## DEPARTMENT OF ENVIRONMENT THE ISLAMIC REPUBLIC OF IRAN

## JAPAN INTERNATIONAL COOPERATION AGENCY





## ANZALI WETLAND ECOLOGICAL MANAGEMENT PROJECT IN THE ISLAMIC REPUBLIC OF IRAN

# ACTION PLAN FOR ENVIRONMENTAL EDUCATION BY USING THE ANZALI WETLAND ENVIRONMENTAL EDUCATION CENTER

July 2012

DOE Project Team - DOE

JICA Expert Team - JICA



## Action Plan for Environmental Education by Using the Anzali Wetland Environmental Education Center



DOE Project Team: Department of Environment (DOE),

Gilan Province Environmental Protection Administration (DOE Gilan)



JICA Expert Team: Japan International Cooperation Agency (JICA)



Anzali Wetland Ecological Management Project in the Islamic Republic of Iran

Approved version (July 2012)

#### Action Plan for Environmental Education By Using The Anzali Wetland Environmental Education Center

#### **Table of Contents**

for

## Action Plan for Environmental Education by Using the Anzali Wetland Environmental Education Center

Chapter 1 Introduction	1
1.1 History of Anzali Wetland Environmental Education Center	1
1.2 The goals of the Action Plan	1
1.3 Flow Chart of Operation Plan Process	1
1.4 Target group for environmental education	2
1.5 How to use the action plan	2
Chapter 2 Definition and Implementation Principles of the Environmental Education	3
2.1 Definition of Environmental Education	3
2.2 Environmental Education in the Anzali Wetland	3
2.3 Environmental Education by Utilizing the Center	3
Chapter 3 Environmental Education Programs by Utilizing the Center	4
3.1 Classification of Target Groups for EE Programs	4
3.2 Outline of EE Programs	4
Chapter 4 Environmental Education Materials	8
4.1 Environmental Education Materials	8
4.2 Video Materials	8
4.3 Booklet	9
4.4 Game Materials	10
Chapter 5 Instructor's Training	11
5.1 Introduction	11
5.2 Required Competence of the Instructor	11
5.3 Training Program	11
(1) Basic training	11
(2) Program-specific training	11
5.4 Trainer of the Instructors	12
Chapter 6 Maintenance and Replacement Plan for the Facilities	
Chapter 7 Guidelines on the Environmental Education by Using the Anzali Wetland Education C	
	14
7.1 Definition of Guidelines	14
7.2 Guidelines	14
7.3 Implementation of Guidelines	15
Chapter 8 Implementation Plan	16
8.1 Overall implementation schedule	16
8.2 Roles and Responsibilities of Relevant Organizations	16
8.3 Implementation Arrangement of the Programs	17
(1) Part of the curriculum in School and University	17
(2) Voluntary participation program	17
8.4 Requirements	17
(1) Institutional requirements	17
(2) Facility and equipment additionally and newly required	17
(3) List of necessary annual cost during the period of the action plan	17

#### Action Plan for Environmental Education By Using The Anzali Wetland Environmental Education Center

#### Attachments:

Attachment 1 Previous Activities of the Environmental Education

#### List of Tables

Table 4.1	Summary Table of the EE Programs	7
Table 5.1	Subjects of the Basic Training for the Instructors	11
Table 5.2	Example of Subjects for the Program-specific Training	12
Table 6.1	List of Necessary Equipments	13
Table 8.1	Classification of the Programs based on Difficulty for the Implementation	16
	List of Figures	
Figure 1.1	Flow Chart of Preparation for the Action Plan with Program Preparation	2
Figure 8.1	Implementation Time Schedule by Category of the Program	16

#### **Chapter 1** Introduction

#### 1.1 History of Anzali Wetland Environmental Education Center

Japan International Cooperation Agency (JICA) has started Environmental Education study and cooperation since 2003 under "The Study on Integrated Management for Ecosystem Conservation of the Anzali Wetland". The Anzali Wetland Environmental Education Center, which is located adjacent to the Selkeh Wildlife Refuge in the central southern area of the Anzali wetland, has been used for pilot activities of environmental education.

The center is the first wetland education center in Iran even small-scale facilities. However, only a few irregular activities of environmental education have been conducted in the center utilizing the existing facilities and materials since starting its operation in October 2004.

The center is composed of various facilities; a one-storey building with one class room, a separate structure for restroom, a bird watching tower 6-m in height in the same site of the DOE guard station adjacent to the Selkeh Wildlife Refuge, a jetty between the building site and the refuge, a 50-m long wooden trail heading to the water area inside the refuge, and a bird hide at the end of the wooden trail in the refuge.

It has been decided to start environmental education activities in 2011 in Anzali Wetland Ecological Management Project and to end by 2012.

#### 1.2 The goals of the Action Plan

Environmental Education action plan aims to make basic common understanding among relevant organizations that have roles and responsibilities in implementation of the environmental education activities by utilizing the Anzali Wetland Environmental Education Center.

This Action Plan includes below mentioned final goals:

Through implementation of experiential environmental education activities based on the action plan, participants of the environmental education programs are anticipated

- 1. To be aware of
- 2. To take action for
- 3. To voluntarily participate in

not only the Anzali wetland conservation activities (in specific), but also various fields of environmental conservation activities (in general).

#### 1.3 Flow Chart of Action Plan Process

In order to provide a deep understanding of the Action Plan, a flow chart is presented below.

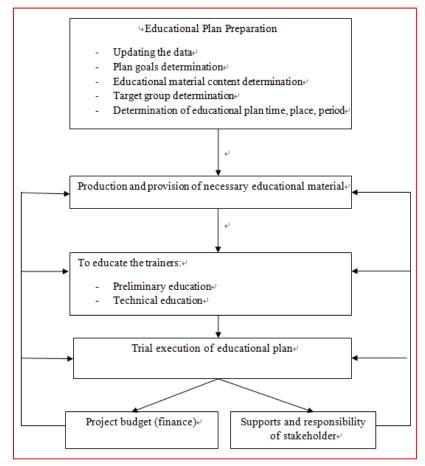


Figure 1.1 Flow Chart of Preparation for the Action Plan with Program Preparation

#### 1.4 Target Groups for Environmental Education

Environmental education in the Anzali Wetland targets mainly local residents, including students.

It aims at fostering people to recognize the value and importance of the Anzali Wetland and act for conservation or sustainable use of the wetland.

#### 1.5 How to Use the Action Plan

Organizations and/or individuals, who are supposed to implement the Action Plan from their standpoints and roles, are expected to read through and get common understanding on the whole contents of the Action Plan. Though the Action Plan should be utilized among the respective bodies as basis for implementation of the environmental education in the Anzali Wetland Environmental Education Center, the Action Plan should also be revised and/or expanded, from time to time, by discussion among the respective bodies for further activities for both up to target year and after the target year.

#### Chapter 2 Definition and Implementation Principles of the Environmental Education by Utilizing the Center

#### 2.1 Definition of the Environmental Education

Environmental education (EE) is a process in which people gain awareness of their environment and acquire knowledge, skills, values, experiences, and also the determination, which will enable them to act individually and collectively to solve present and future environmental problems.

In recent years, EE is also anticipated to work in corporation with the framework of "education for sustainable development" adopted in UNESCO.

The basic elements of environmental education include:

- 1) To become aware of the relationship between human beings and the nature, and their impact on the environment.
- 2) To make tendency to participate and attempt in order to conserve the environment
- 3) To learn some skills about problem solving, participation in environmental activities, and to recommend some solution concerning environmental problem solving
- 4) Development of knowledge, sight, and skills regarding the issues related to the environment.

It is important to provide EE programs that match comprehension level of the participants.

#### 2.2 Environmental Education in Anzali Wetland

By environmental education in Anzali wetland we mean such education which includes local residents, specially students.

The goal is to educate participants about the importance and values of Anzali wetland, and to conserve the wetland and to promote the sustainable use based on some principles, which have mentioned before.

#### 2.3 Environmental Education by Utilizing the Center

All the EE programs to be provided at the Anzali Wetland Environmental Education Center will include experiences of nature in the wetland. The EE programs should be planned to let participants find out wonders and interests for the ecosystem or life of the wetland and learn something more. The knowledge that participants have acquired experientially will remain in their mind and encourage them to act for conservation and sustainable use of the wetland.

### Chapter 3 Environmental Education Programs by Utilizing the Center

#### 3.1 Classification of Target Groups for Environmental Education

Target participants for the Environmental Education programs will range from kindergarten children to adults. The Environmental Education programs should be prepared for all ages. School children are classified as lower grades of the elementary school, higher grades of the elementary school, junior high school, and high school. University students will be included in the adult age group. The Environmental Education programs for the students should be prepared to be conducted in both school curriculum and voluntary participation in holiday camps

#### 3.2 Outline of Environmental Education Programs

Environmental Education programs with specific themes such as wetland ecology, individual species of organism, and relationship between human and wetland, should be practiced in the Environmental Education Center of the Anzali Wetland.

The goal of environmental education is making awareness and understanding about the ecology of the wetland, to show the values of the wetland and to provide some skills and conduct some activities in order to conserve the wetland effectively.

In chapter 3, there are different types of environmental education programs. Each program includes 3 steps consisted of objectives, execution, and review.

**Explanation of the objective:** Education programs are conducted after determining the objectives of environmental education plans as general and behavioral objectives.

**Execution:** By using the educational method and prepared educational materials, the program will be executed.

**Review:** Achieved results and outputs of education and the predetermined goals will be evaluated and revised if necessary. The reviews include not only the instructor's performance, but also the execution method, contents, materials and trainees.

The following 7 Environmental Education programs are proposed to be implemented under the Action Plan. Outlines of each Environmental Education program are shown below.

(Further programs will be prepared by examining the Environmental Education programs proposed by DOE and NGOs.)

#### EE Program: No.1

Title	Environmental Puzzle Entertainment
Category / Season	birds / all seasons
Target Group	students of 3rd and 4th grade in elementary school
Level	beginner
Time required	1 hour
No. of participants	5 - 20
General Objectives	To know the birds and problems in the wetland
	To familiarize with birds.
Behavioral Objectives	To know the characteristics of the body and the point of identification.
(expected after	To understand pollution sources in the wetland.
executing the program)	To understand the ways of wetland conservation.
	To recognize one of the best ways for utilizing the wetland.
	Choose correct body parts of the birds (such as ducks, herons and snipes) from
Program outline	those of other kinds of birds. After completing the puzzle, observe the birds and
	confirm it.

#### EE Program: No.2

Title	Birds in the Anzali Wetland
Category / Season	birds / all seasons
Target	elementary school students
Level	Beginner-Intermediate
Time required	1 hour
No. of participants	10 - 40
General Objectives	To know the birds and problems in the wetland
	To know how to observe 10 birds and a way of identification.
Behavioral Objectives	To understand diversity of the birds.
(expected after	To memorize names, food and habitats of birds.
executing the program)	To realize the importance of the wetland as a bird habitat.
	To visit the wetland every season.
	(1)Lecture about the birds which are seen in the Anzali Wetland and issues of the wetland by using booklet "Let's know the Anzali Wetland"
	(2)After lecture, the students visit the wetland to find and see several kinds of
	birds by using binocular and telescope.
Drogram outline	(3) The students go back to the center and talk about birds which they saw in the wetland.
Program outline	(4) Ask the students to write a story after seeing the continuous pictures about cleaning the wetland on the booklet.
	(5) Ask the students to find problems in the wetland according to the pictures in the booklet.
	(6) The students review the birds and problems in the wetland through playing the game materials (card game and board game)

EE Program: N	Vo.3	
---------------	------	--

Title	Observations on (Aquatic) Plants in the Wetland
	Plant / Summer
Category / Season	
Target	Higher grade elementary school / junior high school student
Level	Intermediate
Time required	90 min.
No. of participants	10 - 30
General Objectives	To know the Aquatic plants and problems in the wetland
Behavioral Objectives	To observe plants in the wetland.
(expected after	To know the collection of plants.
executing the program)	To realize the difference between terrestrial plants.
exceuting the program)	To know the life type of a variety of aquatic plants and their characteristics.
	After explanation about aquatic plants which are seen in the Anzali Wetland, the
Program outline	participants visit the wetland to see different kinds of aquatic plants with
i rogram outline	sketching and collecting. Coming back to the center, discussion is made on the
	relationship between forms and habitats of aquatic plants.
EE Program: No.4	
Title	Foods of Animals in the Wetland
Category / Season	Biodiversity / all seasons
Target	Elementary school / junior high school student
Level	Intermediate and High
Time required	90 min.
No. of participants	10 - 40
General Objectives	To understand food web in the wetland
•	To know animals and plants in the wetland.
Daharianal Ohiaatiraa	To observe a variety of animals feeding in the wetland so as to analyze the
Behavioral Objectives	relationship among the environment, the animal's way of life, and the food they
(expected after	eat.
executing the program)	To understand the idea of food chain.
	To know how to use binocular
Dan and a different	Seek different kinds of creatures by means of a game. Observe one species and
Program outline	make food a chain in a group or a class.
	i

#### EE Program: No.5

Target Level

Time required

No. of participants

EE Piogram. No.3	
Title	Bird Migration and Preciousness of the Wetland
Category / Season	Birds / winter
Target	Elementary school students
Level	Intermediate
Time required	80 min.
No. of participants	10 – 30
General Objectives	To understand the importance of the wetland for migratory birds.
Behavioral Objectives (expected after executing the program)	To understand "migration".  To know seasons for migration.  To think some ways to help protect migratory birds and their habitats.  To recognize one of the best ways for utilizing the wetland.  After explanation on migratory birds, visit the Anzali Wetland to observe birds feeding in the wetland. After the visit, simulate migration by using paper plate to
- Togram oddine	learn the importance of the wetland for migratory birds.
EE Program: No.6	
Title	Research on Breeding of Tern in the Wetland
Category / Season	Birds / May – August

2 hours, once a week in the season (around 12 times in total)

Junior high school students or older

High

5 - 15

General Objectives	To understand the importance of the wetland for the breeding birds.				
	To know the life cycle of Terns by continuous observation.				
	To know the food of Terns through observation of their breeding.				
Behavioral Objectives	To know the breeding site of Terns and its reasons.				
(expected after	To know the material of Terns nests through observation of their breeding,				
executing the program)	To know the behavior through observation of their breeding,				
	To experience scientific survey				
	To think of some ways to help protect terns and their habitat.				
	After explanation on breeding terns, visit the wetland to observe various things				
Drogram outling	(such as food, location of nests, materials of nests, behavior, egg laying etc.) of				
Program outline	breeding terns, and count the number of nests. After the observation, review the				
	result of observation. At last, make a report of continuous observation.				

EE Program: No.7

Title	Wildlife as an Indication of Water Quality
Category / Season	Biodiversity / Summer
Target	Higher grade elementary school to high school student
Level	High
General Objectives	To understand the relation between wildlife species and water quality, and the importance of water quality in the wetland.
Behavioral Objectives (expected after executing the program)	To identify several aquatic organisms To assess the relative environmental quality of the wetland based on the diversity of organisms. To understand "biotic index". To think some of day
Program outline	Sketch the plankton using microscope. Observe what kind of plankton eats what other kind. Stick sketches on the paper and draw food chains. Think the relation between planktons and other creatures.

Features of the EE programs are summarized in the following table. It is noted that age of the target with certain level of knowledge about the environmental subjects and technical level of the instructor are different, since required competency of the instructor is not only knowledge, but also presentation skill in practice which has to be flexible to meet the situation and demands of the participants.

**Table 4.1 Summary Table of the EE Programs** 

	Subje	ect to be	Covered	Target		Season				Technical level of			
										instruction			
Program	Animal	Plant	Biodiversity	Kid	Youth	Adult	Spr	Sum	Aut	Win	В	I	Н
No. 1	О	-	-	О	О	-	О	О	О	О	О	-	-
No. 2	О	1	-	О	-	-	О	О	О	О	О	О	-
No. 3	-	О	-	О	О	-	-	О	-	-	ı	О	-
No. 4	-	-	О	О	-	-	О	О	О	О	-	Ο	-
No. 5	О	-	-	О	О	-	-	-	-	О	-	О	-
No. 6	О	1	-	1	О	О	О	О	-	-	ı	ı	О
No. 7	-	-	О	-	О	-	-	О	-	-	-	-	О

Note: Seasons- Spr: Spring, Sum: Summer, Aut: Autumn, Win: Winter

Level- B: Beginner, I: Intermediate, H: Higher

#### **Chapter 4** Environmental Education Materials

#### 4.1 Environmental Education Materials

Environmental Education materials aim to introduce specific themes on various subjects related to the Anzali wetland to be utilized in the Environmental Education programs in the Anzali wetland Environmental Education Center.

#### 4.2 Video Materials

Video materials are very effective tools to introduce the Anzali Wetland. Usually it is difficult for people to see various wildlife, plants, and seasonal sceneries. Video materials can easily introduce specific themes on various subjects related to the Anzali wetland.

Outline of the video programs (Life in Anzali Wetland) prepared by the JICA Anzali Wetland Ecological Management Project are shown below. These video programs should be used effectively to promote the Environmental Education.

#### Audio-Visual Program (Life in Anzali Wetland) 1

1) Title	Over the Anzali Wetland	
2) Concept	To introduce overall structure of the Anzali wetland from the air by	
	helicopter or light airplane	
3) Outline	The complicated situation of the Anzali wetland shall be shown. It will be	
	rather general, but the characteristics of the Anzali wetland such as the	
	combination of reed beds and open water, over growth of Azolla, the	
	adjacent Anzali city, pastures and agricultural lands shall be shown.	
4) Time of	10 minutes	
program		

#### Audio-Visual Program (Life in Anzali Wetland) 2

	·	
1) Title	Birds Life in Anzali Wetland	
2) Concept	To introduce the life and characteristics of the birds	
3) Outline	<ul> <li>Waterfowls and their behavior in and around the Anzali wetland shall be introduced.</li> <li>Breeding terns, appearance of nests, chicks and eggs shall be filmed with explanation of their life cycle.</li> </ul>	
	<ul> <li>Threatened species shall be introduced.</li> <li>The ecology of international bird migration shall be introduced. (by illustrations, computer graphics, or animations)</li> </ul>	
4) Time of	10 minutes	
program		

#### Audio-Visual Program (Life in Anzali Wetland)3

1) Title	Aquatic Life in Anzali Wetland	
2) Concept	To introduce the variety and behavior of aquatic plants and creatures in	
	the Anzali wetland	
3) Outline	<ul> <li>The underwater world such as feeding and spawning should be filmed.</li> <li>An aquarium can be used to introduce the name of aquatic creatures.</li> <li>Microscope shall be used for plankton as well.</li> </ul>	
4) Time of	10 minutes	
program		

#### Audio-Visual Program (Life in Anzali Wetland) 4

1) Title	Human Activities in Anzali Wetland	
2) Concept	To introduce the benefits of the Anzali Wetland for local economy	
3) Outline	Fishing, hunting, and tourism activities shall be introduced. Scenes of fishing, hunting and tourism, interview to the people on traditional activities, market, DOE's comments on current issues, etc. shall be filmed.	
4) Time of	10 minutes	
program		

#### Audio-Visual Program (Life in Anzali Wetland)5

1) Title	Conservation Activities in Anzali Wetland	
2) Concept	To introduce degradation of the Anzali wetland and presumed causes,	
	the various conservation activities, benefits, and issues	
3) Outline	<ul> <li>Present conditions (action) and impact to the Anzali wetland of each activity shall be introduced.</li> <li>Interview with people related to each activity and comments of specialists and experts shall be filmed.</li> <li>Activities by DOE guards such as patrol and confiscation, and bird hospitalization shall be filmed.</li> </ul>	
	The comments of DOE experts regarding the benefit and issues shall be filmed.	
4) Time of	10 minutes	
program		

#### 4.3 Booklet

Booklet materials are very effective tools to conduct the Environmental Education programs. Booklets should be used effectively to promote the Environmental Education.

Outlines of the booklets prepared by the Anzali Wetland Ecological Management Project are shown below. Booklets of other themes should be prepared after the project by DOE.

#### Booklet 1

1) Title	Let's know the Anzali Wetland (for Program2)	
2)Target group	Elementary school students	
2) Concept	To introduce birds in the Anzali Wetland	
3) Outline	> What is wetland?	
	➤ Benefit of the wetland	
	Map of the Anzali Wetland	
	Pictorial game	
	➤ What is migration?	
	> 10 main birds in the Anzali Wetland	
	➤ Lets' conserve the birds	
	➤ Messages from the Wetland	

#### Booklet 2

1) Title	Ecosystem in the Anzali Wetland (for Program4)	
2)Target group	junior high school students	
3) Concept	To introduce the ecosystem in the Anzali Wetland	
4) Outline	> About Anzali Wetland	
	➤ Ecosystem of the Anzali Wetland	
	<ul><li>Problems of the Anzali Wetland</li></ul>	
	> Conservation of the wetland	

#### 4.4 Game Materials

Game materials are very effective tools for children to conduct the Environmental Education programs. Game materials should be used effectively to promote Environmental Education.

Concepts of the games prepared by the Anzali Wetland Ecological Management Project are shown below.

#### Game 1

1) Title	Card Game (for program 2)
2)Target group	Elementary school students
2) Concept	To study birds in the Anzali Wetland.
	(The students review the birds and problems in the wetland in the booklet1 through
	playing the game materials)

#### Game 2

1) Title	Board Game (Sugoroku Game) (for Program2)	
2)Target group	Elementary school students	
3) Concept	To study birds in the Anzali Wetland	
	(The students review the birds and problems in the wetland in the booklet1 through	
	playing the game materials)	

#### Chapter 5 Instructor's Training

#### 5.1 Introduction

#### (1) Instructor for EE

The instructor could be not only DOE expert, but also school teachers and NGO members for effective Environmental Education by using the center. The instructors of EE programs have the role to instruct learners to implement EE programs mainly through experiential learning in the Anzali Wetland Environmental Education Center. The EE aims to not only teach knowledge of the environment, but also to facilitate persons from "to know" to "to act for solving the issues". Instructors of EE programs are expected to help learners change their behavior which is preferable from the viewpoint of environmental conservation.

#### (2) Necessity of Instructor's training

The instructors for EE require not only environmental knowledge such as environmental issues and ecology, but also techniques on interpretation of the nature, and planning and operation of the EE programs. In addition to strengthening subjects and good points which is the specialty for the instructor and her/his personality, comprehensive knowledge and skills of the instructors should be strengthened through providing opportunities to acquire necessary basic knowledge and technique, and evaluating each other.

#### 5.2 Required Competence of the Instructor

Knowledge, skill, and attitude are basic factors for the instructors of the environmental education programs.

Regarding the relationship between technical level (or feature) of the education program and competence level of the instructor, the education program of the lower technical level often needs more skills of the instructor than that of higher technical level.

#### 5.3 Training Program

#### (1) Basic Training

Common training for all education programs is required to be held for all instructors who are engaged in EE programs. Subjects of the basic training for the instructors are shown below.

#### Table 5.1 Subjects of the Basic Training for the Instructors

- 1. Concept of the Environmental Education
  - (1) What is Environmental Education?
  - (2) Examples of the environmental education in other countries
  - (3) Environmental Education in school
- 2. Roles and Required Competence of the Instructor
- 3. Interpretation
  - (1) What is Interpretation?
  - (2) Principle of the interpretation
  - (3) Necessary knowledge for the interpretation Basic knowledge on nature science such as ecology, animals, plants, fungi, geology, meteorology, astronomy, and evolution, nature conservation, environmental issues, the Ramsar convention, social science, the humanities, the Anzali Wetland
  - (4) Understanding of the participants

Development stage and behavioral characteristics, experiential level and needs of the participants

- (5) Required skills of the instructor
  - Communication skills, presentation skills
- 4. How to conduct experiential learning.
  - Facilitation skills
- 5. Preparation of the EE programs
- 6. Type of materials for the EE program and how to prepare the materials
- 7. Planning and Implementation
- 8. Safety management

#### (2) Program-specific training

Program-specific training will be required the instructors according to type of the EE program. The following subjects are example of the subjects for the program-specific training.

#### Table 5.2 Example of Subjects for the Program-specific Training

- Nature in the Wetland
   Wetland ecology, knowledge on type of organisms living in the wetland and ecology
   Methods of observation and survey of wetland organisms
- 2. Utilization of wetland by residents, considering life and culture
- 3. Industrial use of wetland
- 4. Environmental issues in the wetland Water quality and solid waste issues

#### 5.4 Trainers of the Instructors

To conduct the training for the instructors mentioned above, some trainers will be required. The trainers need not only the knowledge, but also enough experiences as the instructors of the EE programs to teach necessary skills and attitudes which are important factors of competence for the instructor. As the trainer, university professors and NGO members who have experiences of the environmental education in Iran would be asked to provide instructors with training course. In addition, trainer from outside country may also be required to implement some programs which need further advanced competence of the instructors in future.

#### **Chapter 6** Facilities and Equipment

#### 7.1 Facilities

There are small-scale facilities such as bird watching tower, bird hide, wooden trail, sign boards, etc. in Selkeh. These facilities are very useful for not only Environmental Education but also Ecotourism. Continuous maintenance activities of them are also needed. Maintenance Plan of facilities is described in "the Action Plan of Anzali Wetland Ecotourism".

#### 7.2 Equipment

In order to conduct Environmental Education programs effectively through experiences in the field, various equipment are needed in the Environmental Education Center. The list of necessary equipment in the Environmental Education Center is presented in Table 6.1.

Continuous maintenance activities of them are also needed. In addition to the maintenance activities, full replacement and renewal of the facility will also be required for certain interval of years and based on conditions of the facilities.

Quantity Item or Blackboard & chalks (1) Whiteboard and markers for bird watching in the field (2) Binoculars (3) Telescopes and Tripods 2 for bird watching in the field preparation of materials and showing (4) Computer 1 & visual material audio (5) Printer with scanner 1 for printing lecture material for showing presentation material and audio & (6) PC Projector and screen 1 visual material (7) TV & DVD player for showing audio & visual material (8) Educational materials 1,000 for lecture location of the Anzali Wetland (9) Area map for showing (10) Encyclopedias or Picture Book for reference (birds, fish, plant, other wildlife) 2 (11) Bookshelf (12) Desk or table, and chair for lecturer 1 (13) Drinking water server for refreshment (14) Air conditioner 1 Heater and cooler for all windows (15) Curtain for windows

**Table 6.1 List of Necessary Equipment** 

#### 7.2 Requirements

The Environmental Education Center should enhance the ability to introduce the nature of Anzali Wetland like a small visitor center. Thus, various equipment such as specimens of wildlife and explanation panels on the environment of the Anzali Wetland are required.

### Chapter 7 Guidelines on the Environmental Education by Using the Anzali Wetland Education Center

#### 7.1 Definition of Guidelines

The Guidelines on the Environmental Education by Using the Anzali Wetland Environmental Education Center are formulated so as to conserve natural environments and to promote Environmental Education Activities by using the Anzali Wetland Environmental Education Center. Guidelines are defined as follows.

The Guidelines of Environmental Education are

'Concrete agreement for promotion of the Environmental Education by using the Anzali Wetland Education Center in order to conserve the natural environment in/around the Anzali Wetland.'

#### 7.2 Guidelines

The Guidelines for DOE Guilan, Education Organization and NGO are described as follows.

#### (1) Guideline on DOE Guilan

#### a.Goal

DOE Guilan plays strong leadership for the development of environmental education to students and local people around the Anzali Wetland.

#### b.Guideline

- 1. Conduct Environmental Education Programs for students and local people continuously
- 2. Provide Environmental Education materials to students and local people
- 3. Cooperate with the NGOs which promote the Environmental Education and open up the Environmental Education Center to them
- 4. Maintain the Environmental Education Center appropriately
- 5. Prepare appropriate budget every year for the Environmental Education

#### (2) Guideline on Education Organization

#### a.Goal

Education Organization plays leadership for the promotion of environmental education to students around the Anzali Wetland.

#### b.Guideline

- 1. Promote Environmental Education for students continuously
- 2. Train teachers to learn about the Anzali Wetland in cooperation with DOE
- 3. Cooperate with the NGOs which promote the Environmental Education
- 4. Prepare appropriate budget every year for the Environmental Education

#### (3) Guideline on NGOs

#### a.Goal

NGOs provide and support Environmental Education for students and local people around the Anzali Wetland

#### b.Guideline

- 1. Conduct Environmental Education Activities for students and local people
- 2. Conduct Environmental Education Programs for students and local people in cooperation with DOE if necessary
- 3. Provide information to DOE in order to promote Environmental Education effectively

#### 7.3 Implementation of Guidelines

The Guidelines for DOE Guilan, Education Organization, schools and NGOs started to be implemented in 2012.

#### **Chapter 8** Implementation Plan

#### 8.1 Overall implementation Schedule

The Environmental Education programs are divided into three categories according to the required technical level of the instructors for the programs. The programs under both categories 1 and 2 will be started during the JICA Anzali Wetland Ecological Management Project. Necessary lectures for the instructors and trial activities will be conducted for both categories of the programs in 2011-2012 respectively. The programs should be implemented continuously for the students around the Anzali Wetland after the project.

The Environmental Education programs under the category 3 are require instructors with adequate experience and skill as well as knowledge. Therefore, the target year is set as 2013. Until 2013, the instructor(s) should conduct other categories of the EE program and take some instructor's training mentioned in the previous section.

Table 8.1 Classification of the Programs based on Difficulty for Implementation

Category 1 (immediate implementation 1)	Category 2 (immediate implementation 2)	Category 3 (Target year: 2014)
Program 1	Program 3	Program 6
Program 2	Program 4	Program 7
_	Program 5	-

Note: "Target year" means the year where the program can appropriately be implemented with necessary conditions such as necessary number of adequate instructors.

Target period of necessary items for each category of the programs such as instructors' training, preparation of facility and equipment, to be able to implement the programs are shown in the table.

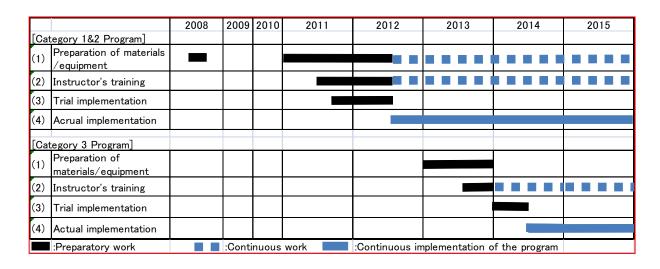


Figure 8.1 Implementation Time Schedule by Category of the Program

#### 8.2 Roles and Responsibilities of Relevant Organizations

#### (1) Administrator of the center

DOE has principal responsibility for the whole Environmental Education activities in the Environmental Education Center of the Anzali Wetland through supervision and coordination.

#### (2) Cooperators of the center

Designated NGOs that are also in charge of instructing Environmental Education programs will be considered as cooperators of the center. However, the NGOs will basically work in the center when the Environmental Education programs are conducted and sometimes before the implementation for preparation work. Since the NGOs will not work in the center continuously, caretaking of DOE guard station will be required.

#### (3) Instructors for Environmental Education Programs

Trained NGO staff are expected to be the instructor of the Environmental Education programs under supervision of DOE.

#### 8.3 Implementation Arrangement of the Programs

#### (1) Part of the curriculum in School and University

The Environmental Education programs are expected to be a part of the school curriculum or extracurricular (after-school) activities in the school and university to secure regular implementation of the programs in coordination with Education Organization and each university. The expenses for the Environmental Education programs would be paid by the participants same as the other existing extracurricular activities in the school.

#### (2) Voluntary Participation Program

Voluntary participation programs for the Environmental Education by using the environmental education center are conducted for the public, which means that ages and types of the participants are varied such as family and ecotourism group. The voluntary participation program will be basically conducted on the weekends and holidays. Annual schedule of the programs should be disseminated to the public in the beginning of each year. Based on the schedule, the program would be conducted upon reservation in advance. The expenses for the Environmental Education programs should be paid by the participants.

#### 8.4 Requirements

#### (1) Institutional Requirements

The institution is necessary for the effective environmental education. The institution for the environmental education will be examined in the next stage of the Project.

#### (2) New Additional Facilities and Equipment Required

The Environmental Education Center should enhance the ability to introduce the nature of Anzali Wetland like a small visitor center. Thus various equipment such as specimens of wildlife and explanation panels of the environment of the Anzali Wetland are required.

#### (3) List of Necessary Annual Costs during the Period of the Action Plan

The expenses for the Environmental Education programs would be basically paid by the participants. DOE have to expend for maintenance and replacement works of the Environmental Education center and its equipment. In addition, the cost for developing and printing Environmental Education materials should be borne as well. List of necessary annual cost during the period of the action plan will be examined in the next stage of the Project.