the Internet)
(6) Enhancement of the beneficiaries' level of satisfaction (enhancement of fun and enjoyment)
・ Link with events (Examples: link with art events, and link between learning activities and turning them into teaching materials) ・ Participatory-type teaching materials (Examples: *Sugoroku* game utilizing floor surface; development of teaching materials, lyrics, screenplays linked with music, dance, and drama

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2. Tackling waste issues

Before you start tackling waste issues, remember the following tips!

- Do not spend much time and efforts on the waste no one wishes to have.
- The trust and participation of local residents are essential.
- Do not start your activities which require the involvement of local residents before you get the whole picture.
- Do not think Japanese "morals" as standards.

1. First, think about "what is needed next?" in waste management - The danger hidden in "Let's start with teaching how to separate waste."

As the environmental problems draw more and more attention worldwide, our environmental education volunteers are required to be involved in wider range of activities. In recent years, especially, "tacking waste issues" has been increasingly included in the list of requests from local governments. Some of the waste issues, such as "overall waste management in city areas" and "development of waste disposal systems", which cannot be handled by our volunteers, are also included in some cases. However, you do not need to feel daunted. It should not necessarily be difficult to deal with waste problems if you think and act daily in a broad framework.

For instance, when you find that "disposal of general household waste" is on the requests, you would probably like to start with "educational activities on separation of household waste". Firstly, however, try thinking in a slightly broader framework, like "What will happen to the sorted recyclables once the waste was separated?", before you get started.

- Will the separated household recyclables be collected as being separated?
- Will the local government be able to collect all the sorted recyclables?
- Aren't the collected recyclables being sent to landfills?
- Are there any places to store the collected recyclables temporarily?
- Are there any recycling companies which collect the recyclables?
- Will the profit from the sale of the recyclables be returned to the residents?

Once you have taught how to separate household waste, these hurdles need to be cleared. If the recyclables collected in cooperation with households are not efficiently reused due to just one of these hurdles, all the efforts of local residents will be wasted. Moreover, this can also lead to an increase in distrust of their local government and the whole waste disposal system. You should conduct enough research beforehand to ensure smooth and effective activities.

2. Research on waste disposal processes

Try conducting some research on the waste disposal in your area, following the steps below.

■ Step 1 – Research on the laws and systems regarding waste disposal in your area

- Allocation of roles between the administrative authorities (general waste = local government, hazardous waste = national or federal government, medical waste = state or province government, etc.)
- Methods of waste disposal (incineration, landfill, etc.)
- Recycling-related laws (the types of waste obliged to be recycled, etc.)

■ Step 2 – Current situation of waste management in your local area

- Current waste collection system (interviews with CPs, frequency, charges and coverage of collection, etc.)
- Waste-related budgets (total amount, the ratio to the total budget of the community, changes in the amount in recent years)
- Landfills (examinations on the existence or non-existence of scavengers and incineration, the types of waste collected, the total amount, the scale, and the speed of expansion to get the whole picture through the observation)

■ Step 3 – Research on waste disposal

- Amount (amount and proportion of household and commercial waste, amount and proportion of organic and inorganic waste, details of inorganic waste, and the types of waste with intrinsic value)

■ Step 4 – Research on recycling companies

- Recyclers within the community (types and prices of the recyclables they collect, forms of collection, whether they can come to collect, etc.)
- Recyclers in the neighboring communities (types and prices of the recyclables, forms of collection, whether they can come to collect, etc.)

(1) Check who are responsible for waste disposal

First, start from the step 1 with studying the waste-related laws of the country you are in. Waste can roughly be divided into "household waste" from each household, and "commercial waste" from companies and organizations. In some countries, each type of waste may have different collection process. The household waste is further classified into "general waste", "hazardous waste", and "medical waste". The hazardous waste includes butteries, dry cells, and chemical substances, while medical waste includes needles disposed of from households as well as from medical institutions. It is often the case that each type of waste is collected by different administrative authorities; in general, the "local government" is responsible for the general waste, the "national and state or province governments" for the hazardous waste, and the "state or national Health Ministry" the medical waste. In addition, the methods of collection and the processes after the collection may also differ.

The methods of waste disposal differ from country to country. Incineration is adopted by only a small number of countries where land is limited, such as Japan. Most countries adopt landfill as their waste disposal method. In some countries, incineration is prohibited as it can cause many problems including emission of toxic substances and consumption of a large amount of fuel. However, landfill also has its own problems; for example negative impacts on the soil due to the dangerous substance and gradual chemical transformation of the waste buried. To reduce the level of these impacts, various measures are in place in each country, such as lining the landfills with rubber sheets or concrete walls to protect the soil.

Some countries have the laws related to recycling. In addition, some types of waste may be obliged to be recycled, the collection methods may be specified, and the subsidies may be available for the promotion of recycling. So, please research as much as possible on these points too.

Especially, on the waste disposal of the country you are working for, the overseas office of JICA in the country probably has the information you need. It is certainly a good idea to contact them for information. If there are some technology transfer projects being carried out in the country by the waste experts, it may also be a good idea to contact them through the coordinator.

(2) Landfills, a good source of information on waste issues

As for the current situation of waste management in your area at the step 2, you will be able to understand roughly through the interview surveys with your CPs and the visitation to the actual landfills.

Ask your CPs about the current waste management administered by the local government or agency, including frequency of collection, the amount of charges to each household and its collection method, and the collection coverage within the community. Then discuss with them about the current problems to share opinions on whether "a whole new management system is required" or "making improvements in the current system should be enough".

During the inspection of actual landfills, you should confirm the current

status of collected waste. Even if your CPs and the local government told you that they were recycling, you should check with your own eyes. You will be able to obtain much information on, for instance, what is wasted, what type of waste takes up the space most, whether organic and inorganic materials are separated, and whether flies and stray dogs are attracted.

You should pay a special attention to the existence of "scavengers" at the inspection. In developing countries, you may see "scavengers" or "waste pickers", the people who search though waste for things which can be sold to make a living. In the natural world, vultures and carrion beetles, which eat rotting flesh, are the scavengers playing a vital role in the maintenance of the ecosystem. In our human world, recycling the waste with intrinsic value at the landfills is also an important task. In some areas, however, as the word "scavengers" are regarded as a discriminatory term, you should be careful about the use of terminology.

Many of them are "recycling specialists", who have full knowledge about what can be sold and what cannot be sold. Try to interview with them as many or much as you can to understand well what is happening at the bottom of waste issues in your area. The establishment of recycling system as part of waste disposal system, including waste separation, has a possibility of depriving the scavengers of opportunities for income. If a new disposal system needs to be established, you should consider involving the scavengers in the system negotiating with the local authorities, for example, to employ as many scavengers as possible.

Even though the profits of each scavenger are not much, they can be a huge amount of money as a whole. Waste disposal is sometimes a financial source for the local "mafia" in many developing and newly industrialized countries. If you find the case, please consult with the local coordinator at the overseas office of JICA immediately and stop your research.   Just the fact that "someone is conducting a feasibility study on the development of a new waste disposal system" is a great threat to them. Do not push too hard and explore another possibility.

(3) Types and amount of the "recyclables"
To know the approximate figures

After the "on-site survey" mentioned earlier, go on to the step 3, and conduct survey on the "amount of waste" as far as you can. The total amount of waste may be obtained from the current waste collection data the local authorities have, but some figures, such as the percentage of the waste with intrinsic value, the each amount of commercial and household waste, and organic or inorganic waste, may need to be examined through accompanying your CPs to the waste collection. Do not push yourself too hard at this stage. Just try to get the approximate figures about the "amount of the waste with intrinsic value disposed of (per day)" through simple samplings. If there is a university nearby to conduct a joint research with its research department, or, if you can ask the neighborhood associations and the women's associations to cooperate in the self-survey of household waste, you will be able to obtain more accurate figures. Once you obtained the results

of the surveys, for instance, the "monthly number of PET bottles discarded", you will be able to obtain a better deal in price negotiation in the future or to estimate the space needed for temporary storage.

In any case, as the main purpose is to know what types of "waste with intrinsic value" are available, you do not need to calculate the potential amount of money at this stage. Don't count your chickens before they're hatched. Just be optimistic about the types and amount of the "waste with intrinsic value".

Another important point to remember when you research on the recyclers is whether they have specific conditions to collect. In Japan, the labels and caps on PET bottles often need to be removed before collection, but in some countries, removing labels is not necessarily required as they may have an automatic sorting system based on the difference in specific gravity after crashed into chips as part of their disposal system. In these countries, asking each household to "remove labels" is waste of time and efforts, and this may become a hindrance to their cooperation in recycling. You should think on the basis of whether the "money you can obtain" will be worth the "efforts you made".

Or, in some cases, the recyclers may be able to collect the recyclables depending on their types, even though "they will give you no money". Even in this case, it is well worth considering, if they can come to the collection site in your area, as this can contribute to the reduction in the waste disposal cost. The landfills are limited within the community, and leaving the waste exposed to the weather will keep making negative impacts and costing over a long period of time, such as pollution caused by harmful substances leached from the aging waste. Judging from all of these factors, the "waste collected, but no money gained" often cost less.
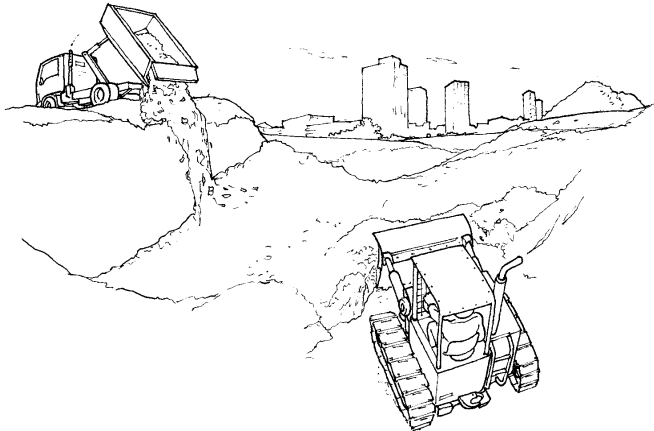
3. Scrutinize the "feasibility"
- Do not make the residents work in vain

After you have gone through from step 1 to 4, discuss with your CPs about the "feasibility". It would be better if making some improvements to the current waste collection system is enough. List up the required improvements, and then try to "persuade" the superior of your CPs, the head of the community, and relevant persons in charge. Even if a whole new system needs to be established, you do not need to falter. It is well worth trying if you become confident through the process of discussions with your CPs about the survey results that the system can deal with the waste.

However, if you cannot find any "place for the waste to be collected" at the moment, do not give the "guidance for separation in the home" to the local residents. If they cooperate positively and find that their efforts are "in vain" in the end, the situation may become "worse than doing nothing", and also you may lose their trust and future cooperation. As there are many other "environmental education" activities, such as clean-up campaigns and raising awareness of environment, than waste separation and recycling, try to find the activities which best suit the situation.

4. Now, it is time to act. Show your originality and ingenuity.

Once you became confident of the feasibility of waste disposal system, try setting up a project with your CPs and plan your activities. You should have met most of the stakeholders in the process of your research, and some of the residents may offer their cooperation inspired by your research activities. Take the "enthusiasm" of everyone involved positively and be inventive to make them motivated towards one common goal. Below are some tips for your activities.

(1) Environmental education and awareness campaign targeted on households and businesses

It needs to be understood that the proper waste disposal is fundamentally the responsibility of the "person who generate" the waste. It will be a good idea to organize workshops and community meetings to promote their understanding about the waste. The subjects can be the following; that waste disposal can be expensive, the person who generates the waste have to bear the cost, "waste separation at the home" and other "every little bit of cooperation" will help to reduce the cost, 3Rs (Reduce, Reuse, and Recycle) + one R (Reject) can contribute to the reduction of cost. It is also recommended to distribute a poster in which waste separation is explained with pictures considering the literacy rate and whether a habit of reading exists. Another effective method is to hold seminars in cooperation with clinics, and elementary and secondary schools in the community.

In the waste disposal system, the most important but most difficult part is to obtain the cooperation from households. This part involves direct contact with the residents where your originality shines through. So please work patiently together with your CPs, without rushing, to earn their trust.

(2) Persuading the local authorities and securing budgets

Even though you will obtain some money from the sale of the recyclables in the future, you will need some funds at the early stage for facility investment, labor costs, and so on. Try to make the policy-makers, such as the head and the deputy head of the community, understood the importance. As the community's budget may not be enough to develop the infrastructure, such as building a treatment plant, you may need to set up a "working group" with the state or province government and the local branch of the national government to work as a team. Further, if you can make the representatives of the residents and the trade associations, as the representatives of the "persons who generates the waste", involved in this working group, your activities can be further promoted. So please always try to use your ingenuity to promote the involvement of the residents.

Regarding the recyclers, try to find their "big boss", as the amount of money you obtain will become less depending on the number of intermediaries, and small recyclers may not be able to add values. Try to negotiate with them for "an additional trip" to collect your recyclables when they come to neighboring communities, or for some extra cash for selling in bulk. Or perhaps you can ask for their cooperation from the viewpoint of Corporate Social Responsibility (CSR), as it means their contribution to the welfare of the local residents. As there are, in some countries, tax incentives for the enterprises which conduct CSR activities, it may be effective to submit a "proposal" to them if you can find any incentives or of this sort. Do not forget that the recyclables are the "commercial goods" which were produced by all the efforts of the local residents, and try to add as much value as possible to them when selling.

3. School Visits

1. What is school visit?

Many of our volunteers for environmental education visit local schools to conduct educational activities. The environmental education activities conducted at the site of local schools by visiting volunteers is called "school outreach" in English (hereafter called school visits) and make it possible to target the people from wider areas in larger number.

Here, we will look at the tips for school visits, but some of them can also be useful for "community visits".

The school visits can vary from just a few schools to over a hundred depending on the transportation available and the budget of our partner organization you are currently working for. The number of visit to the same school can also be from only once a year to several times a week. Generally speaking, in many developing countries, extra-curricular activities, such as environmental education, tend to be neglected compared with other main subjects, such as mathematics and science. Think about how you can make your school visits effective under these circumstances.

2. School visits as triggers

In developing countries, many children and teachers have never had environmental education. Some people may not have a slightest idea of what environmental education is, while others may be interested in it, but had no opportunity due to the geographic, financial, time and organizational constraints. School visits enable those people to have opportunities to learn about the environment, as the conductors (the leaders) of environmental education themselves approach learners proactively.

As the school visits usually involve several schools, and the time allocated by each school for your visit is limited, it is inevitable that the frequency of visit and the time you can spend on a class are not enough. Under these situations, not a few of our fellow volunteers become distressed: "I don't think I can change their attitudes with just a few visits to the school. Is what I'm doing meaningful?" It is natural that you wish to achieve something visible during your two-year activities. However, it will take a long time to change peoples' "attitudes", and also requires a great deal of efforts. Even for the experts, it would be difficult to change children's attitudes and behaviors with just a few school visits.

If it is difficult, then, to improve learners' attitudes, what is the purpose of the school visits? The answer is to "trigger" the next action of learners. Once they are triggered by the school visits, they may start learning actively, not passively, or acting for the environmental conservation. If these actually happen, it can be said that your school visits were successful. In the school visits, it can also be said that the "interest", one of the five objectives of environmental education (interest, knowledge, attitude, skills and participation), is regarded as the most important objective.

By the way, the time allocated to one school visit by a school is usually just around one hour. Under various constraints, how can we "trigger" the

next action effectively?

3. Combine school visits with other activities

It becomes more effective when you combine the school visits with other activities to effectively trigger the next action. If you just conduct educational activities at the school visits, and then leave the school alone, no matter how excellent your activities were, the school will not take next action proactively. It is of course important for the school to be proactive, but you will need to make some "arrangements" for them during the initial stage.

■ **Figure 3-6   School visits for educational activities and examples of next action**
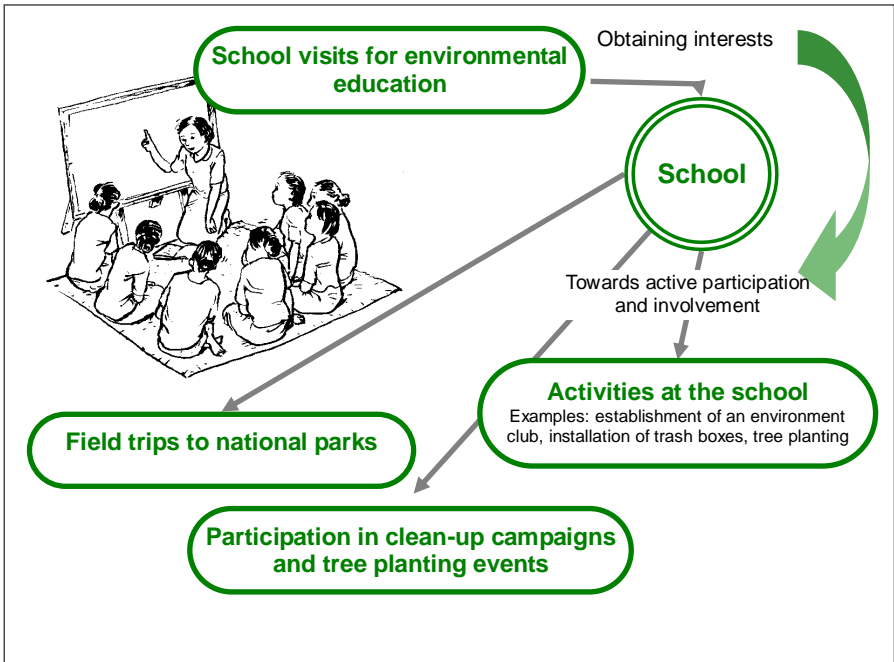
Let's say, you are visiting several locals schools and giving classes about the waste issues. The students may become interested in them through your classes, but this will not be enough to make them actually put what they have learned into practice. However, if you can give them opportunities to do so, their "interests" will link to their "participation". These opportunities can be a joint clean-up campaign with all the schools you are visiting, and, debates and a quiz or trash box art competition between the schools. These events can also be useful to promote the motivation of participating students and teachers, and the exchanges between the schools as well as their learning experiences.

Until now, our ex-volunteers have been conducting a variety of activities combined with the school visits (Figure 3-7). Try if you can think of any other activities which can be combined with your school visits to suit the situation of your area.

Even if school visits are not part of the requests, visiting schools can become a great weapon for the volunteers who are working for the planning and operation of awareness events and campaigns. If they visit schools before the event they are planning, it can work as a rehearsal and the publicity for the event. In this sense, school visits can also be regarded as one of the preparations for the efficient running of events.

■ **Figure 3-7   Examples of activities which can be combined with school visits**

Activities	Details of activities and tips
Eco-school competitions	Rank your schools according to their level of "eco-friendliness". The evaluation criteria can be the number of young trees they are planting, and the levels of waste recycling and the hygiene of their toilets. Awards ceremony can be held in conjunction with other events.
Various events	Clean-up campaigns, tree planting, interscholastic quiz competitions, debates, and dramas. These will be good occasions to practice what they have learned through your school visits.
Poetry and art competitions	Even if your schools are far away from each other and cannot gather together, they will be able to take part in the poetry and art competitions held under the theme of the environment.
Newsletters	Publishing newsletters is useful to transfer the knowledge, and advertise your events as well as present the advanced efforts of the schools.
Seed exchanges	More than two schools exchange the seeds they collected near their own school. This will enable the schools to obtain new types of seeds, and also promote exchanges between the schools.

4. Get schools involved
(1) Involvement of teachers

It is not uncommon that our volunteer visits schools by him/herself, partly because there is no member of staff responsible for school visits at our partner organization. If this is the case, once our volunteer left at the end of his/her term with no successor, school visits will no longer take place. Ideally, you should visit schools with your CPs or fellow volunteers so that they can carry on activities after you leave. However, it can happen that your CPs are too busy with their own duties to visit schools.

In this case, you will need to involve the teachers of your schools in your activities so that environmental education activities can continue even if the school visits do not continue. There should be a teacher/teachers who is/are highly aware of environmental issues among the possible key persons. It is the first requirement for successful school visits to get this kind of teacher(s) involved.

The second requirement is support from the school. Even if you can find key teacher(s), without approval from the management of school, including the principal, it would be difficult to make school visits. Even when the school is not enthusiastic about school visits, it would be a good idea for you and your CPs to set up a meeting with the school to persuade them, as they may be objecting without knowing about environmental education and its importance.

On the other hand, it is also a good option to visit mainly the school which shows interest in your activities as a pilot school (an environmental model school). When your visits get into gear and if your success is spread by word of mouth to other schools which originally had no interest, they may change their mind.

When you have found the key teacher(s) and obtained the school's support, your school visits and the school's own activities should move forward smoothly. In developing countries, however, where changes in teachers are common, it is also common that the budding activities which have been led by those transferred will inevitably become inactive. Therefore, you should try to involve more than two teachers per school in order to keep the activities going. For instance, an environment club should have a main and sub teachers so that even if one of them leaves, the other one can lead the club. You should make sure that the sub teacher is actually and actively involved in the activities.

(2) Enhancement of the motivation

The point you should not forget when trying to get these teachers involved is that they are "volunteering" to cooperate with your environmental education activities in addition to their own duties. Therefore, it would be difficult to ask them to keep being involved actively without any sort of rewards.

Providing these teachers with opportunities to improve their skills in environmental education, such as workshop and seminars, or some kind of certificate which proves that they are conducting environmental education activities, will help to enhance the level of their motivation. This certificate will explain what kinds of activities they are doing to the principal. The certificate can also be used as proof of their achievements when they change their

job or school.

For students, membership cards of the environmental education club or a badge with the logo of the environment club will help to enhance the feeling of being a member of a club which aims to protect the environment. Even if these are not possible, providing students and schools with certificates of commendation or appreciation when they have completed a certain number of tasks should make the students "more motivated". Other ideas to enhance their motivation would include field trips to national parks.

Further, if you can establish a system in which revenue from the sale of young trees nurtured at the school and timber is used as funding for the activities of the environment club or for purchase of school equipment, you can expect the activities to continue. It would also be good if you can produce tangible "results" through the activities, such as poultry raising and the collection and sale of "waste with intrinsic value".

(3) Bonding with the people involved

In order to make the environmental education activities undertaken by schools more sustainable, schools need to not only participate in events but also actively engage in the planning and operation of the events. The central roles will be played by the teachers, but the students, if they are of high schools or universities, should actively be involved too.

In terms of types of approach, the classes at school visits are mostly conducted with the "education ABOUT the environment" (knowledge transfer) approach or the "education IN/THROUGH the environment"

(sensitivity learning/direct experience) approach; however, these approaches can be connected to the "education FOR the environment" (group activities/participatory/interactive) approach by promoting the active engagement of students and teachers.

When you have enough supporters for environmental education activities, try setting up an executive committee consisting of the teacher(s) in charge and the representatives of stakeholders to encourage them to be actively involved in the planning and running of events, as well as to participate in the events.

5. Points to check when visiting schools

Now, we will look at the points to be checked when you actually visit the schools (Figure 3-8). As many of the points are common to what are described in the sections "development of teaching materials for environmental education" and "events and workshop", the 1st and the 4th sections of this chapter respectively, you can also refer to these points when developing your teaching materials and planning the events.

We will also look at some other points to remember when visiting schools based on the problems our ex-volunteers have encountered.

■ Figure 3-8   Points to check when visiting schools

Items	Points to check	An example
Purposes	· Kind of learning experiences you wish the learners to have · Kinds of opportunities you wish to give the learners	To make students interested in littering
Targets	· Types of schools: elementary, secondary, or higher education; private or public, etc. · Targets (members of environment clubs, all students, students of a specific class, etc.)	Approx. 500 students, who are members of environment clubs from 10 elementary schools in areas near the seaside.
Themes	· Check if the themes can be the same for all the schools, and if the themes are suitable for the natural and living environment of the schools.	"What happens after you litter?" (As all 10 schools are situated near the sea and almost all the students have been to the seaside, the themes can be the same for all the schools).
Programs	· Methods (Screening of videos, picture-card shows, participatory activities, etc.) · The length of the program and allocation of time for each component · Place of practice (It would be better if you can check the surroundings of the school in advance)	1st class: Screening of the video, "Sea turtles and waste" (30 minutes) → group discussion (20 minutes) → review (10 minutes), a total of 60 minutes 2nd class: Workshop on types of waste
Schedules	· Time and date, the number of visits to each school	Twice a week during a term for each school, in the hours for club activities
Venues and equipment	· Equipment (blackboards, audio-visual equipment, DVD, etc.) · Facilities at the schools (electricity, space, etc.) · Arrangements to be made by our partner organization or the schools?	If the schools have a TV and a DVD player, ask them to set it up; if they don't, bring the equipment. In case of power outage, use picture cards instead of videos.
Evaluation	· Self-assessment · Questionnaires · Oral feedback, etc.	Oral feedback from the students, and a questionnaire survey on the classes for the teachers involved.
Link with other activities	· Newsletters · Participation in other events · Homework to be done by the next visit	"Coastal Clean-up Day" will be organized once all the schools have been visited.

(1) Scheduling of school visits

When you schedule your school visits which can be a long journey, you should never forget to consult your local acquaintances, such as your CPs. It can take longer than expected due to rough roads, or schools may finish earlier during Ramadan in Islamic countries. Try to gather local information all the time.

(2) Notice of your visit

When you send a notice of your visit to schools by mail, you should do so well in advance, as delays in delivery can occur depending on the postal service in your country. It would be better if you can contact them by telephone or email to double-check, or even triple-check, that the date of your proposed visit is fine with them. This should help to prevent trouble from happening, such as "I came all the way only to find that the school is closed."

Even when you made perfect preparations and arrived on time at the school, it happens quite often that they are not ready yet. So always try to include some extra time in your visit and stay calm when something unexpected has happened.

(3) Environmental education within the schools' curriculum

Generally speaking, you should visit the schools on weekdays when children are taking classes. Your classes at school visits should not interfere with their timetables.

As in many countries where our volunteers work, extra-curricular "learning", such as environmental education, is not regarded as important, you should be grateful to the schools for sparing time for your classes.

The themes of your classes do not always need to be related to "environmental education". If the schools prefer existing classes, such as music, science and social studies (introduction of Japanese culture), to be conducted with the essence of environmental education, you should take those opportunities.

(4) Prepare for accidents

Even if you think you have made arrangements perfectly, accidents can happen. For instance, when you are going to screen a video about wild animals, it can often happen that you have to change your plan due to power or mechanical failure. This is where your "Plan B" is required. You can use picture cards even during the power failure. You should be able to adjust your classes according to the situation if you have prepared more than two different class contents with the premise that accidents can happen.

(5) Actual classes

Now, it is time to start your actual class in front of the students. First, try to create a relaxed atmosphere using the icebreakers described in Chapter 4. It can be chaotic for the first few classes; for example, children are yelling, disobedient, and not listening to you, as you are an unfamiliar foreigner. One method to deal with these situations is to ask their homeroom teacher to make them quiet rather than to scold them yourself. Ask the teacher to be present as much as he/she can at your classes for the effective running of your classes. If it is not possible, go through the class over trying some activities which can increase the level of their concentration which is explained also in Chapter 4.

(6) Do not forget about follow-up

In many cases, there will be some break until your next visit or event. In order to keep the learners engaged in some kind of environmental education activities, you should give them homework which relates to your next class or publish newsletters.

4. Events and Workshop

1. Points to check beforehand

There are many opportunities for our volunteers for environmental education activities to plan events and workshops. You should bear in mind that something unexpected can actually happen to the running of events and workshops; for instance, you do not know the exact number of the participants until the day of the event, the people you expected to come (not just the participants, even the lecturers or the members of staff!) haven't arrived yet, the number of participants increased dramatically due to family members accompanying the original participants, and the letter of request for cooperation has not been read. You should try to enhance your "ability to predict" accidents and your "ability to respond flexibly" to unexpected situations. Below is a table of points for you to check before you hold events and workshops (Figure 3-9).

■ **Figure 3-9   Points to check when holding events and workshops**

Purposes	・ Kinds of experience you wish to offer ・ Kinds of learning you wish the participants to obtain ・ Kinds of social messages you wish to get across
Targets Number of participants	・ Age groups ・ Fixed or unfixed? ・ Points to consider (the ability to write, cultural taboos, etc.) ・ First-timers or repeaters? ・ Participation by own will, by force or by chance? ・ What participants expect
Venues	・ Space available and equipment (chairs, desks, outlets, blackboards, bulletin boards, etc.) ・ Characteristics of the venue (attractiveness or features, points to pay attention to, hazards, toilettes, transportation, etc) ・ If taking place outdoors - shades, toilettes, alternative place for activities when raining, etc.
Times and dates	・ Choice of season, dates, and times for easier participation ・ Length of preparation and notice ・ Conditions on the day of the event (the weather, clash with other events or activities, etc.)
Contributors Collaborating organizations	・ Who the contributors and the collaborating organizations are ・ Advantages for contributors and collaborating organizations ・ Kinds of roles you wish them to play
Other	・ Methods of notice ・ Funding

2. Programs and activities

When you plan something, it should be better to know that "programs" and "activities" are different. Activities are individual activities, such as playing a game, watching a picture-card show, or listening to a lecture, while programs are sequenced flows of several activities (Figure 3-10).

The orthodox flow of a program is from "Introduction, Main Body, Review, to Conclusion".

At the "Introduction", the participants become comfortable with each other and build relationships of trust with the teacher.

Then move on to the "Main Body", in which the activities are more focused on the themes and objectives of the program.

At the "Review" and "Conclusion" stages, the learners will internalize what they have learned through the activities. The learners will be able to give meaning to what they have experienced through the program, by sharing what they have realized with fellow learners, or with help from the teacher.

3. Clarify the themes

You should tell a story based on the themes to your program rather than putting enjoyable activities together randomly. When each activity of the main body is carefully placed in line with the themes, the perspectives of the learners will differ greatly depending on how the introduction, the review and the conclusion are given, even if the basic flow is the same. So, try to modify the manuals of various activities to suit your themes.

■ **Figure 3-10   An environmental education program and activities**

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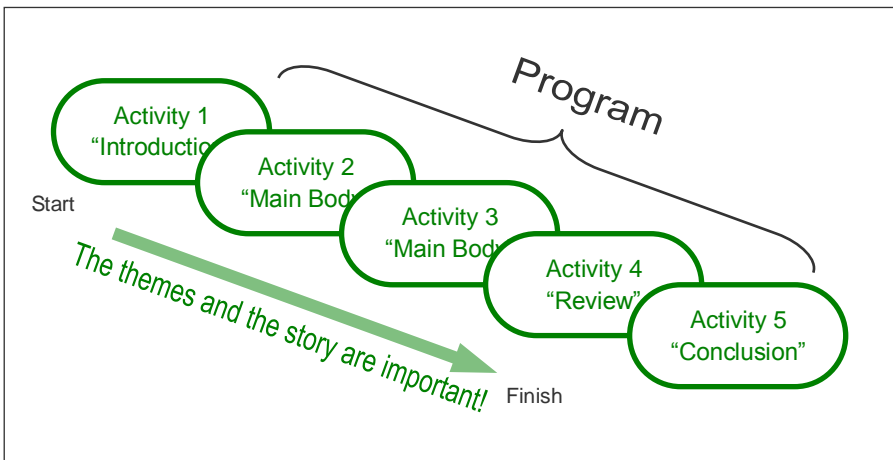
4. Examples of programs
(1) Case study 1 – The "Clean up the Beach" event at Mombasa, Kenya

Let's look at some actual plans our ex-volunteers carried out. The first one is a half-day event to clean the beach planned by a volunteer working in Kenya. If you look at the chart below in detail, you will find that various things have been taken into consideration.

■ Overview of the event, the program

Purpose	To raise awareness of littering
Theme	"Waste and marine creatures"
Targets	Members of the Environment Club (approx. 500 students from elementary schools to university)
Venue	The public beach lining the marine reserve
Collaborators	The management organization of the marine reserve (offered trash bags and rubber gloves), the city office (collected the waste the participants had picked up)

Time	Activities	Aims	Points to consider
8:00	Registration (ice breaking until the start)	To respond flexibly to habitual lateness of the local people.	The start time written on the invitation letter should be about two hours earlier than the actual start time as a significant delay can be expected due to lateness.
8:15	Welcome speech	Allocation of groups and safety checks.	Welcome speech by the organizer and precautions for litter picking. As many schools arrive late, the interns give instructions to latecomers as needed.
8:30	Clean-up activities	To clean up the beach, and understand the types of waste and the amount of each type.	Clean-up activities should be finished before the sun gets too strong. For safety reasons, groups of elementary school students should include one university student.
10:00	Sand art competition	To make the students interested in the impacts waste can make while enjoying sand art.	As everyone will be tired after clean-up, an entertaining activity should be conducted to enhance the atmosphere while learning.
11:15	Performances by students	A review and conclusion by the students through their participation.	Ask the students in advance to prepare poetry, song, drama, or dance about the marine environment and waste.
11:45	Speeches by the organizer and the collaborators, Closing remarks	A review and conclusion by the organizer and the collaborators (supplement to the students' conclusion).	Provide the collaborators with an opportunity to give a speech. Ask them to include words of appreciation for the students' efforts. Include a story about sea turtles and plastic bags.
12:00	Free time for each school	The event should be finished by noon so that students can have time to play on the beach or in the sea freely in the afternoon, as many of them usually do not have an opportunity to come to the sea.	

(2) Case study 2 – A plan to enhance the 3Rs in environmental education at an elementary school in Hanoi, Vietnam

The second case study is a series of workshops held by our volunteers who were sent as a team to Hanoi, Vietnam for a short period of time. The activities were conducted during the class hours of the schools, and were programmed in line with the flow of "Interest, Knowledge, Attitude, Skills, and Participation".

■ Overview of the program

Title	A plan to enhance the 3Rs in environmental education at elementary schools in Hanoi, Vietnam			
Dates	August 21 – September 18, 2009			
Targets	(1) Khuong Thuong Elementary School (2) Hoang Hoa Tham Elementary School			
Purposes	To promote sustainable environmental education and to raise awareness of the 3Rs in relation to the waste management system, a challenge for Hanoi, through the implementation of the "3Rs, "REDUCE, REUSE, and RECYCLE", in an environmental education program" with teachers at two elementary schools in Hanoi.			
Contents	(1)　To implement the environmental education program, (2) To share outstanding examples of environmental education and awareness raising, and (3) To establish an environmental education network.			
Expected effects	(1) Improvements in the "3Rs in the environmental education program", and promotion of the 3Rs, (2) Deeper understanding of basic knowledge about environmental education and raising awareness, and (3) Shared vision towards the future development of environmental education in Hanoi.			
Resources injected	Human resources: 11 JOCVs and others (Japan), 2 elementary school teachers and 5 other volunteers for the 3Rs (Vietnam) Funding: 21,185,200 VND			
Schedule and contents	Khuong Thuong Elementary School		Hoang Hoa Tham Elementary School	
	August 21～	Start of preparation for E.E.	August 21～	Start of preparation for E.E.
	August 25	1st meeting with the school	August 31	1st meeting with the school
	August 26～28	Preparation for E.E. (creation of activities)	September1～7	Preparation for E.E.
	September 1	2nd meeting	September 8	Lesson 1: meeting
	September 3～7	Preparation for E.E. (creation of the tools for E.E.)	September 9	Lesson 1: actual
	September 8	Lesson 1: meeting & rehearsal	September 10	Lesson 2: meeting
	September 9	Lesson 1: actual, Lesson 2: meeting	September 11	Lesson 2: actual
	September 10	Lesson 2: rehearsal, Lesson 2: actual	September 14	Lesson 3: meeting
	September 11	Lesson 3: rehearsal, Lesson 3: actual	September 15	Lesson 3: actual
	September 14	Lesson 4: review meeting	September 16	Lesson 4: meeting
	September 15	Lesson 4: actual,　review: meeting	September 17	Lesson 4: actual
	September 16	Review: actual, meeting for the school assembly	September 18	Review: actual
	September 17	Activities to raise awareness at the school assembly	September 21	Activities to raise awareness at the school assembly

■ Lesson 1 (40 minutes)

Aim: To know about the current situation of waste in Hanoi 【From Interest to Knowledge】

Contents:

To learn about the current situation of waste in Hanoi and the Namson landfill through participatory and interactive learning experience utilizing the tools for environmental education. To enable the participants to understand the current conditions of their own city, raise awareness of their responsibilities for protection of the city and the conservation of the environment, and obtain relevant knowledge.

① Self-introduction (icebreaker)

② Introduction to Lesson 1 (the existing textbook, pp. 1-2)

③ Environmental education game (students experience the current and future [set in 2016, based on the prediction that the landfill in Hanoi will be full by the year if the amount of waste continues to grow] status of the landfill with all the five senses throughout the game.)

④ Lecture (students compare the situation of waste in Hanoi to that of the cities around the world utilizing the textbook and new tools, and learn systematically about the risks which can be caused by waste in urban areas.)

⑤ Conclusion (awareness of responsibilities for conservation of the environment)

⑥ Mini test (to check and compare the level of understanding before and after implementation of this program.)

Things you need:

The "3R Education Text Book" (textbook in Vietnamese), a blackboard, an E.E. game (a treasure box, cloth, and a whistle), photo panels (of the Namson landfill, a garbage cart in Hanoi, Micronesia landfill, Naples in Italy, pedestrian streets in Sydney, the Akarenga area in Yokohama, and a waste collection site in Okayama), and a mini test

Location:	Class 4B, Khuong Thuong Elementary School	Class 5A, Hoang hoa Tham Elementary School
Date and time:	9:40~10:20, September 9, 2009	9:50~10:30, September 9, 2009

■ Lesson 2 (40 minutes)

Aim: To Know about the 3Rs and be able to separate waste 【From Knowledge to acquiring Skills】

Contents:

To learn about the three types of waste (Organic waste, Inorganic waste, and Recyclables) and the 3Rs (Reduce, Reuse, and Recycle) through participatory and interactive learning experiences utilizing tools for environmental education. Participants will understand the reasons why waste should be sorted into three types, and what these three types of waste are. They will also acquire knowledge about the 3Rs.

① Review quiz on Lesson 1 (icebreaker)
② Introduction to Lesson 2 (the existing textbook, pp. 4-7)
③ Lecture (students learn firstly about the "three types of waste", and then about the "3Rs" utilizing the textbook and the new tools.)
④ Environmental education game (students sort picture cards of various waste into three types to check if each student can separate the waste into the three different types correctly).
⑤ Conclusion (knowledge about the three types of waste and the 3Rs)

The things you need:

A blackboard, magnets, a whistle, photo panels (of Namson landfill, recycled goods, and compost products), a panel of the 3Rs (Reduce, Reuse, and Recycle), and picture cards (a set of 20 different pictures)

Location:	Class 4B, Khuong Thuong Elementary School	Class 5A, Hoang hoa Tham Elementary School
Date and time:	10:20~11:00, September 10, 2009	9:50~10:30, September 10, 2009

■ Lesson 3 (40 minutes)

Aim: To learn about the correct way to put out waste 【From acquiring Skills to Attitude】

Contents:

To learn about the proper time of the day to put out waste for collection and sorting methods through participatory and interactive learning experience utilizing tools for environmental education. To enable the participants to learn the proper way to put out waste, and lay the foundation for participation in the collection of separated waste which it is planned to expand throughout the city of Hanoi in the future.

① Review quiz on Lesson 2 (icebreaker)
② Introduction to Lesson 3 (the existing textbook p.11)
③ E.E. game (students simulate waste separation through the E.E. game which incorporates the mechanism of primary and secondary collections. More practical method than that of Lesson 2).
④ Lecture (students learn in detail about how waste should be put out for collection as well as how waste discarded from households is disposed of, utilizing the existing textbook on the 3Rs and the new tools).
⑤ Conclusion (rules for discarding waste)

The things you need:

Panel 3 (Organic waste, Inorganic waste, and Recyclables), A5 picture cards of waste (laminated), panels for a review quiz (laminated), Panel 1 (photos of a waste collection site and a waste collector, good and bad collection sites, and heaps of compost and waste), a "Master of Discharger" game set (three buckets in different colors, three colanders in different colors, chopsticks, and a list of waste)

Location:	Class 4B, Khuong Thuong Elementary School	Class 5A, Hoang hoa Tham Elementary School
Date and time:	10:20~11:00, September 11, 2009	9:50~10:30, September 15, 2009

■ Lesson 4 (40 minutes)

Aim: To practice the 3Rs in daily life 【from Attitude to Behavior】

Contents:

To learn about the 3Rs which can be practiced in daily life through participatory and interactive learning experience utilizing tools for environmental education. To enable participants to regard waste issues as a familiar problem and take practical actions.

① Review on Lesson 3 (icebreaker)
② Introduction to Lesson 4 and Lecture (students learn about case studies in Japan presented on panels. Examples: charges for a plastic shopping bag, collection of the recyclables at supermarkets, My Chopsticks, etc.)
③ E.E. game (students learn through a *Sugoroku* board game that there are many 3Rs activities which can be done in daily life)
④ Conclusion (recognition of waste issues as a familiar problem, and what an individual can do for reduction of waste)

Things you need:

The *Sugoroku* board, a dice, photos of examples from books (laminated)

Location:	Class 4B, Khuong Thuong Elementary School	Class 5A, Hoang hoa Tham Elementary School
Date and time:	10:20~11:00, September 15, 2009	9:50~10:30, September 17, 2009

■ Lesson 5 (40 minutes)

Aim: To review all lessons

Contents:
To give a review test to check the level of retention of knowledge, and also changes in awareness and recognition.
① Review of Lesson 1 to 4 (icebreaker)
② Review test
③ E.E. game (students perform their original dance to the song of "MOTTAINAI") Marking of the review test should be finished by the end of the game.
④ Awards ceremony (the winning team from the dance competition and the top performers in the review test)
⑤ Conclusion (closing remarks by the environmental education volunteers)

Things you need:
A review test and eco-bags

Location:	Class 4B, Khuong Thuong Elementary School	Class 5A, Hoang hoa Tham Elementary School
Date and time:	10:20~11:00, September 16, 2009	9:50~10:30, September 18, 2009

■ Activities to raise awareness of the 3Rs at morning assembly (40 minutes)

Aim: To give a talk on the activities of environmental education volunteers

Contents:
① Flower exchange (the representative of the project and the principal)
② Lecture (to briefly explain about the 3Rs)
③ Quiz competition (quiz on the 3Rs)
④ MOTTAINAI Dance (MOTTAINAI Dance to raise awareness of the 3Rs)
⑤ Conclusion (to promote the use of eco-bags and participation in waste separation)

Things you need:
The "MOTTAINAI Book", PET bottles, and eco-bags

Location:	Class 4B, Khuong Thuong Elementary School	Class 5A, Hoang hoa Tham Elementary School
Date and time:	8:20~8:30, September 21, 2009	8:00~8:30, September 21, 2009

BOX 2   Tips for Planning

Here are the basics of planning for you to avoid making "complacent" or "assumed" plans.

■ Thoughts + Potential Analysis + Market Analysis = Concept

(1) Nothing starts without thoughts.

The thoughts can be the "wishes" of the project's organizer as well as the planner, yourself. It is essential to stipulate the thoughts in order to retain objectivity.

(2) Grasp the potential around you.

Closely examine the resources (nature, facilities, collaborators, human resources, and funding) in your area (around you). Do not do it all yourself.

(3) Understand the targets of education.

Who are the targets of the educational events (programs and curriculums)? It is essential to have a better understanding of the targets. As you understand them more, the programs will take shape naturally.

(4) Above (1) + (2) + (3) = Concept, what you wish to realize through the project.

Write the Concept based on the above (1), (2), and (3). The Concept means the slogan of your event. State briefly what you want to realize through the event. If you can use the Concept as the title of the program which requires recruitment, it will clearly convey what the organizer is trying to achieve to the public and members of staff alike.

■ Use 6W2H to realize the Concept

In order to realize the Concept, you have to think about the so-called 5W1H, "When", "Where", "Who", "Whom", "What", and "How". Add one more W and H, "What for" and "How much", to 5W1H, which now becomes 6W2H. All the 6W2H should be examined as to whether they are appropriate for realization of the Concept. If you find any discrepancy between the Concept and 6W2H, you should reformulate either 6W2H or the Concept.

Tadashi Kawashima
Senior Advisor
Environmental Education Division,
KEEP Inc.

5. Various Activities of Ex-volunteers

Our ex-volunteers have developed various activities with their ingenuity. Here we will look at some examples of their past activities.

1. The power of art

Art has many kinds of power – the power to attract, connect, and amuse people. These powers are often used in environmental education activities by our volunteers.

The "Art Competition" and the "Poster Competition" are where your ingenuity stands out with regards to how you are going to utilize the work of the winners. This will be a good opportunity to have environmental messages seen for a long time if you put the work on something familiar in daily life, such as a calendar.

Artistic "trash boxes" and "composts" are also very enjoyable. In 2009, in Samoa, which the tsunami due to the Samoa earthquake struck and damaged, activities to cheer up the local people utilizing "waste art" were conducted. The volunteers reported the situation of the affected area from an undamaged elementary school, introduced waste left after the disaster while talking about disaster prevention, and conducted educational activities on hygiene and waste. Further, they made a Christmas tree with 450 PET bottles in cooperation with 80 children, which was presented to the affected area. They brightened up the atmosphere with a countdown to the Christmas lights switch-on (JICA, 2009).

2. The power of music

Playing original "environmental songs" and putting on some music to liven up the events are also often done. It would be fun to perform music with fellow volunteers forming a band. In Indonesia, when the "3Rs dance song competition" was planned and announced, more than 30 schools applied for the event and the competition ended in a great success.

It would also be a good and friendly way to make a parody of a song that everyone knows in order to deliver environmental messages.

3. Japanese culture and past experiences

We can find many examples of activities utilizing Japanese culture and Japan's past experiences. Talks on the past experiences of Japan, such as the "negative effects of pollution and consumer societies", "movements for improving daily life" and "initiatives to tackle the waste issues", and on Japanese culture, such as "furoshiki (wrapping cloth)", "kami-suki (paper-making)", and "origami (paper folding)" are often given as a part of environmental education activities.

There are also activities which aim to spread the word and its essence of "MOTTAINAI". In Vietnam and the Marshall Islands, we had a variety of activities, including the MOTTAINAI song, MOTTAINAI dance, MOTTAINAI workshop, and MOTTAINAI handbook.

4. Research and inspections

It is also important to do research on the current situation of waste and hygiene issues in the local area, and then take them over to local organizations, your successors, or their projects. Think about the feasibility of adopting participatory research methods to get your CPs and the local residents involved. It will also be a test of your wisdom to decide how you share and utilize the research results.

There is an example of successful activities, in which our volunteers searched around to find almost all the recyclers in the area, and made leaflets and posters with their contact details, and the types and prices of the recyclables they collect to distribute at the workshop, leading to the local church starting waste collection activities. Another type of activities which are seen in many places is to visit waste disposal sites with the CPs and stakeholders, and hold "disposal site tours" to witness the current situation of waste.

5. Financial rewards

It is also important to devise a system which can lead to fund-raising. Some examples can be a system in which the sorted waste is sold to recyclers and then what the group needs is bought with the money from the sale, and activities to connect the "people who want" and "those who don't" through the operation of a "recycle bank". Other suggestions are to secure the source of income by selling handicraft made from recyclables, and to change the sorting labels from "Organic" and "Inorganic" to "Can be sold" and "Cannot be sold". So, try to be creative to invent your own.

6. Collaboration and exchange

It is very effective to collaborate with your fellow volunteers regardless of their job title. We have many examples of effective collaboration, including Nepal's "Eco-bag project", which was a collaboration project with a handicraft volunteer; the "Environmental education guidebook for Bolivia", which was a result of the work of volunteers for different jobs with various ideas, knowledge, and art skills; and the event of "Micronesia Environment Week", which was planned by environmental education volunteers in different areas and held at the same time in each area to maximize its social impact.

The environmental subcommittee in Indonesia, which consists of members with various job titles, such as youth activities, vegetable cultivation, science and mathematics teachers, and nutritionists in addition to environmental education, is indeed conducting a wide variety of activities. Some examples include: tours to organic farms, the final disposal site, and the studios which make bags and small items from plastic waste; lectures by specialists; seminars held in cooperation with CPs; exchange of information through mailing lists; and joint events.

It can happen that new ideas pop up while you are helping other people's events. So, do take advantage of the network between volunteers.

7. Publicity and raising awareness

There are many measures for publicity and raising awareness, such as websites, posters, stickers, newsletters, promotion at gatherings, and radio.

The publication of free "environmental magazines", of which the writers and readers are all high school students, is said to have become a tool for readers to obtain information on the environment, and total and comprehensive "learning opportunities" for students who worked as reporters to acquire many skills, such as writing, logical thinking, interviewing and computing, in addition to skills for raising awareness of the environment.

For advertisements, you can parade through the streets with a loudspeaker conveying your messages to the local people. For instance, if you walk through the area announcing waste collection points on the day of collection, many children may follow you while chanting together.

Chapter 4
A Box of Ideas for Your Activities

L et's develop a bank of ideas for your activities. In this chapter, we will look at some simple games which can be used to stimulate learners or to get them interested in a matter of minutes, and some activities which may be utilized when tackling the environmental problems of daily life. Please do make use of them for your activities: try combining them with local games or modifying them to better suit the local culture.

1. A Variety of Ice-breakers

1. What is an ice-breaker?

At the very beginning of activities, it can often happen that both the participants and the teacher are feeling a little nervous: while the participants are anxious, like, "Will it be fun?", "Can I do it well?", and, "Can this teacher be trusted?", the teacher is also feeling pressures, like, "Will I be accepted by everyone?" or "Could it go well?".

This is where an ice-breaker comes in to break the ice in the hearts of both parties creating a relaxed and enjoyable atmosphere. Ice-breakers can make the participants feel less nervous about the activities, contribute to building close relationships within the whole group including the teacher, increase the participants' level of motivation for the activities, and encourage their proactive involvement.

2. Unexpected pitfalls
(1) The rock-paper-scissors

Activities with the hand game of rock-paper-scissors are very popular and enjoyable in Japan. In other countries where there is a similar game, the game is easily utilized. On the other hand, in areas where there is no such kind of game, it is very difficult for the local people to understand its rules, which one wins against which, causing confusion and taking longer time than expected in some cases.

(2) Physical contacts

The way of making physical contact differs significantly from culture to culture. You should check with local people about it in advance as in some cultures, a man and a woman are not supposed to hold hands or touch bodies.

(3) The literacy

When you are going to conduct activities which require reading and writing, you should check beforehand whether any of your learners is illiterate. You should also check whether your learners have diverse ages. If you have found that some are illiterate, you should avoid such activities, make the activities optional, or provide these people with your support.

(4) Getting overexcited

It would be absurd if the ice-breaker worked too much on people making them unable to concentrate on the next activities. The ice-breaker should be just an introduction to the main activities. Try to create an appropriate atmosphere for learning.

3. Include local games

In the area you are working, there should be some local games, songs, and dance which can be used as an ice-breaker. As these are known to everyone, you should be able to make learners excited with no difficulty. Ask your local fellows to take on these ice-breakers or to tell you about these so that you can make the most of them.

In this section, we will look at activities which can easily be done by anyone with few resources. These include activities which can improve the participants' level of concentration, calm them down, and enable them to experience the joy of expressing themselves as well as those who are noisy.

Each activity has its aim(s), place,

number of people required, length required, and targets. However, these are given just as a guide for appropriate conditions. The "△" in "Resources" means that they are optional depending on the situation. The aim(s) and the length required may be different depending on the choice of topics, and the way of conducting the introduction and review. If you have a large number of participants, you can divide them into some groups, devise ways of sharing, or ask a teaching assistant to join in.

■ Table of Contents (Activities)

■ Adaptation of ice-breakers

Think about the points you should consider when conducting each activity in your area and how you can use, apply and develop these activities, taking account of the local surroundings, religion, and culture.

Toss Your Name

■ Procedure

1. Standing in a circle, say one's name (or nick name) in turn.
2. The first person (i.e. the teacher) holds a ball. Toss the ball after saying, "I'm ○○ (his/her own name). △△(the name of the person who is going to catch the ball), I'll give you the ball."
3. △△ will say, "Thank you, ○○. I'm △△. □□, I'll give you the ball.", and then toss the ball to □□.
4. Repeat the above trying to toss the ball to a person who hasn't been given the ball yet.

■ Ideas for use, application and development

· Try using more balls when they become familiar with the game.
· It would be fun to keep changing the thing you toss (something whose movement is unpredictable is recommended, such as a balloon or a towel).
· The thing you toss can be an imaginary thing. For instance, first it was a ball, and then changed into a marble, into a raw egg, and finally into a cactus.

Source: *243 PA Games for Everyone (in Japanese) etc.*

Aim(s):
· To remember the names of participants
· To open up with each other
Place:
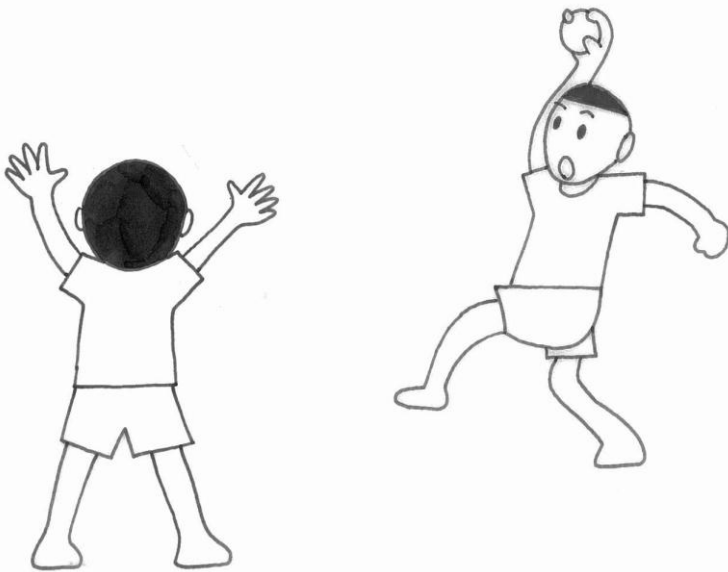· Where players can make a circle
Players: 10 or more
Length: 10 min. or more
Ages: 7 or over
Resources:
· A ball (or something to throw)

Mimic Your Neighbor

■ Procedure 1

1. Stand in a circle.
2. The first person (i.e. the teacher) utters a voice (i.e., "Meow!") to the person next to him/her (A).
3. The person (A) utters the same voice (i.e., "Meow!") to the person other side of him/her (B). In this way, the voice is passed on in one direction.
4. When became familiar, the direction of the pass can be reversed by anyone at any time. Try to pass the voice as quickly as possible to increase the sense of speed for more excitement.
5. Repeat the above changing the first person who utters a voice.

■ Procedure 2

1. Put a pose to the voice to be passed onto the next person. Look carefully at the pose to mimic it. Try not to slow down the pace.
2. When they become familiar with the game, add the second voice and pose while the first ones are still being passed on.
3. Add the 3rd ones and then the 4th ones. Each voice and pose should be different in volume and nuance for more fun. The point is to present each voice and pose clearly so as not to lose the thread.

■ Procedure 3

1. The direction of pass can be reversed by anyone at any time.
2. If possible, when someone reverses the direction, he/she should change the voice and pose in a totally different way. However, when this seems difficult to follow, go back to the simple way as too much thinking can cause the pace to slow and lose the rhythm.

■ Ideas for use, application and development

- If the theme of the voice and pose are set to be those of animals and insects, the activity can also be used as an introduction to nature activities. Monsters can be an enjoyable and exciting theme to make the participants more imaginative.
- If Japanese utterances are used (i.e., "Konnichiwa!", "Genki?", "Arigato." etc.), this will add some elements of cross-cultural experience to the activity.

Source: *Improvisational Games – Workshop for Improvisational Body Expressions (in Japanese)*

Aim(s):
- To relax the mind and body
- To establish relationships in which people can enjoy each other's expression
- To cultivate flexibility, and enjoy speed and energy

Place:
- Where players can make a circle

Players: 10 or more

Length: 10 min. or more

Ages: 5 or over

Pulse Waves

■ Procedure

1. Stand in a circle.
2. The teacher says, "Pass the same move as I make on to your neighbor in turn.", and then gives a clap to the person either to his/her left or right. The participants pass the move onto their neighbor.
3. When the clap returns to the teacher, he/she says, "OK. Now let's do it faster." and then gives another clap.
4. The teacher says, "Much faster now. Let's keep passing the clap. Don't stop.", and keeps saying, "Faster, Faster!" to make the participants more excited.
5. "This time, I'll give you two claps." says the teacher and gives two claps to be passed on.
6. When the action has got into the rhythm, the teacher says, "Now, two claps followed by a stamp.", and gives two claps and a stamp of his/her foot.
7. Make it more difficult gradually; for example, from "two claps and two stamps", "keep passing on like pulse waves at an interval of about five seconds", and "make the interval shorter".

■ Ideas for use, application and development

- This activity can be used to enjoy the progress and achievement of set times by measuring the lap time.
- Pass the move on to both the left and right at the same time. When a person receives the move from both sides, he/she should shout, "Wow!" This will make the activity more fun.
- Standing or sitting in a circle hand in hand, the first person squeezes the hand of his/her neighbor (A) in silence. Then the person (A) passes the "squeeze" to the next person. This activity will enhance the participants' ability to concentrate quietly. In areas where a man and a woman holding hands is a taboo, the activity should be conducted in single-gender groups.

Source: *Taking Advantages of Group Power (in Japanese)*

Aim(s):
・To open up with each other
Place:
・Where players can make a circle
Players: 10 or more
Length: 10 min. or more
Ages: 5 or over

Self-introduction with a Theme

■ Procedure

1. Set a theme to be included in self-introduction.
2. The teacher introduces him/herself mentioning the theme as an example.
3. The participants give a self-introduction including the theme in turn.

【Examples of themes】

The animal you think you most resemble, what you wish to be if you were reborn, your favorite food, what you felt happy about recently, your favorite place in the area, your dreams for the future, what you are feeling right now in a word, etc.

■ Ideas for use, application and development

- The activity can be conducted in a way where the participants write a picture or a word on a sheet of paper to show during the self-introduction and display them later.
- The theme can be an "item" (Examples: Bring one of your treasures from home, find something which you think represents yourself walking around the neighborhood perfectly and bring it, or bring a tool you use for your job, etc.).   Try to devise your themes based on the situation.
- The participants do a pose that they think represent themselves well at the end of their self-introduction to other participants so that they can mimic it. This would also be fun.

■ Points to consider

- The theme should be selected according to the number of participants. If they are a large group, avoid a theme which can take long to talk about as this will make them bored halfway through.

Aim(s):
・To get to know each other
Place: Anywhere
Players: 5 or more
Length: 10 min. or more
Ages: 7 or over

Look Down, Look Up

■ Procedure

1. Stand in a circle.
2. When the teacher says, "Look down!", all the participants should look down.
3. When the teacher says, "Look up!", all the participants should look up.
4. When the teacher says, "Catch!", all the participants should look at someone's eyes.
5. The participants who met each other's eyes have to step out of the circle with "Hurrah!"
6. Those who could not meet the eyes of the person they looked at stay in the circle. Repeat above making the circle smaller.

■ Ideas for use, application and development

・ When they become familiar with the game, the rule can be changed so that anyone can freely call out, "Look down!", "Look up!", and "Catch!"
・ This activity can be an effective way of pairing before a pair activity as the participants who met each other's eyes can be put together.

■ Points to consider

・ Some people may need some time before they become able to meet other people's eyes. If these people are included, the activity should be conducted after they have opened up to some extent.

Source: *243 PA Games for Everyone (in Japanese) etc.*

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Grouping

■ Procedure

1. Set a theme.
2. The participants find and form groups (categories) with fellow participants who have something in common with themselves, talking to each other about the theme.
3. When everyone has been put into a group, each group announces what kinds of group they are.
4. Repeat a couple of times with different themes.

【Examples of themes】

Your gender, your month of birth, the number of your family members, the time you got up this morning, the creatures you keep, your job, your favorite subject, your hobbies or what you like doing, what you are good at, your treasure, your special experience (something related to the next activity, etc.), the reason for your participation, what has been troubling you recently, etc.

■ Ideas for use, application and development

・ The theme can be further dealt with based on what the grouping shows, or can be connected to the next activity.

■ Points to consider

・ It might be better to avoid some themes, such as religion, race, ethnicity, class, caste, position at organizations, or income, as these can be humiliating or causes of rifts among the participants.

Source: *An Introduction to Participatory Workshops (in Japanese) etc.*
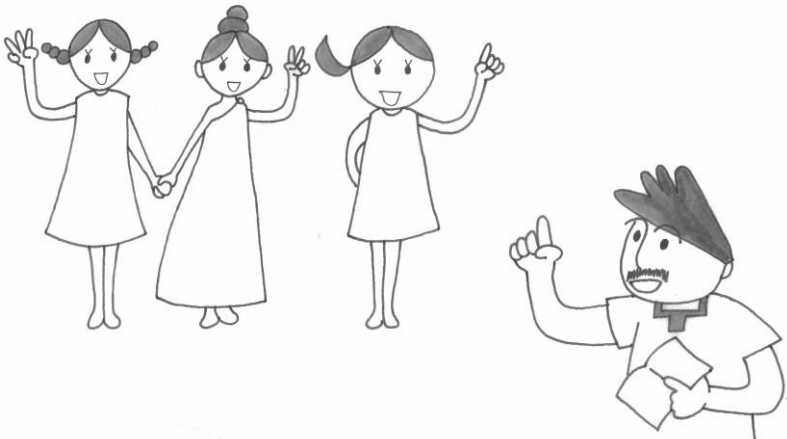
Aim(s):
・To open up with each other
・To get to know each other

Place:
・Where you can move around

Players: 10 or more

Length: 10 min. or more

Ages: 7 or over

Count!

■ Procedure

1. In a group, start counting from 1. Everyone in the group can say the next number at anytime he/she wishes, but only once. When two or more participants say the same number at the same time, start over from 1. No one is allowed to say anything other than the numbers, or to make eye contact.
2. If all participants were able to say a number, set the target number higher for the next round. Make the activity more difficult by giving the participants an additional requirement, such as with eyes closed, or while walking.

■ Ideas for use, application and development

· If there are a large number of participants, it would be better to set the target number (say, 10) for the first round rather than one number per person.
· When they become familiar with the game, it would be possible to do it in the form of answering a question instead of counting the number. Examples of questions include, the "things in the schoolyard", the "animals living in the area", and the "things which become garbage".
· If the participants are unable to reach the target number, encourage them to discuss how to reach the target, and start the task again.

Source: *243 PA Games for Everyone (in Japanese) etc.*

Aim(s):
· To improve the level of concentration
· To build a sense of unity
Place: Anywhere
Players: 5 or more
Length: 5 min. or more
Ages: 7 or over

Shake Many Hands

■ Procedure

· The participants try the task of shaking hands with as many fellow participants as possible without moving from their seat.

■ Ideas for use, application and development

· This is an effective icebreaker when moving around is difficult. It can be conducted during a break in lectures to get relaxed, or while sitting on a bus.

■ Points to consider

· In areas where a man and a woman shaking hands is a taboo, the activity should be conducted in a different way, for instance, try the task of shaking hands with as many fellow participants of the same gender as possible.

Aim(s):
· To open up with each other
Place: Anywhere
Players: 10 or more
Length: 3 min. or more
Ages: 5 or over

Line up!

■ Procedure

1. Give a theme to the participants, and ask them to stand in a line or a circle in certain order in relation to the theme.
2. Each participant gives a talk about the theme.

【Examples of themes】

Their birthday, their name or the name of their residence, the number of family members living with them, the number of living creatures they have, their place of origin, the distance from their home to the venue, the time they got up this morning, the time they went to bed last night, their physical conditions, the size of their favorite living creature, the size of their hands (feet, height, and eyes), the warmth of their hands, etc.

Aim(s):
・To open up with each other
・To know each other
Place:
・Where you can move around
Players: 8 or more
Length: 10 min. or more
Ages: 5 or over

■ Ideas for use, application and development

・ If the rule "Don't rely on words" is introduced, the level of difficulty of the task will increase.
・ If the theme is the "distance from their home to the venue", ask the participants to talk about their local area, or if the theme is the "time they got up this morning", ask them to talk about the first thing they do when they get up in order to share information about each participant.
・ The activity will be a good introduction to the next activity if a relevant theme is given.
・ The activity is also an effective opportunity for members of staff to collect information about the participants.

■ Points to consider

・ Careful consideration should be given to the selection of themes. Avoid unsuitable themes for sharing information about openly. Generally, the themes of age, weight and income should be avoided.

Source: 243 PA Games for Everyone (in Japanese) *etc.*

Knife and Fork

■ Procedure

1. Pair up.
2. The teacher gives a theme, and asks all pairs to make a gesture which represents the theme without a word within a count of 10.
3. Repeat the above, changing the theme rhythmically.

【Examples of themes】

A knife and a fork, a match and fire, a cat and a mouse, a farmer and his/her animal, trash and a trash box, a puddle and a mosquito, food waste and a micro-organism, etc.

■ Ideas for use, application and development

· It would be fun to give a specific adjective to the theme. (Examples: close vase and flower, passionate match and fire, a laughing trash box and an empty can, etc.)
· It is possible to represent a thing or a situation with groups of four to six or all the participants. (Examples: kitchen, park, wedding ceremony, party celebrating the 100th birthday of a grandmother, environmental event, clean-up activity in the area, etc.)

Source: *Improvisational Games – Workshop for Improvisational Body Expressions (in Japanese)*

Aim(s):
· To relax the mind and body
· To remove the barrier of expression and enjoy each other's expression
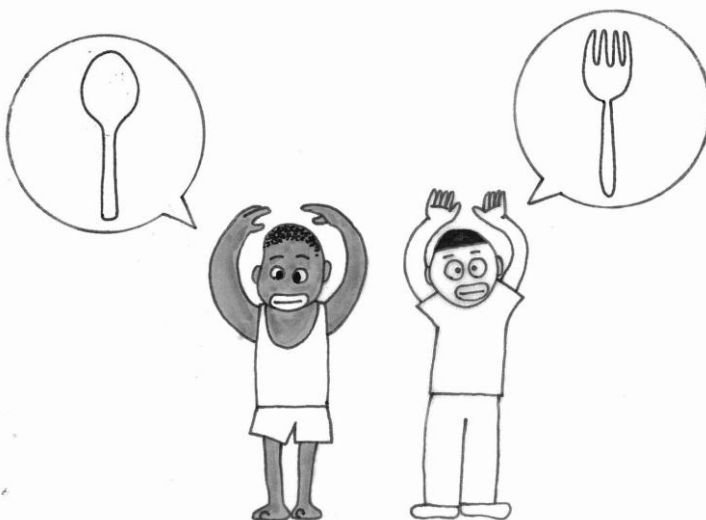· To enjoy differences in ideas

Place:
· Where you can move around

Players: 8 or more
Length: 5 min. or more
Ages: 7 or over
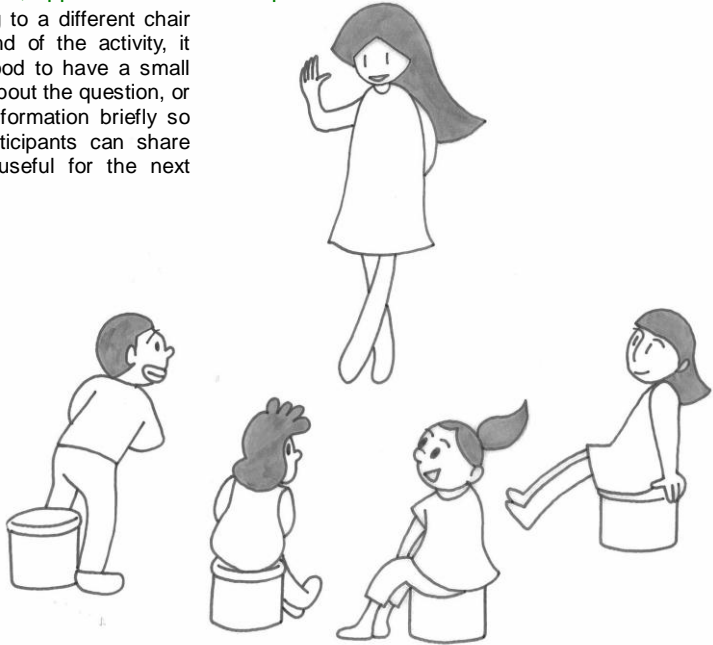
Information Baskets

■ Procedure

1. All the participants sit down on the chairs arranged in a circle.
2. The teacher asks a question. The participants to whom the question applies have to move to someone else's chair in a hurry.
3. After several questions, remove the teacher's chair from the circle.
4. As the number of chairs in the circle is now one fewer than the number of people, one person (A) cannot sit down. The person (A) asks a question for the next round. (If it is difficult to think of a question, give one of the question cards).
5. Repeat asking and moving, understand each other, and share the information.

【Examples of questions】
People who are male, with long hair, wearing red, live with more than 10 family members, spend more than one hour for going to school, keep livestock, have trash boxes at home, know where the litter dropped on streets goes, etc.

Aim(s):
・To open up with each other
・To share information
Place:
・Where players can make a circle
Players: 10 or more
Length: 10 min. or more
Ages: 5 or over
Resources:
・Chairs (for all participants)
・Question cards

■ Ideas for use, application and development

・ After moving to a different chair or at the end of the activity, it would be good to have a small discussion about the question, or add more information briefly so that the participants can share information useful for the next activity.

The Earth Spaceship

■ Procedure

1. Make a circle on the ground with a rope. The size of the circle should be large enough for all the participants to be inside the circle at the beginning.
2. Ask the participants to discuss how all of them can remain inside the circle for 10 seconds.
3. With a signal, they move into the circle. If all of them were able to stay inside for 10 seconds without stepping on or out the rope, it is a success.
4. Make the circle smaller giving a story about the environment, for example, "You are forest animals. The size of the forest you are living in has become two-thirds that of before because of logging."
5. The participants cooperate with each other to be inside the circle.
6. Keep making the circle smaller after each success, giving more episodes to make the task even more difficult.
7. Repeat the round several times, and then have a discussion about what they noticed.

■ Ideas for use, application and development

· The story can be created according to the theme, such as land is becoming smaller due to the melting glaciers caused by climate change, and the number of places where we can live safely is decreasing due to the increase in the number of places where waste is being dumped.
· When the theme is "population growth", it would be better to fix the size of the circle and gradually increase the number of participants to be inside until the circle is too small for them to be inside.

■ Points to consider

Check beforehand whether the participants have any sense of resistance to physical contact. There will be variations depending on their cultural backgrounds, age, and closeness with each other.

Source: *A Collection of Nature Activities for "Integrated Studies" at Junior High Schools (in Japanese) etc.*

Aim(s):
· To build teamwork
· To think about environmental issues
Place: Flat places
Players: 10 or more
Length: 10 min. or more
Ages: 10 or over

Showdown

■ Procedure

1. Ask the participants to collect about five leaves of different trees (the leaves can be collected by the teacher for the participants in advance).
2. Ask them to find a partner of their choice.
3. The teacher gives a theme related to the leaves. Each participant selects one from his/her leaves which they think is closest to the theme. (Examples: a large leaf, a leaf with insect holes, a prickly leaf, etc.)
4. At the teacher's signal of "Ready?", the participants hold out the leaf they have chosen to compare with the leaf of their partner, calling out, "Showdown!"
5. The person with the leaf closer to the theme wins. The loser gives their leaf to the winner.
6. Repeat several times, changing the partner.
7. The person who collected the most leaves wins the whole competition.
8. The participants give a talk about what they noticed about the leaves and close observation.

■ Ideas for use, application and development

· The activity can be conducted with natural objects other than leaves, such as stones and nuts. Give some twists to the themes.
· In the Conclusion part, it is possible to connect a talk about the decomposition of leaves by small insects, showing leaves with insect holes, to decomposition for composting. Try to develop a Conclusion based on the objectives.

■ Points to consider

· Winner or loser is just to make the activity enjoyable. The participants should focus more on the fact that "close observation can make them realize various things".

Source: *Environmental Education Activity Report 2000 By Yama-no Furusato-mura Visitor Center (in Japanese)*

Aim(s):
· To open up with each other
· To realize new things
· To become familiar with natural objects
Place: Anywhere
Players: 2 or more (10 or more is recommended)
Length: 10 min. or more
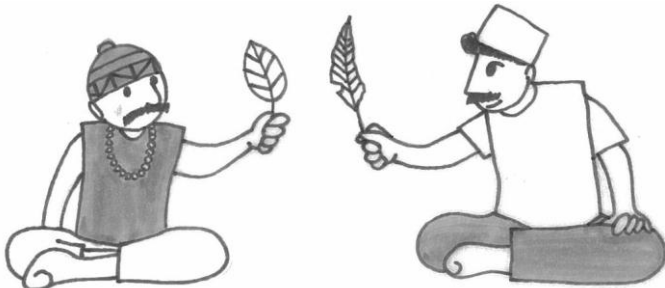**Ages:** 5 or over

Spot the Differences

■ Procedure

1. The teacher stands in front of the participants, and ask them to observe him/her.
2. The teacher asks the participants to turn back, and make some changes to his/her appearance (i.e. undo a button, roll up a sleeve, wear shoes the other way round, etc.).
3. Ask the participants to observe him/her again, and let them point out where the changes have been made.

■ Ideas for use, application and development

- Once the activity has been done with the whole group, it would be a good idea to do it in pairs.
- It is possible to connect this activity to an activity which asks to find changes/differences in two photos, such as a "place where waste is scattered and a place where waste is reduced", and the "same place then and now".

Source: *A Collection of Nature Activities for "Integrated Studies" at Junior High Schools (in Japanese) etc.*
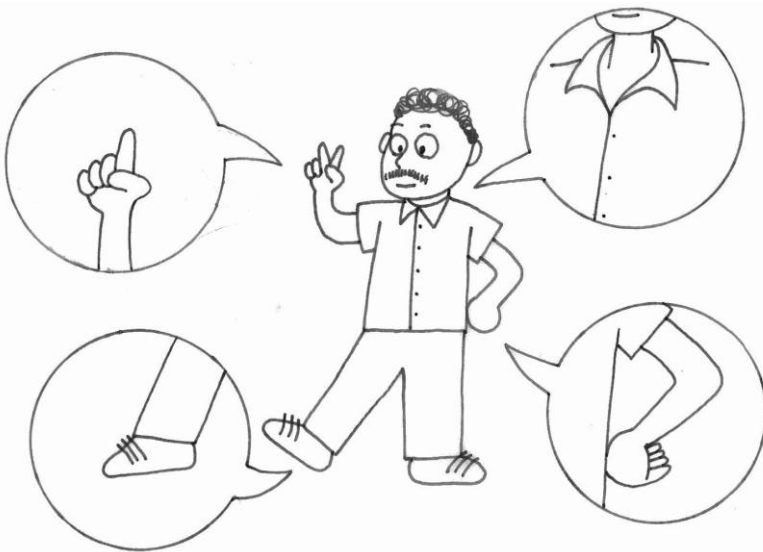
Write with Your Body

■ Procedure

1. A participant spells a word using a part of his/her body, and others try to find what the word is. The teacher first shows an example of writing characters with his/her body.
2. Specify the body part to be used (i.e. head, nose, elbow, shoulder, navel, and hips), and repeat above changing the person who writes characters.

■ Ideas for use, application and development

· It can be used as a group activity in which groups compete for the fastest time to get the right answer.
· A theme can be given by the teacher (i.e. animals, foods, things in the classroom, etc.).
· This activity can be connected to the next activity; for instance, by setting the last words for this activity the same as the "title of the video" which is going to be screened in the next activity.

■ Points to consider

· The activity is not suitable if any of the participants is illiterate.
· The activity should be conducted using only the body parts socially accepted in the area.
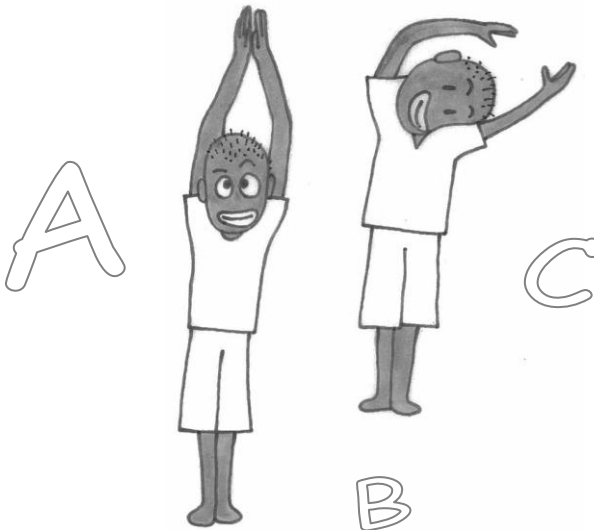
Aim(s):
· To open up with each other
Place: Anywhere
Players: 5 or more
Length: 5 min. or more
Ages: 5 or over

Showers

■ Procedure

1. Repeating after the teacher, the participants make the following sounds with their body.
   ①Rub the fingers (= light rain)
   ②Snap the fingers (= the sound of splashes)
   ③Hit the thigh (= heavy rain)
   ④Stamp the floor with feet (= squall)
   ⑤Hit the thigh (= heavy rain)
   ⑥Snap the fingers (= the sound of splashes)
   ⑦Rub the fingers (= light rain)
2. The series of sounds represents a shower approaching from the distance and then going away. The participants enjoy the tranquility after the shower.

■ Ideas for use, application and development

・ The activity can be conducted by clapping with different numbers of fingers (one finger of each hand → two fingers of each hand → four fingers of each hand → palms → four fingers of each hand → two fingers of each hand → one finger of each hand → tranquility).
・ The activity is effective if conducted before a program related to water.

Source: *243 PA Games for Everyone (in Japanese) etc.*

Aim(s):
・To feel calm
・To build a sense of unity
Place: Anywhere
Players: 10 or more
Length: 5 min. or more
Ages: 5 or over
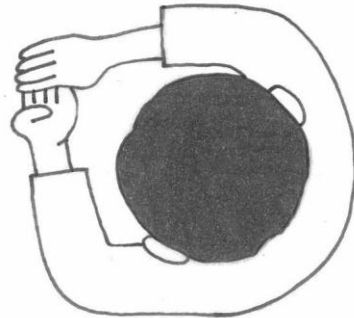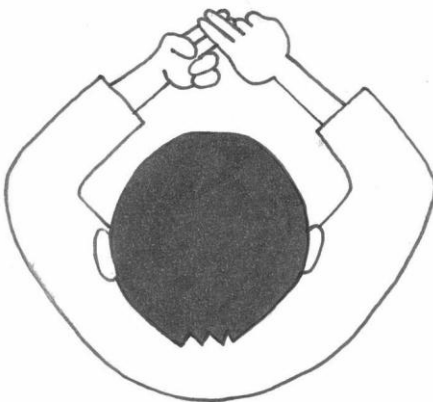
Quick Check

■ Procedure

1. The participants answer the teacher's question with an angle of their arm.
2. Interview several participants according to the questions.

【Examples of questions】
The conditions of mind and body (i.e., if excellent, raise the arm upright; if so-so, keep it horizontal; and if bad, put it down), the feeling of being full, expectation of coming activities, fun of doing today's activities, and understanding of today's theme, etc.

■ Ideas for use, application and development

- Depending on the questions, the activity can be utilized in various situations, such as to motivate the participants, survey their expectations, and review and evaluate the activity.
- It is possible to ask the participants to give their answer in words. (Example: How would you compare your feeling right now to the weather? → Sunny, a bit cloudy, before downpour, etc.)

Source: *A Collection of Nature Activities for "Integrated Studies" at Junior High Schools (in Japanese) etc.*
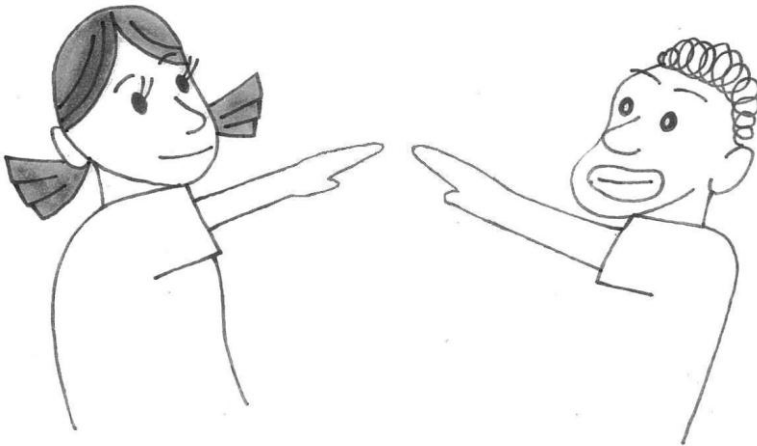
Aim(s):
· To open up with each other
· To know the current conditions of the participants
Place: Anywhere
Players: 5 or more
Length: 5 min. or more
Ages: 7 or over

2. A Variety of Experiential Activities

1. Be creative to enable the participants to "notice", "think" and "learn together" themselves.

Have you ever heard of the phrase below?

People forget what they heard
People remember what they saw,
People understand what they experienced, and
People internalize what they discovered.

This is a highly suggestive phrase for the people who work in the field of education: Teachers wish to impart their knowledge, but they always have to check themselves humbly as to whether what they have taught was actually understood.

So, try to make the activities more visually appealing, more experiential, and more thought-provoking and inspiring so that the participants will have a more vivid memory of the activities.

2. Experiential activities

In this section, we will look at some experiential activities which can be used for environmental education for daily life. In developing countries, educational activities are mainly conducted in the one-way style of "people who know teach those do not know", and, in many cases, the style in which people learn from bidirectional exchanges through experiential activities is not common.

However, please do conduct some experiential activities to see the reactions of the participants. While you are still unfamiliar with the activities, it can often happen that you are unable to give a good explanation of them and end up in chaos while losing your original objectives, but as you repeat them several times, you will know the trick. Perhaps, the participants may often tell you what you did not know.

In addition, you will be able to create your original activities for environmental education by adding an environmental twist to the local plays everyone knows. These should be real hits as all the participants should know the plays. It would be fun to develop these activities with the help from your local fellows.

3. Adaptation according to the area

Depending on the areas, the themes of the activities and the points to consider should be different. So, first of all, ask your CPs and collaborators to experience the activities, and then develop them to suit the local situation seeking their advice.

■ Table of Contents (Activities)

■ Adaptation of the activities

Think about the points you should consider when conducting each activity in your area, and how you can use, apply and develop these activities, taking account of the local surroundings, religion, and culture.

Nose

■ Procedure

1. The teacher gives hints about a living creature (i.e., the creatures the participants know, etc.) one at a time, and the participants try to find out what the creature is.
2. The participants who have found the answer put their index finger on their nose in silence.
3. If they find they had a "wrong" answer on hearing further hints, they may stay on if they can successfully disguise their action with another action (i.e., rubbing their nose, sneezing, etc.) to move their finger away from their nose.
4. When all the hints were given, the participants say the answer aloud in unison.
5. The teacher gives a talk about the creature, or the participants share each other's knowledge about it.

【Examples of hints】

1. They fly. 2. They live for two to three weeks. 3. They can often be seen in the woods and bushes, and near our houses. 4. Their eggs are laid where there is water and grow up in the water until they become adults. 5. They have a straw-like mouth and suck flower nectar and grass sap. 6. The females also suck human blood to lay their eggs. They suck as much as their weight at a time. 7. They can spread infectious diseases. 8. They may bite humans, and the skin becomes itchy where they bit.

<Answer: Mosquitoes (Aedes albopictus) They transmit dengu fever, etc.>

■ Ideas for use, application and development

· The activity would be a good introduction to the themes of the following activities if the proper creature is selected, for example, a local creature to make the participants interested in local creatures, an endangered species to explain about its current situation, and a creature which can cause sanitation issues to raise awareness.
· It is a good idea to include the topics you wish the participants to learn about, and some interesting but relatively unknown facts in the hints.
· It would also be good to make the participants give the hints when they become familiar with the game.

Source: Nature Game 1 (in Japanese)

NATURE GAME ● 180

Aim(s):
· To encourage greater interest in living creatures
Place: Anywhere
Players: 2 or more
Length: 5 min. or more
Ages: 5 or over
Resources:
· Hints

Mystery Animal

■ Procedure

1. The teacher says, "Now, we are going to see a living creature. So, concentrate on it to get ready to draw a picture of it later on", and ask the participants to close their eyes.
2. The teacher tells a story in a way that the participants can visualize the scene in their mind. Give a detailed description of the appearance of the creature.
3. When the story is finished, hand out blank cards for the participants to draw the creature they have observed (or imagined from the story).
4. Have them share their picture with each other.
5. The teacher asks, "Do you want to see the real creature?", and shows photographs and pictures of the creature. Then have a discussion or give more information about the creature.
6. If it is possible to show the creature in the flesh, prepare beforehand, or take the participants out looking for the creature.

■ Ideas for use, application and development

· It would be a good idea to select a living creature according to the themes, such as an indicator species, a dangerous creature, and a creature which can cause diseases or decompose waste, and to include topics which you wish the participants to learn about in the story, discussion, or conclusion.
· It would also be an idea to use sound effects to make the scene more realistic.

■ Points to consider

· If it is difficult for some participants, such as younger learners, to imagine with their eyes closed, let them open their eyes, make the story simple, and explain it with gestures.
· An unknown creature is recommended, since if a well-known creature is selected, the participants will draw a picture based on the image they already have, not listening to the story.
· When actually observing the creature, try to minimize the impact on the creature itself and its surroundings.

Aim(s):
· To encourage greater interest in and sympathy for living creatures
· To learn about the ecology of living creatures

Place: A quiet place

Players: 3 or more

Length: 15 min. or more

Ages: 7 or over

Resources:
· A script
· Blank cards (one per person, B6 size)
· Pens (one per person)
· An actual living creature, or photos or pictures of it

Source: Nature Game 2 (in Japanese)

NATURE GAME ● **177**

A Sample story for the "Mystery Animal"

Now, we're standing near the edge of the stream. We can hear the sound of water. Oh, the birds are singing, too. Dragonflies and butterflies are fluttering. Just look into the stream; we can see some fish, like mountain trout and char. They only live in clean streams. Some dragonfly larvae and river crabs are moving around on the bottom of the stream. There are so many rocks here. Actually, under the rock is a really good place to live for many living creatures. Let's just pick up one of the rocks and take a look at the back of it.

Oh, yes, here they are… So many small creatures in all shapes are moving here. One of them has a really funny shape. Let's have a close look.

It's about 1 cm in size, and flat like a rice cracker. Its body is divided into three parts, the head, the chest and the abdomen. The abdomen is the longest part. When viewed from above, the head looks round with two short whiskers beside the mouth. Towards the back of the head are large goggling eyes. The legs are attached forward to the chest, with three legs at each side. The legs are used to hold out, so as not to be swept away by the water.

The tips of the legs are covered with sharp claws to hook firmly onto the rock. There are two small wings on the back. On both sides of the abdomen, something like flaps is swaying. This seems to be the gills to breathe in the water. And from the end of the body are two long, thin and straight tails.

Well, it's nearly time to go back to our classroom. So, let's have a quick round-up.

The body is divided into three parts, the head, the chest and the abdomen. The head is round with goggling eyes and two whiskers beside the mouth. Three legs are attached to each side of the chest with sharp claws to cling to the rock. Two small wings on the back. Something like flaps is swaying at each side of the abdomen. From the tip of the abdomen are two long thin tails.

Now, this is the end of our observation. Let's go back to our classroom… Open your eyes slowly.

<Answer: a larva of mayfly (Heptageniidae)>

* The larvae of heptageniidae are one of the indicator species for streams, and their presence shows that the water is clean. The activity can be connected to other activities such as investigating the creatures which inhabit the streams, learning about the indicator species, and examining the pollution level of the streams.
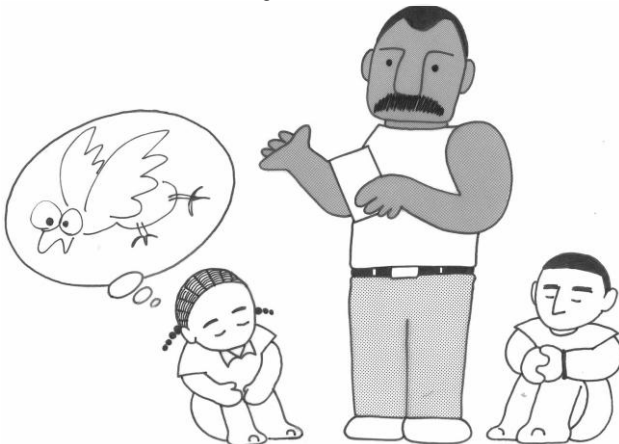
Nature Loop

■ Procedure

1. Place the nature loop cards (i.e., a mouse, a cat, a snake, an eagle, a microorganism, a tree, a flower, soil, a river, forests, a town, rain, the sun, a human being, etc.) and the pegs on the floor randomly.
2. On the starting signal, the participants pick up a card and a peg, and put them on their chest.
3. The participants look for a partner who has the card related to their own card. (Examples: the eater – the eaten, the habitat – the habitant, the caregiver – the cared, the supplier of energy – the supplied of energy, etc.) The case where two cards have the same first letter in relation to the ecology or daily life is not accepted as being related. When there are some participants who cannot find a partner, groups of three can be accepted.
4. When all the participants have formed pairs (or groups of three), each pair (group), arm in arm, announces what their relationship is.
5. The next stage is to find another person who can be related and linked with the other arm. The pairs and groups of three formed at the first stage cannot be separated.
6. By these stages, in many cases, a single loop should be formed. However, if this is not possible, have a discussion about what kinds of cards are required to complete the loop. Then add the new cards (draw on blank cards) to form a loop in the end.
7. The participants announce the relationship with the card of the person next to them in turn.
8. Have discussions about the interrelationships, the mutual impacts, the roles of human beings, and what they felt.

Aim(s):
・To think about the interrelationships of living creatures and the environment

Place:
・Where players can make a circle

Players: 8 or more

Length: 20 min. or more

Ages: 7 or over

Resources:
・Nature loop cards (one per person)
・Blank cards (about 5, of the same size as the nature loop cards)
・Pegs (one per person)
・A marker pen (thick)

■ Ideas for use, application and development

・ Place the cards of the loop on the ground or on a large sheet of paper, and draw lines between them to show other relationships with each other. This will be a good way of enabling the participant to feel that the living creatures and the environment have a complex web of relationships.

Source: *Official Nature Game Instructors' Book Nature Guides 2006 Edition (in Japanese)*

NATURE GAME **178**

When will the waste disappear?

■ Procedure

1. Hand out the waste cards (each card has one garbage) and blank cards. The number of cards can be either one each per person or one each for a group of two to three depending on the number of participants.
2. The participants write down the time they think is required for the garbage on their waste card to be changed back into natural elements at the top of their blank card.
3. The participants line up in the order of the amount of time they wrote, and announce their time.
4. If they have any comments, have a discussion.
5. The teacher gives the correct answers, and the participants write the correct answer at the bottom of their blank card.
6. Re-line up according to the correct answers.
7. Have another discussion to talk about what they have noticed.

■ Ideas for use, application and development

- It would be a good idea to make the original waste cards based on the results of research on the local waste.
- In the Conclusion part, give some themes for the participants to form groups with each theme, and have discussions about it. The themes can include methods of waste disposal, recyclables and non-recyclables, improvements which can or cannot be made at the individual level, hazardous waste and the non-hazardous waste, and waste which can or cannot be disposed within the local area.

Idea: Naoko Miyoshi

Aim(s):
- To know how long it takes for each type of garbage to be changed back into natural elements

Place:
- Where players can make a circle

Players: 5 or more

Length: 15 min. or more

Ages: 7 or over

Resources:
- Waste cards (one per person/group)
- Blank cards (one per person/group, A5 size)
- Marker pens (one per several persons, thick)
- Answers (number of years required for the garbage to be changed back into natural elements) △

Who polluted the river?

■ Procedure

1. Prior to the activity, prepare a large container (a tub, a bucket, etc.) with water and some small opaque containers (i.e., film canisters) with an object or liquid inside. The small ones should have a label with the "Role" written on it (see the table below).
2. Give one small labeled container to each participant. Instruct them not to look inside the container or to read out the label.
3. While the teacher is reading the "Story of a River", the participants empty their container into the large container with water when they hear their role (written on the label) read out in the story.
4. When the story has finished, share what the participants know about rivers and streams, and what they felt about the story. Then discuss about how we can avoid polluting them or can make them clean.

■ Ideas for use, application and development

· It would be a good idea to create a story about a local river or stream.
· It would also be fun to conduct the activity with an example from Japan (see next page), and then compare the situation in the participants' country or area with that in Japan.
· It is possible to create original scripts according to the local challenges, not limited to river and stream pollution. (Example: the life of goods - from being bought to being thrown away, and what happens after that).

Source: Population Connection, *"Who Polluted the Potomac?"*

Aim(s):
· To learn about river pollution
· To think about what we can do

Place: Anywhere
Players: 10 or more
Length: 30 min. or more
Ages: 7 or over
Resources:
· A container with clean water (a tub, a bucket, etc.)
· Small opaque containers labeled with a role (film canisters, etc.)

* Roles assigned to each participant, what flows into rivers, and the contents of the film canisters to be prepared

	Roles	What flows into rivers	Examples of the canister contents
1	A tree	leaves	leaves
2	A river bank	soil	soil
3	A barbecue group	garbage	plastic objects, wrapping paper, pull-tabs
4	An angler	fishing lines	tangled thread
5	A farmer	pesticides	wheat flour
6	A sewage plant	nitrogen and phosphorus	sugared water
7	A Laundromat	detergents	detergent
8	A semiconductor factory	agents	agents with a strong odor
9	A car for commuting	acid rain	vinegar
10	A motorboat	oil	vegetable oil
11	A car illegally dumped	oil	sesame oil
12	A gardening family	herbicides and insecticides	tea
13	A person cleaning up the garage	unidentified liquid	juice

The Story of a River (An example in Japan)

The Tama River is a river with a long history, with its appearance in poetry written about 1,300 years ago. Sceneries of white cloth being soaked in the river are repeatedly used in the poetry. The Tama River used to be such a clean river.

I'm going to tell you a story about the Tama River about 40 years ago. Each of you will appear in this story. This water (in the bucket) is the Tama River. Your role is written on the label of the canister in your hand. Each canister contains something related to your role. So when you hear your role come up in the story, please empty the canister into the bucket.

The source of the Tama River is Mount Kasatori in Yamanashi prefecture. The rain falling here flows down, soaking into the earth, or coming out to the surface. Combining together with other headwaters on its way, it becomes a stream and then flow down as a river.

In this headwater area, after several days of sunshine, it started to rain. The rain gradually became stronger and it became windy too. The strong wind shook TREES. The trees dropped "leaves" into the stream. The strong rain shaved off the RIVER BANKS. The "soil" was washed into the stream.

Around the Mitake Valley in Ome city, as the rain stopped and the sun came out warming the air, an increasing number of BARBECUING GROUPS appeared. The "litter" these people threw away on the riverside was swept into the river by the next rain.

A PERSON FISHING snagged his "fishing line" on a rock in the river. A while later, the fishing line was swept away.

How are the river creatures doing?

Along the river lived a FARMER. The farmer used "pesticides" for his fields. Part of the pesticide was washed away by rain into the river.

Would you drink the water from this river?

Many people were living in a city along the mid-reaches of the Tama River. The SEWAGE TREATMENT PLANT processed the water used by those people before discharging it into the Tama River. However, "nitrogen and phosphorus", which cannot be processed at the plant, entered the river and caused a plethora of nutrients, disturbing the balance of nature.

Also in the city, there were many people who washed their clothes at the LAUNDROMAT nearby. In fact, as its drainage pipe was broken, some of the "detergent" entered the river.

Would you swim in this river?

In addition, there were a number of SEMICONDUCTOR FACTORIES. The "agents" used during the manufacturing process were treated within the factory before being released into the Tama River. However, the wastewater used to contain carcinogenic substances, and, now, endocrine disruptors. Some feminized carp seem to have appeared because of these disruptors.

CARS FOR COMMUTING to factories and companies were causing traffic congestion. The exhaust fumes from these cars increased the amount of "acid rain". Once it falls on the ground, the acid rain flows into the river.

How are the river creatures doing?

In the lower reaches, a lot of people were enjoying personal watercrafts and MOTORBOATS. One of the motorboats

went up and down the river, and leaked some "oil" from its engine into the river.

Also from a CAR ILLEGALLY DUMPED by the river, some "oil" gradually seeped out, went into the nearby drainage ditch, and entered the river.

A family living near the lower reaches was gardening. The GARDENERS spread "herbicides" before summer to prevent weeds from growing in their garden, and "insecticides" to repel disgusting insects. When they finally finished their work, it started to rain. The components of the chemicals entered the river.

At another house, there was a FAMILY CLEANING UP THEIR GARAGE. They found an old bottle with a "mysterious liquid" inside. They didn't know what the liquid was, but it surely looked dangerous. Someone said, "Shall we pour it into the ditch?" …The mysterious liquid went down into the river. This is what was happening to the Tama River four decades ago.

How are the river creatures doing?

What kinds of problems do you think will be caused?

Who do you think polluted the river?

Don't you think you have done similar things?

Will this polluted river ever be able to become clean?

How can this river become a place for many creatures to live in? How can this river be able to make us healthier?

Please think again, when you return home, about what you have heard today and what you are feeling right now. And, please remember, when you use water, that it is us who are indeed polluting the river.

* Parts written in capitals show the roles of participants, and parts inside quotation marks show what enters the river.

Eco Bingo

■ Procedure

1. Each participant makes a 3 X 3 eco bingo card with a blank card (the cards can be prepared in advance).
2. Then they fill out every nine squares with one idea or a suggestion for eco-friendly behavior per square.
3. The participants announce only one of their nine ideas in turn.
4. When an idea is announced, other participants put a circle (○) on their idea similar to the announced, if they have one. When they are not sure whether they can put a circle (○) or not, the person who announced should decide.
5. According to the Japanese bingo rule, when they have two circles in a straight line, vertically, horizontally, or diagonally, they should call out, "Reach!", and when three circles, call out, "Bingo!"
6. Stop playing bingo at an appropriate timing according to the situation. Give a prize to the participant who has called out "bingo!" most, and who has had the least number of circles.
7. Ask the participant with the least number of "bingos" to announce his/her ideas which did not get a circle.
8. Other participants' ideas without a circle should also be announced.
9. Discuss what they have thought about, and what they think they can do for the future.

■ Ideas for use, application and development

- It would be a good idea to have discussions about what they are already doing for the environment and what they wish to do from now on.
- The bingo can be played with specified themes. For instance, if the theme is "waste", the bingo will be "Waste Bingo". It can be done after a clean-up activity or listing up what the participants threw away during the past week.
- The activity can be connected to a variety of follow-up activities, including, creation of a slogan or a poster as a group activity, and a one-week trial of "what they wish to work on now".

Source: Website of the Chiba Prefectural Government, *A Guide to Environmental Studies (in Japanese)*

Aim(s):
- To learn about the relationship between daily life and the environment
- To think about what we can do for the environment

Place: Anywhere
Players: 3 or more
Length: 30 min. or more
Ages: 7 or over
Resources:
- Thick paper (one per person, B5 size)
- Pens (one per person)

Everyday Life and Nature

■ Procedure

1. Show the participants pictures of our daily life (example: a mother is cooking in the kitchen where there are a variety of things), and discuss the waste that human beings generate.
2. Show the participants pictures of animals' daily life (examples: monkeys and birds eating berries in the woods and leaving their droppings), and discuss the waste that animals generate.
3. Discuss what happens to each type of waste, and the flow of the waste (examples: the waste animals generate is recirculated, while most of the waste human beings generate cannot be recirculated, etc).
4. Discuss how the waste can be reduced.

■ Ideas for use, application and development

· The activity can be used as a good opportunity to think about the 3Rs (Reduce, Reuse, and Recycle).
· In addition to the 3Rs, there are a variety of perspectives to reduce the amount of waste, such as "Repair" to use for a longer period, "Refuse" to buy or get unnecessary things, and "Return" the used things to where they were bought.

Source: *A Guide to Environmental Education for Bolivia (in Japanese)*

Aim(s):
· To review our daily life
· To think about how humans should behave
Place: Anywhere
Players: 3 or more
Length: 30 min. or more
Ages: 7 or over
Resources:
· Pictures of our daily life and that of animals
· A flow chart of the waste

Water Purification

■ Procedure

1. Showing murky water, have a discussion about "What is contained in this water?", "What kinds of impact would it have on us if this water were consumed as it is?", "How can this water be made clean?", and so on.
2. The participants form into groups. Hand out PET bottles, different types of sand, pebbles, cotton (or cloth), and paper towels.
3. The participants think about the best order of the above materials for the murky water to go through in order to make the water the cleanest, and then layer the materials inside the up-side-down bottles.
4. For comparison, the teacher should prepare, in advance, a bottle with the order of layers from the top, "paper towels, cotton, pebbles, charcoal or coarse sand, and fine sand". Each layer should be about 5 cm in thickness.
5. Before starting actual filtration, pour approx. one liter of clean water into the bottle to remove impurities.
6. Pour the muddy water gently and gradually into the bottle.
7. Check the level of water purification.
8. Compare the result of each bottle, share what has been found, and discuss what will happen to us when the purified water has been consumed.
9. Give more information about the purification of water.

【Examples of information about the purification of water】
Even if river and lake water looks clean, it actually contains many microorganisms, such as E. coli, and can cause infection if consumed as it is; the water purified in the experiment can be consumed after being boiled for more than 10 minutes; etc.

Source: *A Guide to Environmental Education for Bolivia (in Japanese) etc.*
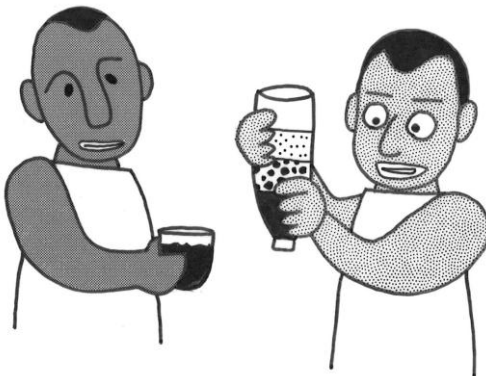
Aim(s):
・To learn about water hygiene
・To know that water can be purified with familiar materials

Place: Anywhere

Players:
・Depends on the number of tools available

Length: 40 min. or more

Ages: 7 or over

Resources:
・PET bottles (with the bottom cut off and the cap pierced)
・Sand with different sizes of grains, pebbles, charcoal, cotton, etc. (washed and cleaned in advance)
・Kitchen towels
・Muddy water

Field Bingo

■ Procedure

1. Divide the participants into groups of three to four.
2. Hand out the field bingo cards (Examples: Each card can have the same items, but they should be arranged differently. The items can be nests, fragrance, wind, insects, leaf buds, voices of birds, garbage, footprints, something cold, something beautiful, something mysterious, etc.). Give one card per person or per group. Each group searches around in the field for the items on the card.
3. When someone has found the same item as the one on the card, all the members of the group should check and agree on the item. Then all group members put a circle (○) on the item on the card.
4. When all the squares are in a line; vertically, horizontally, or diagonally; make a circle, call out, "Bingo!" Try to get as many "bingos" as possible.
5. At the finishing signal, the participants stop searching and come together. Discuss what they have found, and announce the number of "bingos" they have achieved.

Aim(s):
· To sharpen our senses
· To improve observation skills
Place: Outdoors
Players: 3 or more
Length: 15 min. or more
Ages: 5 or over
Resources:
· Field bingo cards (one per person)
· Pens (one per person)
· A tool to give a signal △

■ Ideas for use, application and development

· The items should be selected according to the themes of the activity. For instance, when the theme is waste, put some items related to waste on the cards.
· The items tend to be selected from what can be seen. However, it would be good if a variety of items which require other senses, such as "hear", "touch", and "smell", are included.

■ Points to consider

· If the emphasis is put on winning bingo, the participants would focus more on finding quickly rather enjoying the search. At the Conclusion, the comparison of the number of "bingos" should be done briefly, and then focus the discussion on what they have found.
· The Conclusion part should be done in such a way that even participants who could only achieve a few "bingos" can feel the joy of finding something.

Source: *Nature Games for Elementary School Pupils Start-up Guide (in Japanese)*

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Body Mapping

■ Procedure

1. Ask a participant to lie on the floor so that his/her body shape can be traced. Make two shapes, one the front and one the back of the body. The shapes can be made with paper or rope, or by tracing with a stick on the earth.
2. Each participant carries a specific number (10, the same as the number of fingers, would be the easiest) of markers (pebbles, Post-it notes, etc.).
3. Give a theme (i.e.,"the body parts you are most concerned about, etc.) to the participants so that each of them can put markers where the theme is applicable. All 10 markers can be put in one place or can be placed separately, like 5 on the shoulders, 3 on the knees and 2 on the eyes.
4. Places to put markers on other than the body shapes can be arranged. They should be "the mind", "nothing", and "others".
5. Looking at the markers, share what they have felt and noticed.

■ Ideas for use, application and development

· It would be a good idea to change the body shapes to the floor plan of the school or the local map depending on the themes to be shared.

Idea: Megumi Hirayama

Aim(s):
· To create an atmosphere in which everyone can express their own problems and tasks
· To give opportunities to share local identities and issues

Place:
· Where it is flat and you can move around

Players: 3 or more
Length: 5 min. or more
Ages: 7 or over
Resources:
· Markers (approx.10 per person; pebbles, etc.)
· Tools to make body shapes (paper large enough for the whole body, a marker pen, two 10m ropes, a stick to draw lines on the ground, etc.)

Photo Language

■ Procedure

1. Hand out photo materials to the participants and give them a task (about, e.g., countries, situations, jobs, listing up as many questions as possible, adding captions, etc.)
2. Share why they think in that particular way.
3. Discuss what they have felt and noticed, and then further discuss about perception and stereotypes.

■ Ideas for use, application and development

・ This is also an effective technique to rank several photos according to the theme (Examples: "the place where you want to live", "the level of affluence, the level of risk due to waste, etc.).
・ Hiding part of a photo with a surprise, ask the participants to imagine what there is in the covered part. This will make the participants realize various things. (Examples: a photo of a woman and a man with their lower parts covered – but it is the man who is wearing a skirt, a beautiful photo of the ocean – but its shore is actually full of garbage, etc.)
・ The participants can be asked to imagine what has happened over time showing photos of a place taken at different times.
・ When familiar "things" are taken up as themes, it is also possible to ask the participants to think about the "life of the things", where and how these things were produced, and where they are destined to go".
・ The activity can be conducted as "thing language" using familiar "things" in daily life. For instance, ask the participants to imagine how and when a "tool" can be used by actually holding the tool in their hands, or discuss the advantages and disadvantages of the tool. It will be a good way to increase understanding of the local culture.

■ Points to consider

・ It is important for each participant to be allowed to take enough time to observe the photos.
・ Even when a photo has a single correct answer (i.e., which country), the purpose is not to know the correct answer. The point is that the participants realize that they have preconceived notions and biased information which have led them to the wrong idea about the photo.
・ Try to create a relaxed atmosphere so that the participants can use their imagination fully, think freely, and speak out without hesitation.

Source: *Feeling the World through Participatory Learning – Practical Handbook for Development Education (in Japanese)*

Aim(s):
・To enhance empathetic understanding and imagination
・To make the players aware of a diverse way of thinking
・To make the players aware of stereotypes
・To make the players able to analyze the media critically
Place: Anywhere
Players: 3 or more
Length: 15 min. or more
Ages: 10 or over
Resources:
・Photographs, etc.

Daily Schedule

■ Procedure

1. Tell the participants the purposes of this activity, and put people with similar living conditions together to form small groups.
2. In groups, the participants list up what they do in a typical day.
3. One of the members of each group writes their activities down. If he/she is illiterate, drawing pictures of them is fine.
4. Then all the members of each group put times to each activity.
5. When the daily schedule of a group has been drafted, members of other groups ask questions about it to clarify unclear points.
6. Looking at these schedules, the participants discuss the amount of free time and work, the relationship with participation in this project or program, and so on. Comments should be written down.
7. Record the completed daily schedules on paper.

■ Ideas for use, application and development

- It will help to better understand the local people's daily life if the participants check the completed schedule, and what they have discussed against what is actually happening, objectively.

■ Points to consider

- It is more effective to write the draft on the ground than on paper as it gives more flexibility and more space for the participants to join in, and, therefore, more active participation can be expected. When they write on paper, they tend to be reluctant to modify what they have already written.

Source: *Methods for Community Participation:*
A Complete Guide for Practitioners (Japanese version)

Aim(s):
- To clarify the daily life of a person, a group, and a community

Place:
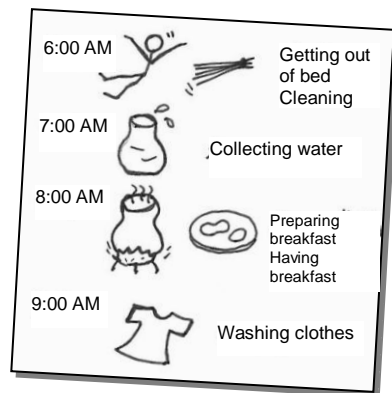- Where you can gather comfortably and with usable floor space

Players: 3 or more
Length: 60 min. or more
Ages: 7 or over
Resources:
- Tools for drawing on the ground (pieces of wood or chalk, rocks, sand, etc.)

Time	Activity
6:00 AM	Getting out of bed / Cleaning
7:00 AM	Collecting water
8:00 AM	Preparing breakfast / Having breakfast
9:00 AM	Washing clothes

Our Community Map

■ Procedure

1. Tell the participants the purposes of this activity.
2. Ask them to draw freely the physical features and the landmarks (i.e., roads, forests, squares, meeting places, residents, etc.) of the area they live in.
3. The outsider (teacher) observes their map-making process carefully.
4. Ask them to explain the map while they are still making it, or after they have finished.
5. Take the map away after the activity, and rearrange it on a large sheet of paper for easier viewing.
6. Bring back the arranged map to the participants, and check it with them again. New information can be added on the map at this stage.

■ Ideas for use, application and development

· It will be a great help in understanding the local area to observe the map-making process carefully, such as how they are interacting, who is actively involved, which social groups they belong to, and who is left out of the group activity.
· The activity can be used as a method for monitoring and evaluation.

■ Points to consider

· Writing on the ground and using pictures and symbols are better than using paper and letters as more participants can be expected including those who are illiterate.
· Do not rush them or interfere. Trust them, and just watch for their proactive involvement.
· This is a typical activity of PRA (Participatory Reflection and Action), a method used for participatory development. It is recommended that you should check its basics and case studies with books, such as those listed below, before conducting this type of activity.

Source: *Methods for Community Participation: A Complete Guide for Practitioners (Japanese version), Introduction to Social Development (in Japanese)*

Aim(s):
· To better understand the local community
· To give opportunities to discuss the local community

Place:
· Where you can gather comfortably and with usable floor space

Players: 3 or more
Length: 60 min. or more
Ages: 7 or over
Resources:
· Tools for drawing on the ground (pieces of wood or chalk, rocks, sand, etc.)
· Pens and paper to record the completed map
· A large sheet of paper

Micro Teaching

■ Procedure

1. Arrange the themes and what you wish the participants to be aware of into five parts (Introduction, Objective, Main Explanation, Assessment, and Summary).
2. Organize each part, and give a talk in 5 to 15 minutes.

【A sample talk】

① Introduction: "How much toilet paper do you use after you have used the toilet? Do you think the paper dissolves? …Well, actually it doesn't."

② Objective: "Today, I'd like you to understand how long the garbage we throw away everyday remains in the natural world, and also to understand that it is important to "Reduce" the amount of waste."

③ Main Explanation: "This chart shows how long each type of garbage will take to be decomposed into the natural elements in the earth. For example, food waste takes three to six weeks, and aluminum cans 10 to 100 years…, yes, that long period of time is necessary."

④ Assessment: "At the beginning, I told you that toilet paper doesn't dissolve, but is that true? Let's just put some toilet paper in and stir to see how it goes (put some toilet paper in a glass with water and stir). You see? The paper has broken into small pieces, but is not completely dissolved."

⑤ Summary: "Toilet paper doesn't dissolve in water. Most of the garbage takes a huge amount of time to decompose in the earth. If we can start now to reduce the amount of toilet paper just a bit at a time, we may be one step closer to a society with less garbage."

■ Ideas for use, application and development

・ This activity is an effective method of education especially for people who are not familiar with lectures. If the teacher wishes to convey something in a short period of time, rather than through an activity, this style is an effective way of delivering the messages.

■ Points to consider

・ Checking the participants' level of understanding tends to be forgotten. Please devise a system to check it easily and clearly.

Idea: Megumi Hirayama

Aim(s):
・To convey an important thing in a short time
Place: Anywhere
Players: 3 or more
Length: 5 min. or more
Ages: 7 or over
Resources:
・Aids for the talk (photos, pictures, charts, etc.; in this sample, a glass, water, toilet paper, a chart showing the length of time required for decomposition of waste, etc.) △

Appendices

■ Appendix 1　Guiding Principles of Environmental Education (UNESCO-UNEP 1978)

(1)　The environment should be discussed as a whole, that is, the natural and artificial environment, and the technical and social environment (economic, political, technical, cultural/historical, moral and esthetic environment) should be recognized as a whole.

(2)　This discussion should start before elementary education, and should be continued at all stages of school education and education outside school as a continuous and lifelong experience.

(3)　Its approaches should be interdisciplinary. There are specific contents taken from various academic fields in order to lead to general and balanced future prospects.

(4)　It should deal with major environmental problems at the local, national, regional and international levels in order to give students insights into the state of the environment in regions with different geographical features.

(5)　Taking account of historical perspectives, it should focus on the current and potential state of the environment.

(6)　It should promote the value and necessity of cooperation at both national and international levels for the solution and prevention of environmental issues.

(7)　Development projects should explicitly be considered from the perspective of the environment.

(8)　Learners themselves should be able to get involved in the planning of the learning experience, and should be given opportunities to decide and receive the outcomes themselves.

(9)　Learners' sensitivity to the environment, their knowledge, their skills for problem-solving, and clarification of values should correspond to their age. Particularly for younger learners, however, an emphasis should be put on their sensitivity to the environment corresponding to their own local community.

(10)　Learners should be supported in identifying the current state of environmental issues and their causes.

(11)　The complexity of environmental issues should be emphasized, and, therefore, it should be emphasized that there is a necessity to develop critical thinking and problem-solving skills.

(12)　Emphasizing actual activities and direct experience, diverse learning environments and well-organized educational approaches should be utilized to learn about and from the environment.

■ Appendix 2　Ten Perspectives of ESD (Sato et al., 2008)

(1)　Recognition of interrelationships

Interrelationships and interdependencies, recognition of relationships between phenomena (connection), and recognition of relationships between actors (involvement)

(2)　Contextualization of activities

Local contextualization (spirituality, culture, history, and bioregion) (deepening), global contextualization (globalization and market economy) (expansion)

(3)　Construction of principles and concept of sustainability

Consideration for sustainability (ecological sustainability, social fairness, cultural and spiritual sustainability), response to the progressive concept of "sustainability", and cooperative and value-creative learning

(4)　Environmental ethics and respect for diverse values

Understanding of their own values, social values, and diverse values in the world; the skills to recognize their own values; the skills to evaluate personal values in the context of sustainability; creation of values which are rooted in local areas and culturally appropriate

(5)　Use of a wide range of learning methods and highly-developed thinking skills, and learning

Systems thinking, future-oriented thinking, critical thinking, problem-solving skills, cooperative and value-creative "acquisition and connection of knowledge" through participatory and interactive learning and lectures, recognition of chronologies and interrelationships, and cycles of theory and practice (action research and participatory evaluations)

(6)　Practice and relationships in various educational areas

Formal education (FE), non-formal education (NFE), and informal education (IFE)

(7)　Cooperative approaches and development of abilities

Effective communication and cooperative approaches, leadership and coordination, development of capabilities of organizations and citizens as well as individuals

(8)　Construction of learning system in society and lifelong learning system

"Access to learning" as a fundamental human right; learning philosophies: (1) learning to know, (2) learning to do, (3) learning to live together, (4) learning to be and (5) learning to transform; and raising awareness of learning for individuals and the societies to transform

(9)　Relationships with global education initiatives

"Sustainable development and education" and "improvements in the quality of and the access to basic education", quality basic education, the process of Millennium Development Goals (MDGs), the movement of the United Nations Literacy Decade (UNLD), and Education For All (EFA)

(10)　Realistic social conversion

Transformative Education

Closing Remarks

Today, more than half of our volunteers sent for environmental education are tackling waste issues. From their reports, we can imagine them struggling to do their activities in a country where the culture, language, and social structure are different from those of Japan despite being shocked by a local area full of garbage or a poor state of hygiene. While many of the volunteers have been facing various challenges, a number of successful activities and excellent teaching materials devised to best suit local needs have been reported, and gathered together.

This handbook has been published in the hope that this will help volunteers to conduct their activities towards improvement in environmental problems in daily life combining the results of the efforts of our volunteers, and academic and technical knowledge about the environment. We hope that this publication will be widely utilized not only by our environmental education volunteers, but also by our volunteers with other job titles who tackle environmental issues in developing countries. We give our wholehearted support to our volunteers for their efforts to solve various environmental problems.

I would like to express my sincere gratitude to the technical advisors who were involved in our frequent discussions for the production of this document, those who cooperated in writing it and provided illustrations, and our ex-volunteers who gave us useful information and valuable comments.

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Clip art for literacy was created by the Asia-Pacific Cultural Centre for UNESCO (ACCU) and UNESCO in order to support the production of high quality teaching materials. The main themes in community development are divided into eight categories; health, sanitation, and nutrition; improved income; the environment and science; women's empowerment; education; public consensus; culture and values; and others, for effective use according to learning themes. For more information, visit http://www.accu.or.jp/jp/index.html.