Data 4: Social Survey

DATA 4: SOCIAL SURVEY

4.1 Objectives

The main objective of the social survey was to collect information and data useful for formulation of the Master Plan for Ecosystem Conservation of the Anzali Wetland. The survey includes the following major items.

1) Condition of water use and wastewater treatment,
2) Condition of solid waste disposal,
3) Utilization of the Wetland and its surrounding areas (between mountainous areas and the wetland), and
4) People's awareness of the Wetland conservation, and their intention to participate in conservation activities

This survey was sublet to the Center for Sustainable Development (Cenesta).

4.2 Scope of Work

(1) Survey Area and Questionnaires Target

The survey was made by questionnaires targeting inhabitants and tourists in and around the Anzali Wetland watershed. The total sample number of questionnaires is 220 as shown in the following table. For the household survey, 5 samples those conducted grazing activity in the mountain in Fuman were taken. As a stakeholder in the study area, 50 tourists were surveyed by using specific questionnaire to collect information on tourism.

Table 4.2.1 Number of Samples for the Social Survey

Township	Total Number of Samples	Residence	Tourist	People living and grazing in the mountain
Anzali	50	20	30	-
Rasht	80	60	20	-
Shaft	20	20	-	-
Somehsara	25	25	-	-
Fuman	25	20	-	5
Masal	20	20	-	-
Total	220	165	50	5

The survey was carried out by direct interview using questionnaire forms to be filled out by the interviewers. The questionnaire forms are shown as attached in the Attachments 1 and 2.

To conduct the survey efficiently and effectively, preliminary survey was conducted for 15 samples in the study area to test the questionnaire form and to train interviewers. Results of the preliminary survey were feed back to revise the questionnaire form. The main survey items are shown below.

Table 4.2.2 Main Survey Items

Type of Survey	Main Items
1) Household Survey	a)Attributes of interviewee b)Water use and sewerage c)Disposal of solid waste d)Usage of the wetland and its surrounding areas e)Awareness of conservation of the wetland and intention to participate conservation activities f)Family budget g)Others
2) Survey on Tourist	a)Attributes of interviewee b)Information on trip to the area c)Utilization of the Anzali wetland d)Family budget of tourist

The survey was conducted in July and August, 2003.

4.3 Results of the Survey

Detailed results of the survey were combined as a Final Report, which is available in DOE Guilan. Outlines of the main results for both household survey and tourist survey are summarized below and attached summary report.

4.3.1 Household Survey

(1) Attribute of interviewee

Out of total 170 respondents, 54.4% were female and 45.6% were male. About 54.4% of total respondents were between 20 to 30 years old. Younger respondents tended to more eager to answer the questionnaire.

(2) Status of water use and wastewater

Total average use of the household is about 530 liters/day. Average monthly water bill is about 23,000 Rials/month. Some suggestions and opinion on water supply were raised such as low water pressure, high water charge, and insufficient amount of water in the summer.

Regarding the wastewater, 45.6% indicated that their house is connected to sewage system. 64.4% are willing to pay for using sewage system ranging 1,000 to 5,000 Rials/month.

(3) Status of domestic waste disposal

In 49.7% of the households, domestic waste is collected daily. Only 38.8% pay for the garbage collection and other hand 48% do not pay for it. The average monthly payment for the garbage collection is 5,000 Rials/household/month.

(4) Intention to environmental conservation

21.7% are dissatisfied on present environmental conditions. 36.3% are dissatisfied in certain level on environmental condition of river and/or channel nearby. 55% are recognized that environmental status of river and/or channel nearby are deteriorated at certain level. 85.3% of the respondents 85.3% feel that they wish to improve environmental condition of their residential area.

Regarding willingness to pay for environmental improvement of their residential area, 58.5% of the respondents consider to pay for some amount money.

71.9% of the respondents reported that they would change their behavior for improvement of environmental condition if necessary. 54.4% would participate in community program for improvement of environmental condition if necessary.

53% think that necessary activity for improvement of environmental condition should be conducted by community members, while 28% think that the activity should be conducted by the central government. It shows less intention to activity to environmental improvement by themselves.

About 70% of the respondents hope that the Anzali wetland will be developed more due to increase of employment opportunity related to increase of tourism activities and improvement of natural environment. On the other hand, 25% opposed the further development of the Anzali wetland due to deterioration of natural environment and water quality deterioration by wastewater from tourism facilities. Regarding the willingness to pay for conservation of the Anzali wetland, 57.3% of the respondents have intention to pay for it in certain amount.

4.3.2 Survey on Tourist

(1) Attribute of interviewee

50 respondents were sampled for the questionnaire. 68% of the respondents are relatively young age between 15 to 34 years old. 44% are self-employed at first rank and 26% work for the government at second.

(2) Information on trip to the area

80% of the respondents have been to the area more than two times. It shows that most of tourists come to the area repeatedly. For the trip of the respondents, 52% are spent 5 days or more in total. However, 60% are spent only 1 day in the Anzali area and they spent rest of time in other places. 58% are satisfied with the accommodation facility.

(3) Utilization of the Anzali wetland

60% of the respondents have visited the Anzali wetland. 54% reported that they are willing to visit again. 86% said that tourism should be improved in the Anzali wetland. 82% have willingness to pay for conservation of the Anzali wetland in certain amount.

Some results are shown in the Attachment 4.3.1 below.

Attachment 4.1

Survey Form 1

Questionnaire

Household Survey for

The Study on Integrated Management for Ecosystem Conservation of the Anzali Wetland

Date and Time	
Place of Interview	
Name of Interviewer (w/ signature)	

Residence	

1. Profile of Respondent

1.1 What is your gender? ☐ 1. Male ☐ 2. Female

1.2 How old are you? _____

1.3 What is your relationship with the household head?
☐ 1. Household head ☐ 2. Spouse ☐ 3. Parent ☐ 4. Brother/sister ☐ 5. Child
☐ 6. Relatives ☐ 7. Friend ☐ 8. Other ( )

1.4 Where were you born?
Ostan(province): _____
Shahrestan(city/municipality): Bakhsh (district): _____
Shahr/dehestan (city or town/rural district): _____

1.5 What is the occupation of the household head?
☐ 1. Labor ☐ 2. private sector ☐ 3. student
☐ 4. Self-employed (_____)
☐ 5. Manager (_____) ☐ 6. Farming ☐ 7. Fishery ☐ 8. forestry
☐ 9. Stock-farming ☐ 10. Tourism ☐ 11. Public servant/government official
☐ 12. Housewife ☐ 13. Retired ☐ 14. Unemployed
☐ 15. Other (_____)

1.6 How many are the number of your household members?

(Unit: person)

1. Male adult	
2. Female adult	
3. Male young (less than 10 years old)	
4. Female young (less than 10 years old)	
Total	

1.7 What is your religion?
☐ 1. Moslem (Shi'a) ☐ 2. Moslem (Sunni) ☐ 3. Zoroastrian ☐ 4. Christian
☐ 5. Jew ☐ 6. Other (_____)

1.8 What ethnic origin do you belong to?

1.9 What is your highest educational attainment?
☐ 1. Pre-school ☐ 2. Primary ☐ 3. Secondary
☐ 4. High school/Pre-university course ☐ 5. University and above
☐ 6. Illiterate

1.10 How many hectares (or m^2) of land do your household own?
_____ (ha or m^2)

1.11 Within the above land, how much used for the residential house and agriculture?
Residential house: _____ (ha or m^2)
Agriculture: _____ (ha or m^2)

1.12 How long does your household live in present address? _____ (years)

2. Status of Water Use and Drainage

(1) Water Use

2.1 What is your source of drinking (cooking) water?
☐ 1. Water pipe ☐ 2. Shallow well (depth:____m) ☐ 3. Deep well (depth:____m)
☐ 4. Water tank for rainwater ☐ 5. Drain
☐ 6. River/Pond (name of river/pond: _____)
☐ 7. Mineral water (purchase of potable water)
☐ 8. Other (_____)

2.2 What is source of water for toilet?
☐ 1. Water pipe ☐ 2. Shallow well (depth:____m) ☐ 3. Deep well (depth:____m)
☐ 4. Water tank for rainwater ☐ 5. Drain
☐ 6. River/Pond (name of river/pond: _____)
☐ 7. Mineral water (purchase of potable water)
☐ 8. Other (_____)

2.3 What is source of water for bathing (shower)?
☐ 1. Water pipe ☐ 2. Shallow well (depth:____m) ☐ 3. Deep well (depth:____m)
☐ 4. Water tank for rainwater ☐ 5. Drain
☐ 6. River/Pond (name of rive/pond: _____)
☐ 7. Mineral water (purchase of potable water)
☐ 8. Other (_____)

2.4 Do you know how much volume of water your household use per day?
☐ 1. Yes => Please try to fill out the following table. ☐ 2. No
(Interviewer should assist the estimation.)

(Unit: liter/day)

Purpose	Volume
For drinking and cooking	
For washing	
For bathing (shower)	
Other (_____)	
Other (_____)	
Total	

2.5 How much do you pay for water per month? (approximate average amount)
_____ (Rial/month)

2.6 Please tell us any opinion, problem, and wish on water use, if any.

(2) Sewerage/Drainage

2.7 Do you know where waste/waste water from the toilet is flown into?
☐ 1. Septic tank ☐ 2. Sewer pipe ☐ 3. Storm drain
☐ 4. Direct discharge into river/pond/lake nearby
☐ 5. Other (_____) ☐ 6.absorbing well ☐ 7. I don't know

2.8 In case of the septic tank, where waste water from the septic tank is flown into?
☐ 1. Sewer pipe ☐ 2. Storm drain
☐ 3. Direct discharge into river/pond/lake nearby
☐ 4.Other (_____) ☐ 5. I do not know at all.

2.9 In case of the septic tank, how often sludge is removed from the septic tank?
☐ 1. Once a month, ☐ 2. Once a half year ☐ 3. Once a year
☐ 4. When necessary ☐ 5. Never ☐ 6. Other (_____)
☐ 7. I do not know at all. ☐ 5. I do not know at all.

2.10 In the case of the septic tank, who maintain the septic tank?
☐ 1. By myself ☐ 2. Public service ☐ 3. Private company
☐ 4. Other (_____) ☐ 5. I do not know at all.

2.11 Does your house connect with a sewer pipe?
☐ 1. Yes ☐ 2. No ☐ 3. I do not know.

2.12 In the case where your house does NOT connect with a sewer pipe, where waste water from cooking and bathing is flown into?
☐ 1. Sewer pipe ☐ 2. Storm drain
☐ 3. Direct discharge into river/pond/lake nearby
☐ 4. Other (_____) ☐ 5. I do not know at all.

2.13 In the case where your house does NOT connect with a sewer pipe, would you like to connect?
☐ 1. Yes => Please tell reason (_____)
☐ 2. No => Please tell reason (_____)
☐ 3. No idea

2.14 In the case where waste water treatment by connecting with the sewer pipe is charged, how much is appropriate price for the charge for you?
_____(Rial/month)

2.15 Please tell us any opinion, problem, and wish on waste water disposal/treatment, if any.

3. Status of Domestic Waste Disposal

3.1 Is there any designated place for collection of domestic waste from your house?
☐ 1. In front of my house ☐ 2. Designated collection place near my house
☐ 3. Directly hand waste collector ☐ 4. No designated place

3.2 How often is the domestic waste collected by collector?

☐ 1. Twice a week ☐ 2. Once a week ☐ 3. Twice a month ☐ 4. Once a month
☐ 5. Other (_____)

3.3 In the case where there is no designated place for waste collection, where do you usually dispose the domestic waste?
☐ 1. Backyard ☐ 2. River nearby ☐ 3. Lake/pond nearby
☐ 4. Other (_____)

3.4 Do you usually segregate the waste for disposal?
☐ 1. Yes ☐ 2. No

3.5 In the case of "yes" in the above answer, what type of waste do you segregate?
☐ 1. Kitchen refuse ☐ 2. Plastics ☐ 3. Paper ☐ 4. Corrugated cardboard
☐ 5. Glass ☐ 6. Can (aluminum/steel) ☐ 7. Metal ☐ 8. Wood
☐ 9. polystyrene foam ☐ 10. Cloth
☐ 11. Other (_____)

3.6 Do you usually pay for the waste collection service?
☐ 1. Yes ☐ 2. No

3.7 In the case of "yes" in the above answer, how much do you usually pay for it?
_____ (Rial/month)

3.8 In the case where waste collection service is charged, how much is appropriate price for the charge for you? _____ (Rial/month)

3.9 Are you satisfied with present waste collection service?
☐ 1. Yes
☐ 2. No => Please tell reason (_____)

4. Environmental Conservation

4.1 How about other environmental status for the quality of your life?
☐ 1. Very satisfied ☐ 2. Satisfied ☐ 3. Acceptable ☐ 4. Dissatisfied
☐ 5. Very dissatisfied

4.2 How much do the following environmental problems affect the quality of your life?
(Please put a tick in score for each environmental issue in the table below)

Score
5 – It affects the quality of my life a lot
4 – It affects the quality of my life often
3 – It affects the quality of my life, but only a medium amount
2 – It affects the quality of my life, but not much
1 – I don't notice it and it may affect the quality of my life with small amount
0 – It is not relevant in my area.

Issue	**5**	**4**	**3**	**2**	**1**	**0**
1. Noise from car/motorbike						
2. Noise from factory						
3. Odor from drain						
4. Odor from river/channel						
5. Odor from waste collection place						
6. Odor from waste disposal place						
7. Air pollution from car/motorbike						

8. Air pollution from factory						
9. Vibration from car/truck						
10. Dust along the road						
11. Noxious insects/animals such as cockroach and mouse						
12. Other (_____)						

4.3 Are you satisfied with the environmental condition on river/channel near your house?
☐ 1. Very satisfied ☐ 2. Satisfied ☐ 3. Acceptable ☐ 4. Dissatisfied
☐ 5. Very dissatisfied

4.4 What is the environmental status of river/channel locating nearest your house?
☐ 1. Fairy clean ☐ 2. Clean ☐ 3. Slightly dirty
☐ 4. Significantly dirty with suspended waste and odor
Please specify name of the river/channel: (_____)

4.5 Do you think what is the cause for the pollution of river/channel?
(More than one cause can be selected.)
☐ 1. Effluent from factories ☐ 2. Solid waste disposed nearby
☐ 3. Domestic waste water ☐ 4. Waste water from toilet
☐ 5. Fertilizer/pesticide from agricultural land ☐ 6. Aquaculture
☐ 7. I do not know.
☐ 8. Other (_____)

4.6 Do you wish present environmental condition in your residential area be improved?
☐ 1. Very much improved ☐ 2. Improved ☐ 3. Not necessary
☐ 4. I have no idea.

4.7 Which of the following activities would you do to improve environmental conditions?
(Please answer for each activity.)
1. Pay some money ☐ yes ☐ no ☐ maybe
2. Change my own behavior to improve the environment
(such as sorting household waste or recycling) ☐ yes ☐ no ☐ maybe
3. Take part in a community program (such as tree planting) ☐ yes ☐ no ☐ maybe
4. Complain to the local administration to stimulate action to solve a problem
(such as campaign against a factory to reduce pollution) ☐ yes ☐ no ☐ maybe
5. Take part in a public demonstration ☐ yes ☐ no ☐ maybe
6. Other, if any (_____)

4.8 What environmental improvement activities have you or other members of your family taken part in over last 12 months? Please give details.

4.9 Who do you think is most important to **conduct** environmental improvement activities?
☐ 1. By ourselves (community members) ☐ 2. Polluters ☐ 3. NGOs
☐ 4. Local government ☐ 5. Central government ☐ 6. International group
☐ 7. Other (_____)

4.10 Who do you think should **PAY** environmental improvement activities?

☐ 1. By ourselves (community members) ☐ 2. Polluters ☐ 3. NGOs
☐ 4. Local government ☐ 5. Central government ☐ 6. International group
☐ 7. Other (_____)

5. Utilization of the Anzali Wetland

5.1 How often do you go to the Anzali Wetland?
☐ 1. Everyday ☐ 2. Several times a week ☐ 3. Once a week
☐ 4. Several times a month ☐ 5. Once a month ☐ 6. Several times a year
☐ 7. Once a year ☐ 8. Rarely ☐ 9. Never

5.2 How do you go to the Anzali Wetland?
☐ 1. By private car ☐ 2. By taxi ☐ 3. By motorbike ☐ 4. By bicycle
☐ 5. By bus ☐ 6. By boat ☐ 7. On foot
☐ 8. Other (_____)

5.3 What is/are main purpose(s) for visiting the Anzali Wetland to you?
☐ 1. Fishing => Pls. specify main fish species: _____
☐ 2. Hunting => Pls. specify main species: _____
☐ 3. Gathering => Pls. specify main species: _____
☐ 4. Bird watching => Pls. specify main bird species: _____
☐ 5. Plant/Flower watching=> Pls. specify main species: _____
☐ 6. Photo taking ☐ 7. Boating ☐ 8. Hiking ☐ 9. Cycling
☐ 10. Other (_____)

5.4 Do you think that the Anzali Wetland area should be more developed as a tourist site?
☐ 1. Yes, I hope so. => Please go to Q5.5.
☐ 2. No, I do not hope so. => Please go to Q5.6.
☐ 3. No idea => Please go to Q5.7.

5.5 In the case of "1. Yes", why do you hope the Anzali Wetland area should be more developed as a tourist site? (More than one option can be chosen.)
☐ 1. Increase of employment opportunity
☐ 2. Increase of household income from tourism-related economic activity
☐ 3. Improvement of infrastructure
☐ 4. Improvement of public service such as public transportation
☐ 5. Improvement landscape in the town
☐ 6. Improvement of natural environment
☐ 7. Other (_____)

5.6 In the case of "2. No", why do you hope the Anzali Wetland area should not be developed as a tourist site? (More than one option can be chosen.)
☐ 1. Deterioration of natural environment ☐ 2. Insecurity by increase of tourists
☐ 3. Deterioration of water environment by increase of waste water from tourist facilities such as hotel
☐ 4. Deterioration of urban environment by increase of transportation such as air pollution and noise
☐ 5. Other (_____)

5.7 The Anzali Wetland has been designated as the Ramsar Convention site. What does the Ramsar Convention mean? (Please tick one option.)
☐ 1. Encourage businesses to locate in wetland to use the natural resources
☐ 2. Encourage conservation of the area to make sure that it is protected
☐ 3. Encourage more tourism to an area

5.8 Do you think what the main environmental problems of the Anzali wetlands?
(Please put a tick in score for each environmental issue in the table below)

Score

5 – It is critically affecting the quality of the environment
4 – It is fairly affecting the quality of the environment
3 – It is affecting the quality of the environment, but only a medium amount
2 – It is affecting the quality of the environment, but not much
1 – It may be affecting the quality of the environment with small amount
0 – It is not a problem.

Issue	**5**	**4**	**3**	**2**	**1**	**0**
1. Water quality deterioration						
2. Decrease of area of wetland						
3. Over-growth of aquatic plant						
4. Increase of garbage in the wetland						
5. Decrease of fish species						
6. Decrease of bird species						
7. Decrease of other kind of animals						
8. Increase of sediment flown into the wetland						
9. Other (_____)						
10. Other (_____)						
11. Other (_____)						

5.9 Do you think what the main environmental causes of the problems?
(Please put a tick in score for each cause of the issue in the table below)

Score

5 – It is critically affecting the quality of the environment
4 – It is fairly affecting the quality of the environment
3 – It is affecting the quality of the environment, but only a medium amount
2 – It is affecting the quality of the environment, but not much
1 – It may be affecting the quality of the environment with small amount
0 – It is not a problem.

Cause	**5**	**4**	**3**	**2**	**1**	**0**
1. Water quality deterioration						
2. Decrease of area of water						
3. Litter dropped by tourist						
4. Garbage flown down from the connected rivers to the wetland						
5. Illegal garbage dumping in the wetland						
6. Development (or construction) activities nearby the wetland						
7. Illegal fishing in the wetland						
8. Illegal hunting in the wetland						
9. Cutting trees in the mountain						
10. Grazing activity in the mountain						
11. Other (_____)						
12. Other (_____)						
13. Other (_____)						

5.10 Who are the main people responsible for these problems?
(Please put a tick in score for each responsible party in the table below)

Score
5 – It is critically affecting the quality of the environment
4 – It is fairly affecting the quality of the environment
3 – It is affecting the quality of the environment, but only a medium amount
2 – It is affecting the quality of the environment, but not much
1 – It may be affecting the quality of the environment with small amount
0 – It is not a problem.

Responsible party	**5**	**4**	**3**	**2**	**1**	**0**
1. People nearby the wetland						
2. People in the urban areas who discharge waste water into rivers						
3. People in the urban areas who dump solid waste into rivers						
4. People in the rural area cutting down trees						
5. Fishermen catching fish						
6. Hunter catching birds						
7. Tourists who pollute the water and drop litter						
8. People in mountain who conducting grazing						
9. Other (_____)						
10. Other (_____)						
11. Other (_____)						

5.11 What are the main solutions in your opinion?
(Please put a tick in score for each solution in the table below)

Score
5 – It is one of most important solutions
4 – It is a important solution
3 – It is a solution, but only a medium contribution
2 – It is a solution, but not much contribution
1 – It may be a part of solution with small contribution
0 – It is not a solution.

Solution	**5**	**4**	**3**	**2**	**1**	**0**
1. Making sure that people who pollute pay fines						
2. A better Management Plan						
3. Creating special zones where NO economic or tourist activity is allowed at all						
4. Improving waste collection by municipalities						
5. Improve sewerage treatment by municipalities						
6. Restricting tree cutting in the mountain						
7. Restricting grazing activity in the mountain						
8. More awareness of importance of the wetland by people						
9. Increase of staff in DOE and MOJA						
10. Other (_____)						
11. Other (_____)						
12. Other (_____)						

5.12 Do you think that your behavior affects the quality of the Anzali wetland area?
☐ 1. Yes ☐ 2. No

5.13 Which of these following actions do you usually do?
Which do you think have an effect on the wetland?

Action	Do you do it?	Is there effect?
1. I drive a car regularly.	☐ 1. Yes ☐ 2. No	☐ 1. Yes ☐ 2. No
2. I buy fish from the wetland regularly.	☐ 1. Yes ☐ 2. No	☐ 1. Yes ☐ 2. No
3. I dump garbage into river.	☐ 1. Yes ☐ 2. No	☐ 1. Yes ☐ 2. No
4. I cut trees from mountain.	☐ 1. Yes ☐ 2. No	☐ 1. Yes ☐ 2. No
5. I use chemical fertilizer/pesticide in my farm.	☐ 1. Yes ☐ 2. No	☐ 1. Yes ☐ 2. No
6. I go to the wetland for fishing sometimes.	☐ 1. Yes ☐ 2. No	☐ 1. Yes ☐ 2. No

5.14 In the case where all of people living around and visiting to the Anzali wetland area have to pay some amount of money for conservation of the wetland, how much are you willing to pay for it annually?
(This is just only a survey so that we will not directly ask you to pay the amount you mention here later. Therefore, please do not hesitate at answer. However, please consider realistic way.)

_____ (Rial/year)

6. Household Income and Expenditure

6.1 What is/are main income source(s) for your household?
☐ 1. Self-employed ☐ 2. Selling agricultural produce ☐ 3. Salary
☐ 4 Remittance from relatives ☐ 5. House rent/land rent ☐ 6. Pension
☐ 7. Other ( )

6.2 Approximately how much is your household income in total?

_____ (Rial/month)

6.3 Approximately how much is your household expenditure in total?

_____ (Rial/month)

6.4 Approximately how much are breakdown of the household expenditure?

Items	Amount (Rial/month)
(1) Food	
(2) House/land rent	
(3) Installment	
(4) Medical treatment/medicine	
(5) Public utilities	
(6) Education	
(7) Tax	
(8) Entertainment	
(9) Transportation	
(10) Other (_____)	
Total	

6.5 Approximately how much are breakdown of the expenditure for public utilities?

Items	Amount (Rial/month)
(1) Water supply	
(2) Sewerage treatment	
(3) Garbage collection	
(4) Electricity	
(5) Telephone	
(6) Gas	
(7) Other (_____)	
Total	

6.6 How do you think the level of price for the public utilities?

Items	Level of Price
(1) Water supply	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(2) Sewerage treatment	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(3) Garbage collection	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(4) Electricity	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(5) Telephone	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(6) Gas	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(7) Other (_____)	☐ 1. high ☐ 2. satisfactory ☐ 3. low

7. Current Activity on Tree Cutting

7.1 Does your household conduct tree cutting?
☐ 1. Yes => Please go to Q7.2.
☐ 2. No => Please go to Q8.

7.2 In the case of "1. Yes" in the above question, where does your household conduct tree cutting?
☐ 1. Backyard ☐ 2. Mountain ☐ 3. Tree plantation in farm land
☐ 4. Other (_____)

7.3 In the case of "1. Yes" in the above question 7.1, by what purpose does your household conduct tree cutting?

☐ 1. Fuel for my house ☐ 2. Fuel for selling ☐ 3. Construction
☐ 4. Other (_____)

7.4 How much volume does your household conduct tree cutting?

Season	Cutting Volume (Unit: /month)
Spring	
Summer	
Autumn	
Winter	

8. Current Activity on Livestock Raising

8.1 What kind of livestock does your household have? Pls. specify the number in the parenthesis.

☐ 1. Sheep (_____) ☐ 2. Goat (_____) ☐ 3. Cattle (_____)
☐ 4. Horse (_____) ☐ 5. Donkey /Mule (_____)
☐ 6. Buffalo (_____) ☐ 7. Chicken (_____) ☐ 8. Duck (_____)
☐ 9. Other (Pls. specify_____, number_____)

8.2 Do you conduct grazing? If so, where does your conduct grazing?

☐ 1. Yes, in the backyard. ☐ 2. Yes, in the mountain
☐ 3. Yes, in the mountain
☐ 4. Yes, in other place (Pls. specify. _____) ☐ 5. No

9. Current Activity on Agriculture

9.1 Does your household engage agriculture?

☐ 1. Yes => Pls. answer Q.9.2 ~ Q.9.5 ☐ 2. No => Pls. go to Q.10

9.2 In the case of "1. Yes" in the above question, what kind of crop(s) is/are planted?

☐ 1. Rice ☐ 2. Wheat ☐ 3. Barley ☐ 4. Maize ☐ 5. Potato
☐ 6. Squash ☐ 7. Beans ☐ 8. Pistachio
☐ 9. Other vegetables (Pls. specify. _____)
☐ 10. Fruits (Pls. specify. _____)
☐ 11. Other (Pls. specify. _____)

9.3 How many hectares do you cultivate?

1. Rice: _____(ha)
2. Other crops: _____(ha)

9.4 What type of fertilizer does your household use?

☐ 1. Nitrogen fertilizer (Pls. specify the products. _____)
Quantity: _____(kg/year)
☐ 2. Phosphate fertilizer (Pls. specify the products. _____)
Quantity: _____(kg/year)
☐ 3. Other (Pls. specify the products. _____)
Quantity: _____(kg/year)
☐ 4. Never used

9.5 What type of pesticide does your household use?

☐ 1. Pls. specify the products. _____
☐ 2. Never used

10. Any opinion, idea, and suggestion on environmental improvement in your residential area and/or Anzali Wetland, if any.

Attachment 4.2

Survey Form 2

Questionnaire

Household Survey for

The Study on Integrated Management for Ecosystem Conservation of the Anzali Wetland

(Questions for Tourist)

Date and Time	
Place of Interview	
Name of Interviewer (w/ signature)	

Name of Respondent (w/ signature)	
Address	

1. Profile of Respondent

1.1 What is your gender? ☐ 1. Male ☐ 2. Female

1.2 How old are you? _____

1.3 What is your relationship with the household head?
☐ 1. Household head ☐ 2. Spouse ☐ 3. Parent ☐ 4. Brother/sister ☐ 5. Child
☐ 6. Relatives ☐ 7. Friend ☐ 8. Other ( )

1.4 Where were you born?
Ostan(province): _____, Shahrestan(city/municipality): _____

1.5 What is the occupation of the household head?
☐ 1. Labor ☐ 2. Office worker ☐ 3. Clerk ☐ 4. Self-employed (_____)
☐ 5. Manager (_____) ☐ 6. Farming ☐ 7. Fishery ☐ 8. forestry
☐ 9. Stock-farming ☐ 10. Tourism ☐ 11. Public servant/government official
☐ 12. Housewife ☐ 13. Retired ☐ 14. Unemployed
☐ 15. Other (_____)

1.6 How many are the number of your household members?

(Unit: person)

1. Male adult	
2. Female adult	
3. Male young (less than 10 years old)	
4. Female young (less than 10 years old)	
Total	

1.7 What is your religion?
☐ 1. Moslem (Shi'a) ☐ 2. Moslem (Sunni) ☐ 3. Zoroastrian ☐ 4. Christian
☐ 5. Jew ☐ 6. Other (_____)

1.8 What ethnic origin do you belong to?
☐ 1.

1.9 What is your highest educational attainment?
☐ 1. Pre-school ☐ 2. Primary ☐ 3. Secondary
☐ 4. High school/Pre-university course ☐ 5. University and above
☐ 6. No education, but literate ☐ 7. No education, and illiterate

2. Information of the Trip

2.1 What is (are) main purpose(s)/activity(ies) for visiting the Anzali (or Rasht) this time?
(Please tell every activities as much as you can tell.)
☐ 1. Sea bathing, ☐ 2. Hiking, ☐ 3. Shopping, ☐ 4. Boating in the Anzali wetland
☐ 4. Cruising in the Caspian sea, ☐ 5. Summer resort, ☐ 6. Special food in the area,
☐ 7. Others (_____)

2.2 How many times have you visited Anzali (or Rasht) so far?
☐ 1. This is first time, ☐ 2. This is 2nd time, ☐ 3. This is 3rd time,
☐ 4. This is 4th time, ☐ 5. More than 5 times

2.2 How many days for your trip in total?
(days)

2.3 How many days will you stay in Anzali (or Rasht)?
(days)

2.4 Please tell all destinations in this trip?
☐ 1. Rasht, ☐ 2 Anzali, ☐ 3. Masuleh, ☐ 4. Fuman, ☐ 5. Lahijan,
☐ 6.Ramsar, ☐ 7.Sari, ☐ 8.Ardabil,
☐ 9. Others (_____)

2.5 Which transportation did you use to come here?
☐ 1. private car, ☐ 2. taxi, ☐ 3. bus, ☐ 4.airplane,
☐ 5. others ( )

2.6 Degree of satisfaction with tourist facilities and services in Anzali (or Rasht)
(Please put a tick in score for each item in the table below)

Score
5 – Very much satisfied
4 – Satisfied
3 – Acceptable
2 – Dissatisfied
1 – Very much dissatisfied
0 – No impression

Issue	**5**	**4**	**3**	**2**	**1**	**0**
1. General (overall)						
2. Restaurant						
3. Accommodation						
4. Road						
5. Food						
6. Beach						
7. Tourist attractions						
8. Cleanliness of the street and tourist spot						

2.7 How much is total budget for this trip approximately?
(including transportation, food, accommodation, attraction fee, etc.)
(Rial)

2.8 Demand, opinion, and suggestion for improvement of the tourism in the Anzali wetland area, if any.

3. Utilization of the Anzali Wetland

3.1 Have you visited the Anzali wetland so far?
☐ 1. Yes, ☐ 2. No

3.2 In the case of "Yes", do you want to visit the Anzali wetland again? Or can you recommend for your friend to visit there?
In the case of "No", do you want to visit the Anzali wetland?
☐ 1. Yes => Please go to Q3.3
☐ 2. No => Please go to Q3.4

3.3 What is/are main purpose(s) for visiting the Anzali Wetland to you?
☐ 1. Fishing => Pls. specify main fish species: _____
☐ 2. Hunting => Pls. specify main species: _____
☐ 3. Gathering => Pls. specify main species: _____
☐ 4. Bird watching => Pls. specify main bird species: _____
☐ 5. Plant/Flower watching=> Pls. specify main species: _____
☐ 6. Photo taking ☐ 7. Boating ☐ 8. Hiking ☐ 9. Cycling
☐ 10. Other (_____)

3.4 In the case of "No", Please tell the reason(s)?
☐ 1. Nothing attractive, ☐ 2. No interest on nature, ☐ 3. Water is polluted,
☐ 4. Garbage is floating, ☐ 5. I have no idea on the Anzali wetland
☐ 6. Other reasons (_____)

3.5 Do you think that the Anzali Wetland area should be more developed as a tourist site?
☐ 1. Yes, I hope so. => Please go to Q3.6.
☐ 2. No, I do not hope so. => Please go to Q3.7.
☐ 3. No idea => Please go to Q3.8.

3.6 In the case of "1. Yes", why do you hope the Anzali Wetland area should be more developed as a tourist site? (More than one option can be chosen.)
☐ 1. Increase of employment opportunity
☐ 2. Increase of household income from tourism-related economic activity
☐ 3. Improvement of infrastructure
☐ 4. Improvement of public service such as public transportation
☐ 5. Improvement landscape in the town
☐ 6. Improvement of natural environment
☐ 7. The wetland should be more attractive to the tourists.
☐ 8. Other (_____)

3.7 In the case of "2. No", why do you hope the Anzali Wetland area should not be developed as a tourist site? (More than one option can be chosen.)

☐ 1. Deterioration of natural environment ☐ 2. Insecurity by increase of tourists
☐ 3. Deterioration of water environment by increase of waste water from tourist facilities such as hotel
☐ 4. Deterioration of urban environment by increase of transportation such as air pollution and noise
☐ 5. Other (_____)

3.8 The Anzali Wetland has been designated as the Ramsar Convention site. What does the Ramsar Convention mean? (Please tick one option.)

☐ 1. Encourage businesses to locate in wetland to use the natural resources
☐ 2. Encourage conservation of the area to make sure that it is protected
☐ 3. Encourage more tourism to an area

3.9 Do you think what the main environmental problems of the Anzali wetlands? (Please put a tick in score for each environmental issue in the table below)

Score
5 – It is critically affecting the quality of the environment
4 – It is fairly affecting the quality of the environment
3 – It is affecting the quality of the environment, but only a medium amount
2 – It is affecting the quality of the environment, but not much
1 – It may be affecting the quality of the environment with small amount
0 – It is not a problem.

Issue	**5**	**4**	**3**	**2**	**1**	**0**
1. Water quality deterioration						
2. Decrease of area of wetland						
3. Over-growth of aquatic plant						
4. Increase of garbage in the wetland						
5. Decrease of fish species						
6. Decrease of bird species						
7. Decrease of other kind of animals						
8. Increase of sediment flown into the wetland						
9. Other (_____)						
10. Other (_____)						
11. Other (_____)						

3.10 Do you think what the main environmental causes of the problems?
(Please put a tick in score for each cause of the issue in the table below)

Score

5 – It is critically affecting the quality of the environment
4 – It is fairly affecting the quality of the environment
3 – It is affecting the quality of the environment, but only a medium amount
2 – It is affecting the quality of the environment, but not much
1 – It may be affecting the quality of the environment with small amount
0 – It is not a problem.

Cause	**5**	**4**	**3**	**2**	**1**	**0**
1. Water quality deterioration						
2. Decrease of area of water						
3. Litter dropped by tourist						
4. Garbage flown down from the connected rivers to the wetland						
5. Illegal garbage dumping in the wetland						
6. Development (or construction) activities nearby the wetland						
7. Illegal fishing in the wetland						
8. Illegal hunting in the wetland						
9. Cutting trees in the mountain						
10. Grazing activity in the mountain						
11. Other (_____)						
12. Other (_____)						
13. Other (_____)						

3.11 Who are the main people responsible for these problems?
(Please put a tick in score for each responsible party in the table below)

Score
5 – It is critically affecting the quality of the environment
4 – It is fairly affecting the quality of the environment
3 – It is affecting the quality of the environment, but only a medium amount
2 – It is affecting the quality of the environment, but not much
1 – It may be affecting the quality of the environment with small amount
0 – It is not a problem.

Responsible party	**5**	**4**	**3**	**2**	**1**	**0**
1. People nearby the wetland						
2. People in the urban areas who discharge waste water into rivers						
3. People in the urban areas who dump solid waste into rivers						
4. People in the rural area cutting down trees						
5. Fishermen catching fish						
6. Hunter catching birds						
7. Tourists who pollute the water and drop litter						
8. People in mountain who conducting grazing						
9. Other (_____)						
10. Other (_____)						
11. Other (_____)						

3.12 What are the main solutions in your opinion?
(Please put a tick in score for each solution in the table below)

Score
5 – It is one of most important solutions
4 – It is a important solution
3 – It is a solution, but only a medium contribution
2 – It is a solution, but not much contribution
1 – It may be a part of solution with small contribution
0 – It is not a solution.

Solution	5	4	3	2	1	0
1. Making sure that people who pollute pay fines						
2. A better Management Plan						
3. Creating special zones where NO economic or tourist activity is allowed at all						
4. Improving waste collection by municipalities						
5. Improve sewerage treatment by municipalities						
6. Restricting tree cutting in the mountain						
7. Restricting grazing activity in the mountain						
8. More awareness of importance of the wetland by people						
9. Increase of staff in DOE and MOJA						
10. Other (_____)						
11. Other (_____)						
12. Other (_____)						

3.13 Do you think that your behavior affects the quality of the Anzali wetland area?
☐ 1. Yes ☐ 2. No

3.14 In the case where all of people living around and visiting to the Anzali wetland area have to pay some amount of money for conservation of the wetland, how much are you willing to pay for it annually?
(This is just only a survey so that we will not directly ask you to pay the amount you mention here later. Therefore, please do not hesitate at answer. However, please consider realistic way.)

_____ (Rial/year)

4. Household Income and Expenditure

4.1 What is/are main income source(s) for your household?

☐ 1. Self-employed ☐ 2. Selling agricultural produce ☐ 3. Salary
☐ 4 Remittance from relatives ☐ 5. House rent/land rent ☐ 6. Pension
☐ 7. Other ( )

4.2 Approximately how much is your household income in total?

(Rial/month)

4.3 Approximately how much is your household expenditure in total?

(Rial/month)

4.4 Approximately how much are breakdown of the household expenditure?

Items	Amount (Rial/month)
(1) Food	
(2) House/land rent	
(3) Installment	
(4) Medical treatment/medicine	
(5) Public utilities	
(6) Education	
(7) Tax	
(8) Entertainment	
(9) Transportation	
(10) Other (_____)	
Total	

4.5 Approximately how much are breakdown of the expenditure for public utilities?

Items	Amount (Rial/month)
(1) Water supply	
(2) Sewerage treatment	
(3) Garbage collection	
(4) Electricity	
(5) Telephone	
(6) Gas	
(7) Other (_____)	
Total	

4.6 How do you think the level of price for the public utilities?

Items	Level of Price
(1) Water supply	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(2) Sewerage treatment	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(3) Garbage collection	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(4) Electricity	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(5) Telephone	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(6) Gas	☐ 1. high ☐ 2. satisfactory ☐ 3. low
(7) Other (_____)	☐ 1. high ☐ 2. satisfactory ☐ 3. low

5. Any opinion, idea, and suggestion on environmental improvement in your residential area and/or Anzali Wetland, if any.

Attachment 4.3

Main Results of the Social Survey
(Based on the Final Report prepared by CENESTA)

Table of Contents

Part 1: Households

1. Characteristic of Respondents

In order to evaluate the awareness which the average local families have toward the environmental issues in Anzali wetland, and the collective issues relating to the project, a specialized questionnaire was prepared among 171 people (representing 171 households) in the region. These people (households) were chosen on random basis. Out of all the households, five of them were shepherd mountain people.

1.1. Gender and age

out of a total of 171 people who were interviewed in the survey, 93 were women (54.4%) and 78 were men (45.6%), 9.9% were ages 15-19, 20.5% ages 20-24, 14% ages 25-29, 11.1% ages 30-34, 8.8% ages 35-39, 7.9 ages 40-44, 7.6% ages 45-49, 8.2% ages 50-54, and the rest of the respondents were above 54 years old. Most of the participants who were chosen randomly were between the ages of 20 to 39 and inn second and third palace was 15-19 and 40-49 age groups respectively. This indicates the age distribution of the respondents living in the area of the survey is relatively young, in a way that out of all 171 people, about 54.4% of them are between the ages of 20 to 30 years of age.

1.2. Relation to Household Head

Out of the total of 171 people in the survey, 51 people (29.8%) were head of their household, 40 people (23.4%) were the spouse of the household heads, and 73 people (42.7%) were children of household heads, indicating that later group was the most receptive to the survey and were eager to participate and complete the questionnaire.

1.3. Respondents' place of birth

Most of the respondents were born in Gilan province. This includes 153 people (93%) of the sample. In the second-rank was the province of Tehran with 2.3%. About 3.5% of the people refused to reveal the place of their birth. The city of Rasht had the highest percentage with 33.3%, followed by the cities of famous, Somehsara, Lahigan, Anzali, Masal, and Shaft.

1.4. Occupation of Household Heads

From the total number of participants, 56 people (32.7%) were "self-employed" which usually means people whose jobs are related to trade, and dealing various commodities. In the second and third ranks were retired people and farmers with 17% and 9% respectively. Next were the governmental jobs, teachers, and private sector employees. 3.6% of the respondents had two or more jobs, are usually being farming.

1.5. The Average Members of Each Household

From the total of respondents 5.8% indicated that their household had more than six members. This ratio was also true for house holds having average of two members. Ranked next were households with the average of four members. The gender ratio in the household was 71.5 male for every 100 female.

1.6. Religion of Respondents

From all the respondents interviewed, 98.8% indicated their religion to be Shiite Muslims. So that makes the solid majority of them Shiite Muslims with only one household being Jewish.

1.7. Ethnicity

Most of the local households in the region under study were composed of Gilakis; their number was ranked first with 71.3% of the participants. Next were Taleshis with 22.2%, Fars and Turks with 3.5% and 2.3% respectively. About 0.6% of the respondents refused to reveal their ethnic background.

1.8. The Education of Respondents

From the total number of households interviewed, 26.9% have had university educations or higher. In the first place, are the respondents who have prep high education which represent 36.3% of the total. Participates with education at Junior high school level and elementary level are nest with 12.9% and 10.5% respectively. About 1.2% of the surveyed people refused t0 reveal their educational background.

1.9. The Average of Land Ownership

About 30.4% or equivalents of 52 people of all respondents don't own farm land. About 29.8% of the participants refused to answer the question. The number of the participants who own between 0.5 and 1 hectare of farm land was 13.5% of the total. Ranked next were the people who own below 0.5 and more than 1.5 to 2 hectares with 9.9% and 4.7% respectively.

1.10. The Average Area of Residences

7% of people interviewed didn't have any information about the place of their residence, and 4.1% didn't answer the question. About 10% indicated the area to be approximately 0.5 hectare, and about the same number indicate it to be more than 0.5 hectare. By considering the distribution of people surveyed, it seems that their response wasn't clear about the matter. For instance, about 52% of them didn't answer the question about how much of their residential land do they form, or didn't have any information on it.

1.11. Average time of Residency in the Area 2% of all the participants indicated that they have lived in the area for less than ten years, and from this about 8.2% have lived there for less than a year. The number of households which have lived there between ten to twenty years is 26% between twenty and thirty years is 24.2%, between thirty and forty years is 8.8%, between forty to fifty years is 8.2% between fifty to sixty years is 4.7%, and people who have lived there for more than sixty years with 4.1% of the total, is the distribution of residential length of the local people.

2. Water and Sewage Condition of Households

2.1. Water Usage

The study of quality and quantity of water use among the households show that from the total of 171 households interviewed 68.4% use the tap water for drinking and cooking. Water used from deep wells ranked next with 24.6%. Some also provide their water from springs, subterranean canals, deep water wells, and mineral water. Also some of the households use two water sources for their needs.

71.3% of water used for toilets also comes from tap water and 24% from deep wells. Smaller numbers also use the springs and subterranean Canals for toilet use. The same percentages are also true for water used for shower and bath.

Considering the variety of sources of water for use, studies indicate the following averages of use for households:

Water used for Drinking and cooking: the average use of water for cooking and drinking per household is 30.1 liters in 24 hours. 12.3% of the respondent households had the highest use at 200 liters daily and ranked second and third were households with 9.9% using 100 liters, and 7.6% using 20 liters respectively. 70% of the household didn't answer the question regarding their water use for drinking and cooking.

Water used for washing: A typical household in the region uses an average of 110 liters in 24 hours for washing purposes. The largest percentage (12.9%) uses 200 liters daily, followed by households using 100 and 300 liters of water daily. 7% of households didn't respond to the question.

Water used for Bathing and Shower: The average use of water for bathing or showering for households is 379.9 liters daily. 7.6% of the households have the highest usage at 300 and 600 liters daily.

Other uses: In addition to the above uses, a typical household living in this region also uses 21.3 liters of water for miscellaneous usage daily. So the total average use of a typical

household living in Anzali Wetland recharge area is 529.3 liters daily from which the highest usage at 72% is used for bathing and showering purposes.

The Average Monthly Water Cost: Studies show that the average monthly water bill for a household in the study area is about 22560 Rials. The highest percentage of households with 46.2% pays an average of 20000 Rials monthly. Ranked second and third are households which pay an average monthly bill of 10000 to 20000 Rials, and 5000 to 10000 Rials, which comprise 18.7% and 6.4% of the total respectively. 23.4% of the households didn't answer the question.

In relation to various other uses of water and problems relating to this 48.5% of the households had no opinions or suggestions. 48 households (28.16) considered providing good water quality as their most important suggestion. Other suggestions included low water pressure, use of deep water wells, expensive water bills, not enough water during the summer season, and water reduction during other, warm seasons.

2.2. The Sewage of households

From the total of 171 households interviewed, 94.7% indicated that they use traditional Iranian toilets. Four households (2.3%) use foreign style toilets and 1.8% use both kinds. Sewage of49.7% of the household is transferred to the city's sewage system, and 38% use cesspools (shallow wells) to dispose of their sewage. 7.6% dispose the sewage in rivers, creeks, or lakes, and 2.3% use dry rivers adjacent to their houses as their sewage disposal, 19.3% of the households indicated that waste water from their sewage tanks is transferred to city's sewage system, 8.2% to cesspools, and 3.5% to creeks and rivers and they are usually emptied once a year of when needed. 81.3% indicated that they don't use sewage tanks and those who do are responsible fro their maintenance, or let the private companies do it.

From the total of respondent households 45.6% indicated that the sewage from their residence is connected to the sewage system. 41.5% indicated that they don't have such facility, and 12.9% didn't answer the question. The people whose sewage isn't connected to the sewage system, 18.7% empty their sewage in cesspools, 14.6% to the nearest river or creek, 7% to open areas (streets, sidewalks, etc.), and 4.7% empty in dry river beds. When asked about where the sewage is emptied, 38.6% were silent and 15.2% indicated that they had no idea where it was done. And when asked if they would like to be connected to the sewage system, 37.4% agreed and 1.2% disagreed. 2.3% weren't prepared to pay for any sewage system and 14% left the question unanswered.

In relation to this 25.7% indicated that if necessary in order to be connected to the sewage system they will be willing to pay 1000 to 2500 Rials, 20.% were prepared to pay 5000 to 10000 Rials monthly, and 18.7% from 2500 to 5000 Rials as monthly payments.

In relation to the problem of sewage disposal, 11.1% were in favor of the construction of city sewage system, 6.4% were in favor of the separation of household sewage and industrial sewage, and 2.9% of the local residents of Anzali region thought that having cesspools for sewage disposal was a bad idea.

3. Condition to the Disposal of household Garbage

Studies indicate that 50.9% of the households hand over their garbage to agents responsible for the collection. A total pf 20.5% of households have a specific place to dispose of their

garbage, 18.1% drop them off near the place of their residence, and 8.2% indicated that they don't have a well defined place for their disposal.

According to 49.7% of the respondents, the household garbage's are collected daily. On the other hand 21.1% indicated that it is done twice a week, while 7.6% said that it's done once a week, and 9.9% had no answer.

From the total households who don't have suitable bury them in their yard, and 8.2% drop their garbage's in the river near their residence.

A point worth paying attention to is that, the garbage isn't separated before disposal. 80.7% of households don't separate or itemize them, 5.3% had no answer and only 13.5% indicated that they separate their garbage. The majority of them separate the kitchen garbage and plastic materials.

From the total household's respondents, only 38.8% pay for the garbage collection and 48% don't, 14.6% had no answer. The average monthly payment for garbage collection per household is 5000 Rials, which include 14% of the households, 7.6% of the households pay 2000 Rials and 7% pay 10000 Rials, 20.5% of the households which are eligible for payments, don't pay any money.

The respond households believe that a monthly payment of 5000 Rials is a suitable one, which 7% didn't have any set payments in mind, and 26.9% didn't answer the question. Among the people who were in favor of paying any money for their garbage disposal, 10.5% thought that 2000 Rials, and 14% of them 10000 Rials, should be the maximum amount.

Most of the respondent households (48%) were satisfied with the way that the current collecting system operates, while 31% were dissatisfied and 19.9% didn't answer the question. From the total of dissatisfied respondents, most were unhappy about the time it took for the garbage to be collected, and that not a good job was done. From their point of view, bad smell and not taking necessary action on time was the main reason for their dissatisfaction.

4. Environmental Conservation

4.1 Satisfaction from other Environmental Conditions

Out of the total of 117 households interviewed, 27.5% were very satisfied or satisfied from other environmental issues in their neighbourhood, 40.9% reported the situation to be acceptable, 21.7% were dissatisfied or very dissatisfied, and 8.8% did not answer the question.

4.2 Environmental Problems affecting Households' Lives

4.2.1 Noise from Cars/Motorbikes

28.1% of respondents believed that it affects the quality of their life a lot or often; 29.2% (highest frequency) believed that it is not relevant in their area; 15.2% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 14% believed that it affects the quality of their life, but only a medium amount; and 13.5% did not answer the question.

4.2.2 Noise from the Factories

4.1% of the respondents believed that it affects the quality of their life a lot or often; 72.5% believed that it is not relevant in their area; 5.3% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 1.2% believed that it affects the quality of their life, but only a medium amount; and 17% did not answer the question.

4.2.3 Odour from Drain

22.2% of the respondents believed that it affects the quality of their life a lot or often; 50.9% believed that it is not relevant in their area; 8.8% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 7% believed that it affects the quality of their life, but only a medium amount; and 11.1% did not answer the question.

4.2.4 Odour from River/ Channel

19.3% of the respondents believed that it affects the quality of their life a lot or often; 52.6% (highest frequency) believed that it is not relevant in their area; 7% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 5.8% believed that it affects the quality of their life, but only a medium amount; and 14.6% did not answer the question.

4.2.5 Odour from Waste Collection Place

22.2% of the respondents believed that it affects the quality of their life a lot or often; 47.4% (highest frequency) believed that it is not relevant in their area; 8.8% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 8.2% believed that it affects the quality of their life, but only a medium amount; and 13.5% did not answer the question.

4.2.6 Odor from Waste Disposal Place

14.6% of the respondents believed that it affects the quality of their life a lot or often; 52% (highest frequency) believed that it is not relevant in their area; 8.8% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 4.1% believed that it affects the quality of their life, but only a medium amount; and 20.5% did not answer the question.

4.2.7 Air Pollution from Car/Motorbike

12.2% of the respondents believed that it affects the quality of their life a lot or often; 49.1% (highest frequency) believed that it is not relevant in their area; 14.1% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 8.2% believed that it affects the quality of their life, but only a medium amount; and 16.4% did not answer the question.

4.2.8 Air Pollution from the Factories

4.7% of the respondents believed that it affects the quality of their life a lot or often; 64.9% (highest frequency) believed that it is not relevant in their area; 6.4% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 1.8% believed that it affects the quality of their life, but only a medium amount; and 21.6% did not answer the question.

4.2.9 Vibration from Car/Truck

16.3% of the respondents believed that it affects the quality of their life a lot or often; 46.2% (highest frequency) believed that it is not relevant in their area; 9.9% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 9.9% believed that it affects the quality of their life, but only a medium amount; and 17.5% did not answer the question.

4.2.10 Dust along the Road

28.6% of the respondents believed that it affects the quality of their life a lot or often; 33.3% (highest frequency) believed that it is not relevant in their area; 12.3% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 9.4% believed that it affects the quality of their life, but only a medium amount, and 16.4% did not answer the question.

4.2.11 Noxious Insects/Animals such as Cockroaches and Rats

48.5% of the respondents believed that it affects the quality of their life a lot or often; 15.2% believed that it is not relevant in their area; 11.6% believed that it affects the quality of their life, but not much or they reported that they did not notice it and it may affect the quality of their life with small amount; 18.7% believed that it affects the quality of their life, but only a medium amount; and 5.8% did not answer the question.

4.3 Satisfaction from Environmental Status of the Nearby River/ Channel

2.3% of the respondents were very satisfied; 14.6% were satisfied; 19.3% reported the situation to be acceptable; 21.1% (highest frequency) were dissatisfied; 15.2% were very dissatisfied; and 26.9% did not answer the question.

32.2% of the respondents reported the environmental status of the river/channel near their house to be significantly dirty with suspended waste and odor; 22.8% reported the rivers/channels to be slightly dirty; 12.9% reported them to be clean; 2.3% reported them to be fairly clean; and 28.7% did not answer the question. According to the respondents, the dirtiest rivers were: (in descending order) Zarchub (8.8%), Goharrud (7%), and Emamzade Ebrahim (3.5%), Busar, Siahnaraki, Murab, Sunaksabah. 53.8% of the respondents did not name any rivers or channels.

4.4 The Cause of the Pollution of the River/Channel

Most of the respondents reported solid waste disposed nearby their house, effluent from factories, domestic waste water (respectively 5.8%, 5.8%, and 5.3%) to be the cause of the river/channel pollution in their area. 5.3% of the respondents did not know the cause of the pollution. 27.5% of the respondents did not answer the question. Also, waste water from toilet and Fertilizer/pesticide from agricultural land ranked next.

4.5 Wish for Improvement of the Environmental Status of the area

48.5% of the respondents wished that the environmental condition of their residential area would be improved “very much”; 36.8% wished it would be “improved”; 2.3% believed it was not necessary; 5.3% did not answer the question; and 7% had no idea.

In reply to the question “Which of the following activities would you do to improve environmental conditions?” the respondents mentioned the following items:

- 38.6% of the respondents said they would pay some money; 37.4% said they wouldn't; 19.9% said they might pay some money; and 3.5% did not answer the question.

- 71.9% of the respondents reported that they would change their behavior toward the environment (for example sorting out their waste or recycling); 8.2% said they wouldn't; 15.2% said they might do so, and 4.7% did not answer the question.

- 54.4% of the respondents reported they would take part in community programs (such as tree planting); 20.5% said they wouldn't; 18.7% said they might do so; and 5.8% did not answer the question.

- 63.7% of the respondents expressed their readiness to complain to the local administration to stimulate action to solve the problems; 15.8% said they wouldn't do that, 15.8% reported they might do so; and 4.1% did not answer the question.

- 26.9% of the respondents expressed their readiness to take part in public demonstration; 48.5% said they wouldn't; 15.2% reported they might do so; and 8.8%did not answer the question.

As for participation in environmental activities during the past year, 11.7% of the respondents reported to have paid some money; 5.8% reported to have sorted out their waste; 5.8% reported to have participated in community programs; 18.7% (highest frequency) reported to have demanded the local administration to take action; 21.1% reported not doing anything; and 22.8% did not answer the question.

In reply to: "Who do you think is most important to conduct environmental improvement activities?" 28.1% of the respondents reported the community members (themselves) to have the pivotal role; 8.2% mentioned the central government; 6.4% mentioned the polluters.

28.1% of the respondents believe that the central government should pay for environmental programs; 25.1% held the local administration responsible for doing so; and 14.6% believed that it was to be done by the community members (themselves).

4.6 Utilization of Anzali Wetland

77.8% of the respondents reported to know Anzali Wetland, while 19.9% reported not knowing it at all. 35.7% reported to visit the Wetland rarely; 19.9% once a year; 12.9% never; 2.3% several times a week; 1.8% once a week; 2.3% several times a month; 2.9% once a month; and 6.4% several times a year.

32.7% of the respondents (who visit the Wetland) reported to go there in their own cars; 15.8% by taxi; 1.2% by motorbike; 0.6% by bicycle; 2.3% by bus; 12.9% by boat; and 0.6% on foot.

9.4% of the tourists go to the Wetland for plant/flower watching; and 8.8% for boating. Some of the tourists like to do both of these activities. Other activities include fishing, hinting, gathering, and photography.

69.6% of the respondents hope that Anzali Wetland will be developed more as a tourist site. 4.1% did not hope so. 14.6% of the respondents had no idea. The reasons mentioned by the respondents who approved further development of the Wetland included increase of employment opportunities, Increase of households' income from tourism-related economic

activities, and also improvement of the natural environment. 25.1% of the respondents had no idea. The reasons mentioned by the respondents who opposed the further development of the Wetland included deterioration of the natural environment, and deterioration of water environment by increase of waste water from tourist facilities such as hotel. 48.5% of the respondents did not answer the question.

In reply to "What does the Ramsar Convention mean?" 32.7% of the respondents had no idea; 27.5% did not answer the question. 21.6% believed it encouraged conservation of the area to make sure that it is protected; 10.5% believed that it encouraged tourism in the area; and 4.1% believed it encouraged businesses to locate in wetland to use the natural resources.

4.7 The Main Environmental Problems of Anzali Wetland

4.7.1 Water Quality Deterioration

40.9% of the respondents (highest frequency) believed that it is critically affecting the quality of the environment; 13.5% believed that it is fairly affecting the quality of the environment; 7% believed that it is not a problem; 1.2% believed that it may be affecting the quality of the environment with small amount; 0.6% believed that it is affecting the quality of the environment, but not much; 12.9% believed that it is affecting the quality of the environment, but only a medium amount; and 2.9% had no idea.

4.7.2 Decrease in the Area of the Wetland

18.7% of the respondents believed that it is critically affecting the quality of the environment; 17% believed that it is fairly affecting the quality of the environment; 18.1% believed that it is affecting the quality of the environment, but only a medium amount; 5.3% believed that it is affecting the quality of the environment, but not much; 1.8% believed that it is affecting the quality of the environment, but not much; 9.9% believed that it is not a problem; 2.9% had no idea; and 26.3% did not answer the question.

4.7.3 Over-Growth of Aquatic Plants

21.6% of the respondents believed that it is critically affecting the quality of the environment; 26.3% believed that it is fairly affecting the quality of the environment; 7.6% believed that it may be affecting the quality of the environment with small amount or believed that it is not a problem; 17.5% believed that it is affecting the quality of the environment, but only a medium amount or believed that it is affecting the quality of the environment, but not much; 1.3% had no idea; and 32.1% did not answer the question.

4.7.4. Increase of the Garbage in the Wetland

66.1% (highest frequency) of the respondents believed that it is critically or fairly affecting the quality of the environment; 10.5% believed that it is affecting the quality of the environment, but not much or believed that it is affecting the quality of the environment, but only a medium amount; 1.2% believed that it is not a problem; 2.3% had no idea; and 19.9% did not answer the question.

4.7.5. Decrease of Fish Species

56.1% of the respondents believed that it is critically or fairly affecting the quality of the environment; 4.1% believed that it is not a problem; 14.1% believed that it may be affecting the quality of the environment with small amount or believed that it is affecting the quality of the environment, but only a medium amount; 1.8% did not answer the question; and 24% had no idea.

4.7.6. Decrease of Bird Species

47.9% of the respondents believed that it is critically or fairly affecting the quality of the environment; 20.5% believed that it may be affecting the quality of the environment with small amount or believed that it is affecting the quality of the environment, but only a medium amount; 4.1% believed that it is not a problem; 1.8% did not answer the question; and 25.7% had no idea.

4.7.7. Decrease of other Kinds of Animals

39.2% of the respondents believed that it is critically or fairly affecting the quality of the environment; 6.4% believed that it is not a problem; 24.6% believed that it may be affecting the quality of the environment with small amount or believed that it is affecting the quality of the environment, but only a medium amount; 2.3% had no idea; and 27.5% did not answer the question.

4.7.8. Increase of Sediment Flown into the Wetland

50.3% of the respondents believed that it is critically or fairly affecting the quality of the environment; 7% believed that it is not a problem; 14% believed that it may be affecting the quality of the environment with small amount or believed that it is affecting the quality of the environment, but only a medium amount; 2.3% had no idea; and 25.7% did not answer the question.

4.8. The Main Environmental Causes of the Problems

4.8.1 Water Quality Deterioration

56.7% of the respondents believed that it is critically or fairly affecting the quality of the environment; 7% believed that it is not a problem or believed that it is affecting the quality of the environment, but not much; 11.1% believed that it is affecting the quality of the environment, but only a medium amount; 1.8% had no idea; and 23.4% did not answer the question.

4.8.2 Decrease in the Area of Water

38.1% of the respondents believed that it is critically or fairly affecting the quality of the environment; 9.4% believed that it is not a problem or believed that it is affecting the quality of the environment, but not much; 19.3% believed that it is affecting the quality of the environment, but only a medium amount; 31.6% did not answer the question and 1.4% had no idea.

4.8.3 Litter Dropped by Tourists

50.8% of the respondents believed that it is critically or fairly affecting the quality of the environment; 9.4% believed that it may be affecting the quality of the environment with small amount or believed that it is affecting the quality of the environment, but not much; 16.4%

believed that it is affecting the quality of the environment, but only a medium amount; 1.2% had no idea; and 22.2% did not answer the question.

4.8.4. Garbage Flown Down from the Connected Rivers to the Wetland

66.1% of the respondents believed that it is critically or fairly affecting the quality of the environment; 2.4% believed that it is affecting the quality of the environment, but not much or believed that it may be affecting the quality of the environment with small amount; 8.2% believed that it is affecting the quality of the environment, but only a medium amount; 1.2% had no idea; and 21.1% did not answer the question.

4.8.5. Illegal Garbage Dumping in the Wetland

52% of the respondents believed that it is critically or fairly affecting the quality of the environment; 18.2% believed that it is affecting the quality of the environment, but not much or believed that it is affecting the quality of the environment, but only a medium amount; 1.8% had no idea; and 26.3% did not answer the question.

4.8.6. Construction Activities Near the Wetland

21.1% of the respondents believed that it is critically or fairly affecting the quality of the environment; 24% believed that it is not a problem or believed that it is affecting the quality of the environment, but not much; 18.7% believed that it is affecting the quality of the environment, but only a medium amount; 1.8% had no idea; 34.5% did not answer the question.

4.8.7. Illegal Fishing in the Wetland

36.8% of the respondents believed that it is critically or fairly affecting the quality of the environment; 4.1% believed that it is not a problem; 12.3% believed that it is affecting the quality of the environment, but not much; and 1.8% had no idea.

4.8.8. Illegal Hunting in the Wetland

23.3% of the respondents believed that it is critically or fairly affecting the quality of the environment; 3.5% believed that it is not a problem; 10.6% believed that it is affecting the quality of the environment, but not much; 1.8% had no idea; and 28.7% did not answer the question.

4.8.9 Cutting Trees in the Mountains

28.7% of the respondents believed that it is critically or fairly affecting the quality of the environment; 14% believed that it is not a problem; 15.8% believed that it is affecting the quality of the environment, but not much; 10.5% believed that it is affecting the quality of the environment, but only a medium amount; and 28.7% did not answer the question.

4.9. The Main People Responsible for the Wetland Problems

4.9.1 People nearby the Wetland

37.9% of the respondents believed that it is critically or fairly affecting the quality of the environment; 10.6% believed that it is affecting the quality of the environment, but not much; and 2.3% believed that it is not a problem.

4.9.2 People in the Urban Areas who Discharge Waste Water into Rivers

70.8% of the respondents believed that it is critically or fairly affecting the quality of the environment; 0.06% believed that it is not a problem; 10.6% believed that it is affecting the quality of the environment, but not much; 9.4% believed that it is affecting the quality of the environment, but only a medium amount; and 17.5% had no idea.

4.9.3 People in the Urban Areas who Dump Solid Waste into Rivers

59.1% of the respondents believed that it is critically or fairly affecting the quality of the environment; 2.9% believed that it is affecting the quality of the environment, but not much; 0.6% believed that it is not a problem; 6.4% believed that it is affecting the quality of the environment, but only a medium amount; and 31% did not answer the question.

4.9.4. People in the Rural areas Cutting Down Trees

23.4% of the respondents believed that it is critically or fairly affecting the quality of the environment; 6.4% believed that it is not a problem; 22.2% believed that it is affecting the quality of the environment, but not much; 14% believed that it is affecting the quality of the environment, but only a medium amount; and 28.7% did not answer the question.

4.9.5. Fishermen Catching Fish

24.6% of the respondents believed that it is fairly affecting the quality of the environment; 8.8% believed that it is not a problem; 16.9% believed that it is affecting the quality of the environment, but not much; 19.3% believed that it is affecting the quality of the environment, but only a medium amount; and 29.2% did not answer the question.

4.9.6. Hunters Catching Birds

27.5% of the respondents believed that it is fairly affecting the quality of the environment; 7% believed that it is not a problem; 17.5% believed that it is affecting the quality of the environment, but not much or believed that it may be affecting the quality of the environment with small amount; 17.5% believed that it is affecting the quality of the environment, but only a medium amount; and 29.2% did not answer the question.

4.9.7. Tourists who Pollute the Water and Drop Litter

52.6% of the respondents believed that it is critically affecting the quality of the environment; 0.6% believed that it is not a problem; 4.7% believed that it is affecting the quality of the environment, but not much; 16.4% believed that it is affecting the quality of the environment, but only a medium amount; and 24.6% did not answer the question.

4.9.8 People in the Mountains who Conduct Grazing

16.9% of the respondents believed that it is fairly affecting the quality of the environment; 22.2% believed that it is affecting the quality of the environment, but not much; 18.7% believed that it is not a problem; 10.5% believed that it is affecting the quality of the environment, but only a medium amount; and 30.4% did not answer the question.

4.10. The Main Solutions to the Problems of the Wetland

4.10.1 Making Sure that People who Pollute Pay Fines

59% of the respondents believed that it is one of the most important solutions; 6.4% believed that it is not a solution; 4.1% believed that it is a solution, but not much contribution; and 12.3% believed that it is a solution, but only a medium contribution.

4.10.2 A Better Management Plan

76% of the respondents believed that it is an important solution; 2.3% believed that it is a solution, but only a medium contribution; and 21.1% did not answer the question.

4.10.3 Creating Special Zones Where No Economic or Tourist Activity is Allowed

40.3% of the respondents believed that it is an important solution; 5.3% believed that it is not a solution; 7.6% believed that it is a solution, but not much contribution; 18.7% believed that it is a solution, but only a medium contribution; and 27.5% did not answer the question.

4.10.4. Improving Waste Collection by Municipalities

73.7% of the respondents believed that it is one of the most important solutions; 23.4% did not answer the question; and 2.9% believed that it is a solution, but only a medium contribution.

4.10.5. Improving Sewerage Treatment by Municipalities

74.2% of the respondents believed that it is one of the most important solutions; 0.6% believed that it is not a solution; 2.9% believed that it is a solution, but not much contribution; and 22.2% did not answer the question.

4.10.6. Restricting Tree Cutting in the Mountains

37.4% of the respondents believed that it is an important solution or one of the most important solutions; 14.1% believed that it is a solution, but not much contribution; 6.4% believed that it is not a solution; and 27.5% did not answer the question.

4.10.7. Restricting Grazing Activity in the Mountains

24% of the respondents believed that it is an important solution or one of the most important solutions; 9.4% believed that it is not a solution; 17.5% believed that it is a solution, but not much contribution; and 29.8% did not answer the question.

4.10.8. More Awareness of Importance of the Wetland by People

70.2% of the respondents believed that it is an important solution or one of the most important solutions; 1.2% believed that it is not a solution; 5.2% believed that it is a solution, but only a medium contribution; and 25.1% did not answer the question.

4.10.9. Increasing the Staff of DOE and MOJA

53.8% of the respondents believed that it is an important solution or one of the most important solutions; 7.6% believed that it is not a solution; 3.5% believed that it is a solution, but not much contribution; and 7.6% believed that it is a solution, but only a medium contribution.

4.11. How the Households' Behaviour Affects the Quality of the Environment

50% of the respondents believed that their behaviour affects the quality of the environment; 29.2% of them believed that their behaviour does not affect the quality of the environment; and 19.3% of the respondents did not answer the question.

4.11.1 Driving a Car Regularly

17% of the respondents reported to regularly drive their cars; 65.2% reported not driving; and 22.8% did not answer the question.

38.6% of the respondents believed that driving a car affects the quality of the environment; while 38% did not believe so. 22.8% did not answer the question.

4.11.2 Buying Fish from the Wetland Regularly

21.6% of the respondents reported to regularly buy fish from the Wetland; 53.8% reported not doing so; and 25.1% did not answer the question.

41.5% of the respondents believed that buying fish from the wetland on a regular basis affects the quality of the environment; 32.7% did not believe so and 25.1% did not answer the question.

4.11.3 Dumping Garbage into the Rivers

9.4% of the respondents reported to dump garbage in the river; 65.5% reported not doing so; and 25.1% did not answer the question.

58.5% of the respondents believed that dumping garbage into the river affects the quality of the environment; 15.8% did not believe so; and 25.7% did not answer the question.

4.11.4. Cutting Trees in the Mountains

71.9% of the respondents (highest frequency) reported not to cut the trees in the mountains; 1.8% reported to do that; and 26.3% did not answer the question.

50.3% of the respondents believed that cutting the trees in the mountains affects the quality of the environment; 21.1% did not believe so; and 27.5% did not answer the question.

4.11.5. Using Chemical Fertilizer/ Pesticide in the Farms

27.5% of the respondents reported using chemical fertilizer and/or pesticide in their farms; 47.4% reported not to do so; and 25.1% did not answer the question.

53.8% of the respondents believed that using chemical fertilizer/pesticide in the farms affects the quality of the environment; 19.9% did not believe so; and 26.3% did not answer the question.

4.11.6. Occasional Fishing in the Wetland

18.1% of the respondents reported to go fishing in the wetland occasionally; 58.5% reported not to do so; and 22.2% did not answer the question.

44.4% of the respondents believed that fishing in the wetland affects the quality of the environment; 29.8% did not believe so; and 25.7% did not answer the question.

4.12. Willingness to Pay money for the Conservation of the Wetland

9.9% of the respondents reported they would not pay for the conservation of the Wetland; and 0.6% said they would pay, but did not mention any certain amount. 22.2% reported they would pay IRR 50,000; 22.2% reported they would pay IRR 100,000; 7.6% reported they would pay IRR 20,000; 5.3% reported they would pay IRR 1000; and 8.8% did not answer the question.

5. Household Income and Expenditure

5.1 Household Main Source of Income

33.5% of the respondents (highest frequency) reported to be self-employed. 20.5% reported to be civil servants or office workers; 12.3% reported to be retired; 4.1% did not answer the question.

5.2 Average Household Income (Per Month)

3.5; of the respondents did not answer the question. 15.2% (highest frequency) reported IRR 1,000,000; 12.3% reported IRR 1,500,000; 5.3% reported IRR 3,000,000; 4.7% reported IRR 700,000; and 3.5% reported IRR 500,000.

5.3 Average Household Expenditure (Per Month)

11.7% of the respondents did not answer the question; 10.5% (highest frequency) reported IRR 1,500,000; 9.4% reported IRR 2,000,000; 8.2% reported IRR 1,000,000; and 6.4% reported IRR 800,000.

5.4 Breakdown of Household Expenditure

1- Food

7.6% of the respondents did not answer the question. 17.5% (highest frequency) reported IRR 1,000,000; 16.4% reported IRR 500,000; 12.3% reported IRR 400,000; and 5.3% reported IRR 300,000.

2- House/land rent

77.8% of the respondents reported not to pay rent at all; 16.4% did not answer the question; and 3.6% reported to pay IRR 300,000-IRR 500,000 for rent.

3- Instalment

40.9% or the respondents reported not to pay any instalments; 15% did not answer the question; 7.6% reported IRR 500,000; 7% reported IRR 300,000% and 7% reported IRR 200,000 (per month)

4- Medical treatment/ medicine

12.9% of the respondents reported not having such expense; 10.5% did not answer the question; 26.9% (highest frequency) reported IRR 100,000 (per month). Households who paid IRR 200,000; IRR 20,000 and IRR 50,000 followed.

5- Public utilities

8.8% of the respondents did not answer the question; 1.8% reported not to have such expense; 17% (highest frequency) reported IRR 100,000; 12.3% reported IRR 50,000; 9.4% reported IRR 200,000; and 5.3% reported IRR 150,000/

6- Education

35.1% of the respondents reported not to pay for education; 13.5% did not answer the question; 12.3% (highest frequency) reported IRR 100,000 (per month); 7.6% reported IRR 50,000; 5.3% reported IRR 500,000; and 4.7% reported IRR 200,000.

7- Tax

60.8% reported not to have such expense; 20.5% did not answer the question; and 4.7% reported IRR 20,000 (per month).

8- Entertainment

37.4% of the respondents reported not to have such expense; 15.8% did not answer the question; 7% reported IRR 200,000; 5.3% reported IRR 50,000; and 4.7% reported IRR 300,000 (per month).

9- Transportation

30.4% of the respondents reported not to have such expense; 12.9% did not answer the question; 14. (highest frequency) reported IRR 100,000; 9.4% reported IRR 50,000; 8.2% reported IRR 200,000; and 4.7% reported IRR 150,000.

5.5 Breakdown of the Expenditure for Public Utilities

1- Water supply

49.7% of the respondents reported to pay more than IRR 20,000 for water per month; 17.5% reported to pay IRR 10,000 – IRR 20,000; and 8.2% reported to pay IRR 5,000 – IRR 10,000; 21.1% did not answer the question.

2- Sewerage treatment

12.9% of the respondents reported to pay IRR 20,000 (and more) for sewerage per month; 8.8% reported to pay IRR 10,000 – IRR 20,000; 1.2% reported not having such expense; and 67.3% did not answer the question.

3- Garbage collection

12.3% of the respondents (highest frequency) reported to pay IRR 5,000 – IRR 10,000 for garbage collection per month; 11.1% reported to pay IRR 10,000 – 20,000; and 5.8% reported to pay IRR 2,500 – IRR 5,000 per month.

4- Electricity

62.6% of the respondents reported to pay IRR 20,000 (or more) for electricity per month; and 29.2% reported to pay IRR 10,000 – 20,000.

5- Telephone

67.3% of the respondents reported to pay IRR 20,000 (or more) for telephone per month; 10.5% reported to pay IRR 10,000 – 20,000; and 17% did not answer the question.

6- Gas

55% of the respondents reported to pay IRR 20,000 (or more) for gas every month; 16.4% reported to pay IRR 10,000 – IRR 20,000; and 23.4% did not answer the question.

5.6 Households' Opinion on the Price of Public Utilities

1- Water supply

51.5% of the respondents believed that the cost of water supply is high; 25.1% considered it to be satisfactory; and 19.9% did not answer the question.

2- Sewerage treatment

12.3% of the respondents believed that the cost of sewerage treatment is high; 16.4% considered it to be satisfactory; and 66.1% did not answer the question.

3- Garbage collection

6.4% of the respondents believed that the cost of garbage collection is high; 25.7% considered it to be satisfactory; 6.4% said it was low; and 60.8% did not answer the question.

4- Electricity

70.2% of the respondents believed that the cost of electricity is high; while 28.1% found it satisfactory.

5- Telephone

64.3% of the respondents believed that the cost of phoning is high; 15.8% found it satisfactory; and 18.7% did not answer the question.

6- Gas

56.1% of the respondents believed that the price of gas is high; 17% found it satisfactory; 1.2% believed it to be low; and 25.1% did not answer the question.

6. Current Activity on Tree Cutting

80.1% of the respondents reported not to conduct tree cutting; 8.2% did not answer the question; 11.7% (20 households) reported conducting tree cutting. 5.8% of the respondents who reported to conduct tree cutting, said they would do it in their backyards, 2.3% in the mountain, and 2.9% in the farmlands. 2.3% of the respondents who conducted tree cutting reported their purpose to be providing fuel for their houses, 5.8% for construction, 1.2% for getting rid of the insects, and only 0.6% (1 household) reported they would do it to sell the trees. 32.2% of the respondents did not mention their purpose (did not answer the question). There were no specific answers concerning the number of the trees cut. Also, seasons doesn't seem to matter regarding cutting trees according to the answers.

7. Current Activity on Livestock Raising

The study shows that there is no significant activity on livestock raising unless some activity on poultry raising. Out of the total of the respondents, 52.6% did not answer the question. Other respondents reported to raise chicken to some extent. Raising goats, cattle, and sheep ranked next respectively. 13.5% of the respondents reported their backyards to be the place they kept their animals; 4.1% reported the mountain; and 3.5% reported other places. As for grazing, 12.9% reported they would not conduct grazing, 0.6% reported they conducted grazing around their houses or near the river, while 62.6% did not mention any place for grazing.

8. Current Activity on Agriculture

35.7% of the respondents reported to be farmers, while 26.9% were not. 36.8% of the respondents did not answer the question. Most of the farmers (25.1% of the respondents) reported to engage in planting rice or paddy. 48% of the respondents did not mention what they planted.

As for using fertilizers, 1.2% of the respondents do not use any, while 47.4% did not answer the question. As for using pesticides, 7.6% of the respondents reported not using them, while 55% did not answer the question.

9. Opinions, Ideas and Suggestions

4.1% had no ideas or suggestions and 63.2% did not answer the question. 10.5% (highest frequency) suggested that the dropping of litter in the rivers should be avoided; the awareness of the public should be raised through media; guards should be used in the area; the garbage should be recycled, etc.

10. Conclusion

10.1 Background

In order to study the viewpoint of the households residing in the area toward Anzali Wetland and its watershed area, 171 households were randomly selected and interviewed in the townships of Rasht, Anzali, shaft, Somehsara, Talesh, and Fuman. Men comprised 54.4% of the sample while 45.6% of the sample were women. The age structure of the sample was a relatively young one (more than 54% of the respondents were aged between 20 and 39). 27% of the sample had higher education, 36.3% of them had pre-university/ high school education, and 12.9% of them had secondary school education. With respect to ethnicity of the population, most of the respondents were “Gilak”; “Talesh” people ranked second.

32.7% of the respondents reported to be self-employed (a category which includes a wide range of unidentified jobs). Retired people (17%) and farmers (9.9%) ranked second and third. 29.8% of these people were the household heads. Out of the total of the households interviewed, 30.4% had no agricultural land. 13.5% of the farmers reported to have between 0.5 hectare and 1 hectare of agricultural land. 32% of the households reported to have lived in the area for less than 10 years; 20% reported between 10 and 20 years; 24.2% of the households reported between 20 and 30 years; 8.8% of the households reported to have lived in the area more than 40 years; 4.7% reported more than 50 years; and 8.2% reported more than 60 years.

10.2 Status of Water Use and Drainage

The study shows out of the total of 171 households interviewed, 68.4% use the water from the pipe for drinking and cooking. 26.4% of the households use the water from shallow deep for this purpose. Also, some of the people use the water from deep wells, drain and mineral water. Some of the respondents reported to use two source of water at the same time.

As for the source of the water for toilet, 71.3% of the respondents reported to use water from pipes and 24% reported to use water from shallow well. Also, a few people reported using the water from drain.

As for the source of water for bathing, 71.3% of the respondents reported pipe water, while 24% reported shallow well. Also, a few people reported to use the water from drain.

As for the volume of the water used by each household per day, the households turned out to use 30.1 liter for drinking and cooking, 101 liter for washing, 376.9 for bathing, and 21.3 liter for other uses. Therefore, the average volume of water used by an ordinary household in Anzali Wetland watershed area is 529.3 liter per day. The largest portion of the mentioned volume was used for bathing. Each household residing in the study area pays, on average, IRR 22560 for water per month.

49.7% of the respondents reported their waste water from toilet to flow into sewerage pipe, 38% reported septic tank, 7.6% reported river/pond/ lake nearby, and 2.3% reported the storm drain.

11.1% of the respondents reported they would like to connect to a sewer pipe. 6.4% of the respondents believed that domestic and industrial waste water should be separated.

According to the findings of the survey, 50.9% of the respondents directly handed their garbage to waste collectors, 20.5% put it in a designated collection place near their house, 18.1% put the garbage in front of their house, and 8.2% had no designated place for leaving their garbage.

80.7% of the households reported not segregating their waste for disposal, and only 13.5% reported to segregate kitchen refuse and plastics. 48% of the respondents reported to be satisfied with the present waste collection service, while 31% reported to be dissatisfied.

10.3 Environmental Problems Affecting the Quality of the Lives of the Households Residing in the Area

The survey shows that noxious insects/ animals are the most important problem (48.5%) affecting the peoples' lives. Dust along the road (28.6%), noise from Car/motorcycle (28.1%), the odor form drain (22.2%), and the odor from waste disposal place (22.2%) ranked next respectively. According to the households living in the area, the noise from the factories, the air pollution from the factories, and the odor from river/channel is affecting the quality of their life, but not much; or they don't notice it while it may affect the quality of their life a small amount. However, only 2.3% of the respondents reported to be very satisfied with the environmental condition of the river/ channel near their house. 21.1% of them reported to be dissatisfied with the river/ channel near their house. According to the respondents, the waste disposed in the river/channel is the main cause of the pollution of the river/ channel; Waste water from toilet and fertilizer/pesticide from the agricultural lands ranked next.

48.5% of the households wished the present environmental condition in their residential area improved, while 36.8% believed that it would be fine if the environment improved. 79.9% of the respondents (highest frequency) reported they would change their behaviour to improve the environment by for example sorting their household waste or recycling. 63.7% reported they could complain to local administration to stimulate action in order to solve the problems. 54.4% reported they would take part in community programs (such as tree planting).

Table of Main Environmental Problems and their Impact on the Environment According Resident Households

Main Environmental problems	High and Critical Impact	No impact	Medium Impact	Low and very low impact	No Answer	I don't know
Water Quality Deterioration	54/4	7	12/9	1/8	0	2/9
Decrease in the Area of the Wetland	35/7	9/9	18/1	7/1	26/3	2/9
Over-Growth of Aquatic Plants	47/9	7	20	16	32/1	1/3
Increase of the Garbage in the Wetland	66/1	1/2	7/6	2/9	19/9	2/3
Decrease of Fish Species	56/1	4/1	8/8	5/3	24	1/8
Decrease of Bird Species	47/9	4/1	15/2	5/3	25/7	1/8
Decrease of other Kinds of Animals	39/2	6/4	14/6	10	27/5	2/3
Increase of Sediment Flown into the Wetland	50/3	7	6/4	7/6	25/7	0/6

Level of Households willingness for solving the Environmental problems of their residence

Title	Yes	No	Maybe	No answer	Unknown
Paying money	38/6	37/4	19/9	3/5	/60
Separating the Garbage and recycling	71/9	8/2	15/2	4/7	0
Participating in group activities such as tree planting	54/4	20/5	18/7	5/8	/60
Demanding Governmental sectors on dealing with polluters such as factories	63/7	15/8	15/8	4/1	/60
Participating in Group demonstration for improving the Environmental situation	26/9	48/5	15/2	8/8	/60

10.4 Utilization of Anzali Wetland

Anzali Wetland as a natural recreational place attracts the households residing in the area. 77.8% of the households interviewed reported to know the Wetland. 35.7% reported to have rarely visited the Wetland; 20% of the respondents reported not to know the Wetland; and 12.9% reported to have not visited the Wetland at all. Most of the respondents reported using their private cars or boats to visit the Wetland. The main purpose of he visitors to the Wetland was reported to be plant/flower watching followed by boating.

Nearly 70% of the respondents expressed hope that the Wetland be more developed as a tourist site resulting in increase of employment opportunities, increase of household income from tourism-related economic activity, and improvement of the natural environment.

10.5 The Main Environmental Problems of Anzali Wetland and its Impact on the lives of the Households Living in the Area

The main problems of the Wetland and its impact of the environment is among the subjects studied based on the opinions of the households residing in the area. Problems mentioned by the respondents included water quality deterioration, decrease in the area of water, over-growth of aquatic plants, increase of the garbage in the Wetland, decrease in the number of fish and bird species as well as other kinds of animals, and increase of sediment flown into the Wetland. Examining the problems and their causes indicates that, to the households residing in the area, increase of the garbage in the Wetland, decrease of fish species, and water quality deterioration are the most important problems of the Wetland at the moment which are fairly or critically affecting the quality of the environment.

10.6 The Main Environmental Causes of the Problems

Households believe that there are many causes for the problems of the Wetland among which three are the most important ones: Garbage flown down from the connected rivers to the wetland, Litter dropped by tourist, and water quality deterioration. It can, then, be concluded that, according the households, physical pollutants ranked first amongst causes of environmental problems of the Wetland.

Main causes of the Problems and their Impact on the Environment According to the Households

Main causes	High and Critical Impact	No impact	Medium Impact	Low and very low impact	No Answer	I don't know
Water quality deterioration	56/7	5/8	11/1	1/2	23/4	1/8
Decrease of the area of the Wetland	38/1	6/4	19/3	3	31/6	1/8
Litter dropped by the tourists	60/8	0	16/4	9/4	22/2	1/2
Garbage flown by the rivers	66/1	0/6	8/2	2/4	21/1	0/6
Illegal garbage dumping in the Wetland	52	1/8	12/3	5/9	26/3	1/8
Construction activities	21/1	9/4	18/7	14/6	34/5	1/8
Illegal fishing	36/8	4/1	16/4	12/3	28/7	1/8
Illegal hunting	48/6	3/5	17	10/6	28/7	1/8
Cutting trees in the mountains	28/7	14	10/5	15/8	28/7	2/4
Grazing activity in the mountains	19/9	19/3	8/2	17	33/9	1/8

10.7 The Main People Responsible for the Problems

According to the households interviewed, the main people responsible for the environmental problems of the Wetland are the people in urban areas who discharge wastewater or solid waste into rivers. Next, are the tourists who pollute the water and drop litter. The least responsible people reported to be the people in the mountains and villages.

People Responsible for the Problems of the Wetland and the level of their responsibility according to the Households

Responsible party	High and Critical Impact	No impact	Medium Impact	Low and very low impact	No Answer	I don't know
People nearby the Wetland	41/5	2/3	18/7	10/6	25/7	1/2
People in the urban areas who discharge waste water into rivers	70/8	0/6	9/4	1/2	17/5	0/6
People in the urban areas who dump solid waste into rivers	59/1	0/6	6/4	2/9	31	0
People in the rural area cutting down trees	23/4	6/4	18/1	22/2	28/7	1/2
Fishermen	24/6	8/8	19/3	16/9	29/2	1/2
Hunters	27/5	7	17/5	17/5	29/2	1/2
Tourists who pollute water and drop litter	52/6	0/6	16/4	4/7	24/6	1/2
People in the mountains who conduct grazing	16/9	18/7	10/5	22/2	30/4	1/2

10.8 The Main Solutions to the Problems of the Wetland

Various solutions were suggested by the households residing in the area to be used for dealing with the problems on the Wetland. 76% of the respondents (highest frequency) reported a better management plan. Improving sewerage treatment by municipalities; and improving waste collection by municipalities ranked next. It can, then, be concluded that people mostly expect the administration to take action while bearing in mind the need for a better management plan.

63.2% of the respondents had no other ideas or suggestions apart from the ones mentioned in the questionnaire, while 10.5% suggested more attention should be paid to the natural environment, water and sewerage, and trees. Other suggestions included keeping the rivers clean and avoiding wastewater discharge into them, raising public awareness through media, using guards in the area, and recycling the waste.

Main Solutions to the Problems of the Wetland and their Impact on the Environment According to the Households

Solutions	High and Critical Impact	No impact	Medium Impact	Low and very low impact	No Answer	I don't know
Making sure that people who pollute pay fines	59	6/4	12/3	4/2	18/1	0
A better management plan	76	0	2/3	0	21/1	0/6
Creating special zones where NO economic or tourist activity is allowed at all	40/3	5/3	18/7	7/6	27/5	0/6
Improving waste collection by municipalities	73/7	0	2/9	0	23/4	0
Improving sewerage treatment by municipalities	74/2	0/6	2/3	0/6	22/2	0
Restrict50ing tree cutting in the mountain	37/4	6/4	13/5	9/4	27/5	1/2
Restricting grazing activity in the mountain	24	9/4	18/1	17/5	29/8	1/2
More awareness of importance of the wetland by people	70/2	1/2	3/5	0	25/1	0
Increase of staff in DOE and MOJA	53/8	7/6	7/6	3/5	26/9	0/6

Part 2: Tourists

1. Characteristics of Respondents

1.1. Gender and Age

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Female**	12	24.0	24.0	24.0
	Male	38	76.0	76.0	100.0
	Total	50	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**15-19**	3	6.0	6.0	*6.0*
	20-24	14	28.0	28.0	*34.0*
	25-29	15	30.0	30.0	*64.0*
	30-34	5	10.0	10.0	*74.0*
	35-39	1	2.0	2.0	*76.0*
	40-44	7	14.0	14.0	*90.0*
	45-49	4	8.0	8.0	*98.0*
	50-54	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

1.2. Relation to Household Head

Relationship with the household head

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**Household head**	19	38.0	38.0	*38.0*
	Spouse	5	10.0	10.0	*48.0*
	Child	26	52.0	52.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

1.3. Respondents' Place of Birth

Most of the respondents were born in Tehran who, with the absolute frequency of 16, constituted 32% of the sample. Provinces of Qazvin, Mazandaran, West Azerbaijan, Zanjan, Isfahan, Kerman, Khorasan, Fars, Khuzestan, Hormozgan, Qom, and Markazi (each including 1 to 9% of the respondents) ranked next in having the largest number of respondents. This implies that the residents of the cities close to Gilan Province constitute the majority of the tourists visiting Rasht and Anzali. The highest frequency belongs to the respondents who would refuse to mention their place of birth (58% of respondents). Tehran, Qazvin, Mashad, Shiraz, Sari, Urmieh, Karaj, Qom and Saveh ranked next.

1.4. Occupation of Household Heads

Occupation of the household head

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**Office worker**	5	10.0	10.0	*10.0*
	Student	2	4.0	4.0	*14.0*
	Self-employed	22	44.0	44.0	*58.0*
	Manager	1	2.0	2.0	*60.0*
	Farmer	1	2.0	2.0	*62.0*
	Public servant/government official	13	26.0	26.0	*88.0*
	Retired	1	2.0	2.0	*90.0*
	Teacher	4	8.0	8.0	*98.0*
	Other	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

1.5. Religion of Respondents

100 percent of the respondents interviewed reported to be Shie'a Muslims.

1.6. Ethnicity

Ethnic origin of Respondents

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**Gilak**	3	6.0	6.0	*6.0*
	Turk	16	32.0	32.0	*38.0*
	Fars	21	42.0	42.0	*80.0*
	Mazani	3	6.0	6.0	*86.0*
	Lor	1	2.0	2.0	*88.0*
	Kurd	1	2.0	2.0	*90.0*
	Other	1	2.0	2.0	*92.0*
	No answer	4	8.0	8.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

1.7. Respondents' Education

Respondents' Education

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**Secondary**	3	6.0	6.0	*6.0*
	High school/Pre-university course	19	38.0	38.0	*44.0*
	University and above	26	52.0	52.0	*96.0*
	Nehzat Savadamozi	1	2.0	2.0	*98.0*
	No answer	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

2. Information of the Trip

2.1. Purpose of Travelling

The most frequent purpose for visiting the cities in the study area was "summer vacation". Other activities which tourists enjoyed doing included swimming in the sea, hiking, and boat

trip across Anzali Wetland as well as testing the local cuisine. From what has been said, it can be concluded that "summer vacation" is the primary motivation for travelling to the area (26% of the tourists interviewed mentioned this as the main reason for their visit to the area), a "reason" which does not exist at all in the other seasons.

2.2. Number of Visits

Number of Respondents visits of Anzali (or Rasht)

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**This is the first time**	9	18.0	18.0	*18.0*
	This is 2nd time	12	24.0	24.0	*42.0*
	This is 3rd time	8	16.0	16.0	*58.0*
	This is 4th time	4	8.0	8.0	*66.0*
	This is 5th time	2	4.0	4.0	*70.0*
	This is 6th time	1	2.0	2.0	*72.0*
	More than 5 times.	13	26.0	26.0	*98.0*
	No answer	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

2.3. Duration of Visit

Duration of Tourists visit

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**2 days**	7	14.0	14.0	*14.0*
	3 days	8	16.0	16.0	*30.0*
	4 days	8	16.0	16.0	*46.0*
	5 days	26	52.0	52.0	*98.0*
	No answer	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

2.4. Duration of Visit to Anzali

Number of days that Tourists have stayed in Anzali (or Rasht)

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**1 day**	30	60.0	60.0	*60.0*
	2 days	11	22.0	22.0	*82.0*
	3days	4	8.0	8.0	*90.0*
	5 days and more	5	10.0	10.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

2.5. Visits to Other Cities

To answer the question about their destinations, most of the tourists mentioned several cities where the highest frequency belonged to Rasht, Astara, and Anzali. Other cities mentioned by tourists included Masuleh, Talesh, Ramsar, and Ardabil.

2.6. Means of Transportation

Transportation which has been used by Tourists to come to Anzali

		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	**private car**	36	72.0	72.0	*72.0*
	bus	14	28.0	28.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

2.7. Satisfaction form Leisure Facilities

2.7.1. Satisfaction from Restaurants

Out of the total of 50 tourists interviewed, 32% reported the restaurants were acceptable, while another 32% had no idea about the restaurants. 18% of the people interviewed reported to be satisfied with restaurants in Rasht and Anzali. On the whole, 12% of the tourists reported to be dissatisfied with the restaurants in Rasht and Anzali; 32% reported the restaurants to be acceptable, 11% reported to be satisfied; 32% had no idea, and 2% did not answer the question.

2.7.2. Satisfaction from Accommodation

26% of the respondents reported the accommodation acceptable, 10% had no idea, 42% were satisfied and 16% reported to be very much satisfied. Overall, 6% of the respondents reported to be dissatisfied, 26% reported the accommodation to be acceptable, 58% were satisfied and 10% had no idea.

2.7.3. Satisfaction from Roads

32% of the respondents reported the condition of the roads to be acceptable, 42% were satisfied, 2% were very much satisfied, and 24% were dissatisfied.

2.7.4. Satisfaction from Food

24per cent of the respondents reported the food in Anzali and Rasht to be acceptable, 24per cent had no idea, 36per cent were satisfied and 4per cent were very much satisfied. Overall, 8per cent of the tourists were dissatisfied, 24per cent reported the food to be acceptable, 40per cent were satisfied, 24per cent had no idea, and 4per cent did not answer the question.

2.7.5. Satisfaction from Beach

24% of the respondents found the beach acceptable, 4% had no idea, 28% were satisfied, and 8% were very much satisfied. Overall, 34% of the tourists were dissatisfied, 24% found the beach acceptable, 36% were satisfied, 4% had no idea, and 2% did not answer the question.

2.7.6. Satisfaction from Tourist Sites

20% of the respondents found the tourist sites acceptable, 12% had no idea, 20% were satisfied, and 16% were very much satisfied. Overall, 32% of the respondents were dissatisfied, 20% reported the sites to be acceptable, 36% were satisfied, and 12% had no idea.

2.7.7. Satisfaction from Cleanliness of Streets and Tourist Sites

28% of the respondents reported the cleanliness of the streets and the tourist sites to be acceptable, 26% were satisfied, and 10% were very much satisfied. Overall, 32% of the respondents were dissatisfied, 28% reported the situation to be acceptable, and 36% were satisfied.

2.8. Travel Expenses per Day

Analyzing the data from the questionnaires indicates the average for travel expenses per day (to Rasht and Anzali) was less than IRR 100,000. about 38% (n=19) of the total of 50 respondents reported the above-mentioned amount; 34% of the respondents reported their travel expenses IRR 100,000 - IRR 200,000; 8% of the respondents reported IRR 200,000 – IRR 300,000; about 4% of the respondents reported IRR 300,000 – IRR 400,000; 12% reported more than IRR 400,000; 2% of the respondents did not answer the question. The highest absolute frequency of the respondents (36 out of the total of 50) reported their average travel expenses for one day to be less than IRR 100,000 – IRR 200,000. These people comprise 72% of the sample.

How much is total budget for this trip approximately?					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**0.00**	1	2.0	2.0	2.0
	below 10000	19	38.0	38.0	40.0
	10000-20000	17	34.0	34.0	74.0
	20000-30000	4	8.0	8.0	82.0
	30000-40000	2	4.0	4.0	86.0
	40000 and above	6	12.0	12.0	98.0
	no answer	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

3. Use of Anzali Wetland

“Have you ever visited the Anzali Wetland?”

60% of the respondents said “Yes” and 40% said “No” to the question. 54% of the respondents whose answer was yes, reported to be willing to visit the Wetland again, while 8% said they had no intention of re-visiting the Wetland. 56% said they would also recommend it to their friends. 38% said they had never visited the Wetland, but were willing to do so.

From the questionnaires we also know that watching birds, flowers, taking pictures, boating and hiking has been among the main purposes for 20% of the tourists who visited the Wetland. 24% of the respondents reported activities not mentioned in the questionnaire as their main purpose for visiting the Anzali Wetland.

No reason was reported for not seeing the Wetland by the 6% of the respondents who said they were not interested in visiting the Wetland at all. 86% of the respondents said they believed tourism should be improved in Anzali Wetland; 10% hoped this would NOT happen; while 4% had no idea about the development of the area.

88% of the respondents favored more development; while 12% rejected the idea of development of the area. 88% of the respondents who favored development mentioned creating job opportunities, increasing household income through tourism-related activities, improvement of the infrastructure, public transportation, landscape, and the natural environment as the result of such development (Creating job opportunities, increase in household income through tourism-related activities, and improvement of public services such as public transportation were the most frequent ones reported).

Deterioration of the natural environment, deterioration of the water environment by the wastewater produced by tourist facilities such as hotels, and deterioration of urban environment because of the increase in transportation resulting in noise and air pollution were the reasons reported by the respondents (12%) who rejected the idea of improvement of the area.

As for the designation of the Anzali Wetland as a Ramsar Convention Site and the purpose of doing so, 96% of the respondents had no idea, while the other 4% believed its purpose was to encourage conservation of the area to make sure that it is protected.

Have you visited the Anzali wetland so far?					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**yes**	30	60.0	60.0	60.0
	no	20	40.0	40.0	100.0
	Total	50	100.0	100.0	

3.1. Main Environmental Problems of Anzali Wetland

There was a variety of opinions expressed by the respondents regarding the problems of the Anzali Wetland and their impact on its surrounding environment as follows;

3.1.1. Deterioration of Water Quality

62% of the respondents believed that it is critically affecting the quality of the environment; 8% had no idea; 10% believed that it is not a problem. 2% believed it may be affecting the quality of the environment with a small amount; 2%believed that it is affecting the quality of the environment, but not much; and 16% believed that it is affecting the quality of the environment, but only a medium amount.

3.1.2. Decreasing Area of Anzali Wetland

36% of the respondents believed that it is not a problem; 36% believed that it is critically affecting the quality of the environment; 10% believed that it is affecting the quality of the environment, but only a medium amount; 2% believed it may be affecting the quality of the environment with a small amount; and 16% had no idea. Overall, 36% of the respondents believed that it is not a problem; 12% believed it may be affecting the quality of the environment with a small amount or believed that it is affecting the quality of the environment, but only a medium amount; 36% believed that it is critically affecting the quality of the environment; and 16% did not answer the question.

3.1.3. Over-Growth of Aquatic Plants

38% of the respondents believed that it is critically affecting the quality of the environment; 24% believed it may be affecting the quality of the environment with a small amount or believed that it is not a problem; 22% believed that it is affecting the quality of the environment, but not much or believed that it is affecting the quality of the environment, but only a medium amount; 12% had no idea; and 2% did not answer the question.

3.1.4. Increase of Garbage in the Wetland

This factor had the highest relative frequency (72%) for affecting the environment. 62% of the respondents believed that it is critically affecting the quality of the environment; 4% believed that it is not a problem; 8% had no idea; and 4% did not answer the question. Overall, 12% believed that it is affecting the quality of the environment, but not much or believed that it is affecting the quality of the environment, but only a medium amount. Therefore, it can be concluded that from the point of view of the respondents, physical pollutants are critically affecting the environment.

3.1.5. Decrease of Fish Species

50% of respondents believed that it is critically affecting the quality of the environment; 14% believed that it is not a problem; 14% believed it may be affecting the quality of the environment with a small amount or believed that it is affecting the quality of the environment, but only a medium amount; 20% had no idea; and 2% did not answer the question.

3.1.6. Decrease of Bird Species

52% of respondents believed that it is critically affecting the quality of the environment; 12% believed that it is affecting the quality of the environment, but not much or believed that it is affecting the quality of the environment, but only a medium amount; 12% believed that it is not a problem; and 24% did not answer the question.

3.1.7. Decrease of other Kind of Animals

48% of respondents believed that it is critically affecting the quality of the environment; 10% believed that it is not a problem; 12% believed it may be affecting the quality of the environment with a small amount or believed that it is affecting the quality of the environment, but only a medium amount; 24% had no idea; and 6% did not answer the question.

3.1.8. Increase of Sediment in the Wetland

42% of the respondents believed that it is critically affecting the quality of the environment; 16% believed that it is not a problem; 12% believed it may be affecting the quality of the environment with a small amount or believed that it is affecting the quality of the environment, but only a medium amount; 24% had no idea; and 6% did not answer the question.

3.1.9. Other

In addition to the problems mentioned above, respondents stated other problems affecting the Wetland. The odour from the Wetland was the most important one among the problems

mentioned by respondents. 90% of respondents did not state other problems apart from the ones mentioned in the questionnaire.

3.2. Main Environmental Causes of the Problems

Here are the main causes of the environmental problems mentioned above according to the respondents;

3.2.1. Water Quality Deterioration

60% of respondents believed that it is critically affecting the quality of the environment; 14% believed that it is not a problem or believed that it is affecting the quality of the environment, but not much; 14% believed that it is affecting the quality of the environment, but only a medium amount; 10% had no idea; and 2% did not answer the question.

3.2.2. Decrease of Area of Water

40% of respondents believed that it is critically affecting the quality of the environment; 22% believed that it is not a problem or believed that it is affecting the quality of the environment, but not much; 18% believed that it is affecting the quality of the environment, but only a medium amount; 14% had no idea; and 6% did not answer the question.

3.2.3. Litter Dropped by Tourists

74% of respondents believed that it is critically affecting the quality of the environment; 4% believed it may be affecting the quality of the environment with a small amount; 8% believed that it is affecting the quality of the environment, but only a medium amount; 10% had no idea; and 4% did not answer the question.

3.2.4. Garbage Flown down From the Rivers

82% of the sample believed that it is critically affecting the quality of the environment; 2% believed that it is affecting the quality of the environment, but not much; 6% believed that it is affecting the quality of the environment, but only a medium amount; 12% had no idea; and 8% did not answer the question.

3.2.5. Illegal Garbage Dumping in the Wetland

70% of respondents believed that it is critically affecting the quality of the environment; 10% believed it may be affecting the quality of the environment with a small amount or believed that it is affecting the quality of the environment, but only a medium amount; 12% had no idea; and 8% did not answer the question.

3.2.6. Construction Activities

38% of respondents believed that it is critically affecting the quality of the environment; 24% believed that it is not a problem or believed that it is affecting the quality of the environment, but not much; 14% had no idea; 4% did not answer the question; and 20% believed that it is affecting the quality of the environment, but only a medium amount.

3.2.7. Illegal Fishing in the Wetland

20% of respondents believed that it is critically affecting the quality of the environment; 28% believed that it is not a problem; 20% believed that it is affecting the quality of the environment, but not much; and 22% had no idea.

3.2.8. Illegal Hunting in the Wetland

28% of respondents believed that it is critically affecting the quality of the environment; 20% believed that it is not a problem; 20% believed that it is affecting the quality of the environment, but not much; 24% had no idea; and 2% did not answer the question.

3.2.9. Cutting Trees in Mountains

28% of respondents believed that it is critically affecting the quality of the environment; 18% believed that it is not a problem; 18% believed that it is affecting the quality of the environment, but not much; 8% believed that it is affecting the quality of the environment, but only a medium amount; and 24% had no idea.

3.2.10. Grazing Activity in the Mountains

14% of respondents believed that it is critically affecting the quality of the environment; 28% believed that it is not a problem; 24% believed that it is affecting the quality of the environment, but not much; 24% had no idea; and 8% did not answer the question.

3.3. Main Responsible People for the Problems of the Wetland

3.3.1. People Living Nearby the Wetland

60% of the respondents believed that it is critically affecting the quality of the environment; 26% believed that it is affecting the quality of the environment, but not much; and 60% believed that it is not a problem.

3.3.2. People in Urban Areas Who Discharge Waste Water into Rivers

86% of respondents believed that it is critically affecting the quality of the environment; 2% believed that it is not a problem; 4% believed that it is affecting the quality of the environment, but not much; 6% believed that it is affecting the quality of the environment, but only a medium amount; and 2% had no idea.

3.3.3. People in Urban Areas Who Dump Solid Waste into Rivers

80% of respondents believed that it is critically affecting the quality of the environment; 8% believed that it is affecting the quality of the environment, but not much; 2% believed that it is not a problem; 8% believed that it is affecting the quality of the environment, but only a medium amount; and 2% had no idea.

3.3.4. People in the Rural Areas Who Cut the Trees

18% of respondents believed that it is critically affecting the quality of the environment; 16% believed that it is not a problem; 28% believed that it is affecting the quality of the environment, but not much; 22% believed that it is affecting the quality of the environment, but only a medium amount; 24% had no idea; and 2% did not answer the question.

3.3.5. Fishermen

8% of respondents believed that it is critically affecting the quality of the environment; 16% believed that it is not a problem; 34% believed that it is affecting the quality of the environment, but not much; 26% believed that it is affecting the quality of the environment, but only a medium amount; and 16% had no idea.

3.3.6. Hunters

10% of respondents believed that it is critically affecting the quality of the environment; 20% believed that it is not a problem; 30% believed it may be affecting the quality of the environment with a small amount; 24% believed that it is affecting the quality of the environment, but only a medium amount; and 16 had no idea.

3.3.7. Tourists Who Pollute the Water and Drop Litter

52% of respondents believed that it is critically affecting the quality of the environment; 2% believed that it is not a problem; 12% believed that it is affecting the quality of the environment, but not much; 8% believed that it is affecting the quality of the environment, but only a medium amount; and 4% had no idea.

3.3.8. People in the Mountains Who Conduct Grazing

12% of respondents believed that it is critically affecting the quality of the environment; 40% believed that it is affecting the quality of the environment, but not much; 30% believed that it is not a problem; 2% believed that it is affecting the quality of the environment, but only a medium amount; 14% had no idea; and 2% did not answer the question.

3.4. The Main Solutions to the Problems

3.4.1. Pecuniary Punishment

44% of the respondents believed that it is an important solution or one of the most important solutions; 26% believed it is not a solution; 10% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; and 4% believed that it is a solution, but only a medium contribution.

3.4.2. A Better Management Plan

98% of the respondents believed that it is an important solution or one of the most important solutions. 91.7% of women as well as 76.6% of men believed that it is an important solution or one of the most important solutions.

3.4.3. Creating Special Zones Where NO Economic or Tourist Activity is Allowed At All

48% of the respondents believed that it is an important solution or one of the most important solutions; 14% believed it is not a solution; 18% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; 14% believed that it is a solution, but only a medium contribution; 2% had no idea; and 4% did not answer the question.

3.4.4. Improving Waste Collection by Municipalities

90% of the respondents believed that it is an important solution or one of the most important solutions; 6% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; and 4% had no idea.

3.4.5. Improving Sewerage Treatment by Municipalities

88% of the respondents believed that it is an important solution or one of the most important solutions; 4% believed it is not a solution; 4% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; and 4% did not answer the question.

3.4.6. Restricting Tree Cutting in the Mountains

30% of the respondents believed that it is an important solution or one of the most important solutions; 28% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; 24% believed it is not a solution; and 14% had no idea.

3.4.7. Restricting Grazing Activity in the Mountains

16% of the respondents believed that it is an important solution or one of the most important solutions; 24% believed it is not a solution; 32% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; and 14% had no idea.

3.4.8. More Awareness of Importance of the Wetland by People

86% of the respondents believed that it is an important solution or one of the most important solutions; 4% believed it is not a solution; 4% believed that it is a solution, but only a medium contribution; and 2% had no idea.

3.4.9. Increase of Staff of DOE and MOJA

50% of the respondents believed that it is an important solution or one of the most important solutions; 20% believed it is not a solution; 10% believed that it is a solution, but not much contribution or it may be a part of the solution with a small contribution; and 16% believed that it is a solution, but only a medium contribution.

What are the main solutions in your opinion?
(Increase of staff in DOE and MOJA)

		Frequency	Percent	Valid Percent	Cumulative Percent
Value	no affect	10	20.0	20.0	20.0
	very low	3	6.0	6.0	26.0
	low	2	4.0	4.0	30.0
	medium	8	16.0	16.0	46.0
	high	6	12.0	12.0	58.0
	very high	19	38.0	38.0	96.0
	I dont know	1	2.0	2.0	98.0
	no answer	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

3.4.11. Impact of the Behaviour of the Tourists

88% of the respondents believed they behaviour affected the Wetland; 8% did not believe so; and 4% did not answer the question.

3.4.12. Willingness to Pay Money for Conservation of the Wetland

18% reported they would not pay at all; other amounts offered are as follows: (annually)

IRR 50,000 (6%); IRR 100,000 (26%); IRR 200,000 (10%); IRR 500,000 (12%); IRR 1,000,000 (14%); IRR 5,000,000 (6%); and IRR 10,000,000 (2%)

4. Household Income and Expenditure

4.1. Main Income Source of the Household

48% of the household heads reported to be self-employed; 46% of the respondents reported to be employed by others. Selling agricultural products, pension, etc. each with the frequency of 2% were reported to be the respondents' source of income.

4.2. Monthly Average Household Income

Approximately how much is your household income in total?					
		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	below 90000	1	2.0	2.0	*2.0*
	90000-150000	18	36.0	36.0	*38.0*
	150000-230000	14	28.0	28.0	*66.0*
	230000-350000	10	20.0	20.0	*86.0*
	350000-500000	6	12.0	12.0	*98.0*
	500000 and above	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

4.3. Monthly Average Household Expenditure

Approximately how much is your household expenditure in total?					
		Frequency	Percent	Valid Percent	*Cumulative Percent*
Valid	below 90000	1	2.0	2.0	*2.0*
	90000- 150000	20	40.0	40.0	*42.0*
	150000-230000	15	30.0	30.0	*72.0*
	230000-350000	8	16.0	16.0	*88.0*
	350000-500000	5	10.0	10.0	*98.0*
	500000 and above	1	2.0	2.0	*100.0*
	Total	*50*	*100.0*	*100.0*	

5. Opinions and Suggestions stated by the respondents

52% of the respondents had no particular suggestions. 10% (highest frequency) believed that the tourism industry should be developed in the area. 6% suggested implementation of educational programs, appointing competent managers, preventing wastewater from the nearby cities to enter the rivers flowing into the Wetland. Other suggestions included foreign investment, assigning the management of the Wetland to the private sector, cleaning the area and collecting the garbage, tickets for visiting the Wetland, watching the behaviour of the people visiting the Wetland, and investment in the area.

6. Conclusion

6.1. Background

In order to study the understanding of the issues related to the Anzali Wetland on the part of the tourists visiting the Wetland and its watershed area, 50 tourists in Rasht and Anzali were

selected on a random basis to be interviewed. The population of 50 mostly comprised men (only 12 of the respondents were female). The age structure of the population was a young one (58% of the respondents were aged 20-29). More than 52% of the respondents had higher education. The respondents with pre-university/ high school education ranked second. The Fars people comprised the majority of the respondents. Turks ranked next in ethnicity majority. The departure of the most of the respondents was Tehran as well as nearby cities.

44% of the respondents reported to be self-employed; a category which encompasses a wide range of undefined jobs. Civil servants and office workers ranked second and third respectively; a fact that represents a meaningful relationship between the occupation of the respondents and their income level. 38% of the above mentioned respondents were household heads.

The highest frequency for the purpose of the visit to Rasht and Anzali was seasonal aimed at bathing in the sea, hiking, and boating. Some of the respondents had visited the area before (7 times at most). The average time for the tourists to stay in the area was 3-4 days of which they were likely to spend one day in Anzali. The cities that most attracted the visitors were Rasht, Anzali, Lahijan, Ramsar, Fuman, and Sari.

6.2. Tourists' Satisfaction

Tourists' Satisfaction from Facilities and services in the Study Area

Facilities and services	Percent	Satisfied	Acceptable	Dissatisfied	No answer	No idea
Satisfaction from restaurants	100	22	32	12	2	32
Satisfaction from accommodation	100	58	26	6	0	10
Satisfaction from roads	100	44	32	24	0	0
Satisfaction from food	100	40	24	8	4	24
Satisfaction from beach	100	36	24	34	2	4
Satisfaction from tourist sites	100	36	20	32	0	12
Satisfaction from cleanliness of streets and tourists sites	100	36	28	32	0	4
General satisfaction	100	38.85	26.57	21.14	1.14	12.28

6.3. Use of Anzali Wetland

Anzali wetland is an important tourist attraction in the region as well as in Gilan Province. More than 60% of the respondents reported they had visited the Wetland before and more than 54% of them expressed their willingness to visit the Wetland in the future, too. 56% of the respondents said they would also recommend visiting the Anzali Wetland to their friends. It can, then, be concluded that the future of Anzali Wetland and its environmental status has a close relationship with the development of tourism industry in the region as well as the tourists visiting the area. The fact is, Anzali Wetland has a lot to offer the visitors; from interesting birds and flowers to watch or shoot, boat trips, and hiking, to beautiful views of the sea, the woods and the mountains. There are also other recreational activities available in the area including fishing, hunting, gathering, cycling, etc. That will explain the fact that more

than 86% of the respondents hoped the area will improve in leisure facilities while enough attention is paid to its environmental condition. The people who favor such development look at the improvement of the infrastructure, public transportation, landscape, and the natural environment. The people who are against such development (12% of the sample) are worried about degradation of the natural environment (such as air pollution, water pollution, etc.) as a result of emerging the new tourist facilities in the region.

It is worth noting that most of the respondents lack any knowledge about legislation – specifically Ramsar Convention- on the environmental issues related to the Anzali Wetland. 96% of the respondents were completely unaware of Ramsar Convention and its relation with Anzali Wetland; a fact that makes necessary strengthening of extension services and educational programs regarding environmental issues.

6.3.1 Main Problems of the Wetland and their Causes

Deterioration of the water quality, decrease of the area of the Wetland, over-growth of the aquatic plants, increase of the garbage in the wetland, decrease of the fish and bird species as well as other animals, increase of the sediment flown into the Wetland are the problems respondents were asked to evaluate. Analyzing the data from the questionnaires, one can see that increase of the garbage in the wetland, water quality deterioration, and decrease of bird species are the main problems of the Wetland according to the tourists. They also believe there are many causes for these problems amongst which, three can be mentioned as the most important ones: garbage flown into the wetland by the rivers, litter dropped by tourists, and illegal garbage dumping in the wetland by citizens and residents of the areas near the Wetland. It can, then, be concluded that physical pollutants are the most important ones according to the tourists.

The Main Problems of the Wetland and their Impact on the Environment According to the Tourists

Main problems	Critical impact	Medium impact	Small impact	No impact	No answer	No idea
Water quality deterioration	62	16	4	10	0	8
Decrease of the area of the Wetland	36	10	2	36	0	16
Over-growth of aquatic plants	38	19	2	27	2	12
Increase of garbage in the Wetland	72	8	4	4	4	8
Decrease of fish species	50	6	8	14	2	20
Decrease of bird species	52	6	6	12	0	24
Decrease of other animals	48	10	2	10	6	24
Increase of sediment	42	8	4	16	6	24

Main Causes of the Problems and their Impact on the Environment According to the Tourists

Main causes	Critical impact	Medium impact	Small impact	No impact	No answer	No idea
Water quality deterioration	60	14	6	8	2	10
Decrease of the area of the Wetland	40	18	6	16	6	14
Litter dropped by the tourists	72	8	6	0	4	10
Garbage flown by the rivers	82	6	2	0	0	10
Illegal garage dumping in the Wetland	70	6	4	0	8	12
Construction activities	38	20	12	0	4	14
Illegal fishing	20	10	20	20	0	22
Illegal hunting	28	6	20	20	2	24
Cutting trees in the mountains	28	8	18	18	4	24
Grazing activity in the mountains	14	2	24	28	8	24

6.3.2 Who is Responsible for the Problems?

According to the tourists, the citizens who discharge their wastewater and dump their solid waste into the rivers are mostly responsible for the environmental problems of the Wetland. The tourists who pollute the water and drop litter rank second. The least responsible people are, according to the respondents, people in the mountain who conduct grazing.

People Responsible for the Problems of the Wetland

Responsible party	Critical impact	Medium impact	Small impact	No impact	No answer	No idea
People nearby the Wetland	60	6	26	6	0	2
People in the urban areas who discharge waste water into rivers	86	6	4	2	0	2
People in the urban areas who dump solid waste into rivers	80	8	8	2	0	2
People in the rural area cutting down trees	18	22	28	16	2	14
Fishermen	34	26	16	16	0	16
Hunters	34	0	30	20	0	16
Tourists who pollute water and drop litter	74	8	12	2	0	4
People in the mountains who conduct grazing	12	2	40	30	2	14

6.3.3. Main Solutions/Suggestions for the Wetland Problems

According to the tourists, there are several solutions to the problems of the Wetland amongst which better management of the Wetland ranks first. Other solutions included improving

waste collection and sewerage treatment. It can, then, be concluded that considering the importance of a good management, people are expecting the governmental bodies to take action in this regard.

52% of the respondents did not state any suggestions for improvement of the environmental status of the Anzali Wetland. 10% of the respondents suggested more development of tourism industry in the region. Other suggestions included:

- Education and training;
- Appointing competent managers;
- Preventing the sewerage of the cities to enter the rivers ending up in the Wetland;
- Foreign investment;
- Assigning the management of the Wetland to the private sector;
- Cleaning and collecting the garbage in the area;
- Selling tickets for visiting the Wetland;
- Supervising the behavior of the tourists;
- Investment.

Data 5: Institutional Survey

DATA 5: INSTITUTIONAL SURVEY

5.1 General

5.1.1 Introduction

The institutional survey is a series of interview surveys design to collect information related to i) the status of environmental management activities by various organizations, ii) constraints to effective environmental management, and iii) directions for strengthening the capacities of organizations for better environmental management. This survey was sublet to the South Caspian Institutions for Environmental Services.

5.2 Survey Methods

5.2.1 Contractor

The survey was carried out by an NGO based in Tonnekabone, South Caspian Institution for Environmental Sciences (SCIENSE). The following sections are based on the report by SCIENSE.

5.2.2 Target Organizations

The survey was targeted to the following twenty two (22) organizations[1].

1. Department of the Environment, Headquarters in Tehran
2. Department of the Environment, Provincial Directorate in Gilan
3. Ministry of Jihad-e-Agriculture, Headquarters in Teheran
4. Ministry of Jihad-e-Agriculture, Provincial Directorate in Gilan
5. Ministry of Jihad-e-Agriculture, Fisheries Dept. in Anzali
6. Ministry of Jihad-e-Agriculture, Watershed Management Dept. in Gilan
7. Ministry of Jihad-e-Agriculture, Natural Resources Organization in Gilan
8. Ministry of Industries and Mines, Provincial Directorate in Gilan
9. Ministry of Energy, Provincial Directorate in Gilan
10. Water and Wastewater Company in Gilan
11. Rural Water and Wastewater Company
12. Ministry of Road and Transportation, Provincial Directorate in Gilan
13. Ministry of Road and Transportation, Port and Ship Authority in Anzali
14. Government of Gilan Province
15. Rasht Municipality
16. Anzali Municipality
17. Somehsara Municipality
18. Gilan Touring and Tourism Organization (ITTO)
19. Gilan University

[1] Although the questions for each institution were separately designed to manifest their exact attitude, procedures, management programs and capabilities, some institutions hesitated or refused to comment on some parts. One organization (Road and Transport Organization)did not answer the questionnaire at all. Thus, the total number of organizations surveyed is 21.

20. Management and Planning Organization
21. Department of Justice
22. Green Network of Gilan

5.2.3 Questionnaires

The survey was carried out by using a questionnaires specifically drafted by the JICA Study Team for each organization concerned. The general items covered in the questionnaire were as follows:

- Organizational structure (organizational chart), roles and responsibilities of departments/divisions, number of staffs
- Environmental management activities
- Relevant legislations, regulations and policy issues
- Environmental education, training, public participation
- Budget and expenditure for the last 5 years, and financial sources
- Directions and requirements for strengthening capabilities for environmental management

The standard questionnaire is attached at the end of this databook.

5.2.4 Implementation Schedule

The survey was carried out in July-August, 2003.

5.3 Results

5.3.1 Results of the Questionnaire Survey

The full results of the survey are over 100 pages, and detailed. Thus, they are not reported here. Those who are interested in the results should refer to the Final Report of the Institutional Survey (SCIENSE, 2003). Instead, this databook reports the major findings; The questionnaires mainly had 6 general topics and the following notes refer to some extracted facts.

(1) Organization

The response of 14 out of 21 organizations to section 1.3, (asking if the organization has an environmental department or access to services of environmental specialist/s) were as noted below:

- 7 out of 15 answered "NO" (46.66%)
- 6 out of 15 answered "NO, BUT SOME OF THE STAFF ARE ENVIRONMENTALLY ORIENTED" (40%)
- only 2 answered "YES" (13.33%)

This may mean that no or not-very-sharp environmental vision is monitoring the planning, decision making processes and/or activities of those organizations which answered "NO" or "NO, BUT…". It seems that the organizers that set up and prepared the institutional arrangement of those institutions did not see/feel the need for such department or staff, while the response from most representatives interviewed indicated their belief in usefulness of such departments or staff.

Most interviewed representatives believed that the Anzali Wetland is under the direct management and jurisdiction of the DOE, which therefore is responsible for all related planning, decision making activities, protection/preservation and management practices. By commenting as such, it appears that most organizations neither want to be involved in the tasks which have actually been defined for the DOE nor are willing to commit any resources for implementation of projects that may be credited to DOE.

(2) Environmental Management Activities

Most of the institutions interviewed seemed to be not quite capable of or have difficulties in accomplishing he assigned tasks and/or implementing the approved or proposed projects.

Insufficient budget, equipment, skilled personnel, laws and regulations (including guidelines) and inter-sectoral communication/cooperation are believed to be most limiting factors.

While difficulties exist for accomplishment of the institutionally assigned tasks, it would be unrealistic to expect institutions and organizations, which are preoccupied with own problems, to observe or bother with environmental management issues.

Institutions and organizations seem to be more focused on their own work and correspond with DOE for pre-defined permits and/or approvals.

The most significant environmental management activities in Anzali wetland basin were those which involved institutions that are legally responsible for management and/or monitoring various components of the wetland ecosystems. Examples of such institutions include DOE (Tehran and Gilan), MOJA (Tehran and Gilan), NRO, Forest, Range & Watershed, Shilat, GRWC, GWWC (both rural and urban). The 3 municipalities that were included in the survey do not have enough knowledge about the Anzali Wetland and its environmental problems. Most of their activities are concentrated around management of solid waste (which they consider it as an environmental management activity) , urban development and municipal services. Anzali Municipality is the only one which has interests in the wetland area and it seems to be related to the tourist attraction potentials it offers. But as its related questionnaire indicates, the Municipality feels only responsible for that part of the lagoon which is within the legal boundaries of the city.

(3) Laws and Regulations

The surveyed institutions follow up the constitutional and legal tasks that are assigned to them and 8 of 11 believed that interference of duties occur often. Most representatives interviewed believed that existing laws and regulations are old and must be reviewed/revised to fulfill the need of present management systems.

(4) Environmental Education and Public Participation

In recent years, DOE's Public Participation Office has had great success in encouraging the environmental NGOs to form and has helped them through registration process. In the past year, an Environment and Sustainable Agriculture Office has been established in Ministry of Jihad Agriculture, and is under direct supervision of the Minister. The said Office is in the process of establishing its provincial branches. Public Participation Office of the Natural Resource Organization has also became active in the last year or so and is identifying potential local groups and building relations with active NGOs and CBOs.

3 institutions did positively declare that they have educational and/or technical programs to environmentally train their employees and staff. 7 announced that they do not. 6 explained that there are similar activities or plans have been made/are being developed for such activities. 5 of the questionnaires did not contain such question.

According to the answers to the question (Do local people have desires to participate in…), 13 of the institutions believe that public participation can only be achieved if the level of public awareness is raised to become environmentally concerned, and recommended development of environmental education programs. 1 believed that Islamic City & village Councils are the existing and efficient means of public involvement and participation. For the rest (7), the questionnaire did not require a comment in this regards.

(5) Financial Conditions

Some institutions (8 out of 21) have mentioned that the allocated budgets do not suffice their needs for proper implementation of projects and plans.7 totally ignored those parts of the questionnaires that requested data on the budget and expenditures. 1 mentioned that the budget is sufficient. 1 (ITTO) described that the activities are functions of the allocated budget and usually follow the set financial frameworks. For another, the questionnaire did not ask if the present budget is enough for planned activities. 2 stated that the data is not available at the moment or the volume is too large for the report. The DOE-Guilan's questionnaire did not contain a similar question. An important outcome of the survey is that all the institutions actually only receive 70-80% of the approved allocated budget. Altogether, the financial conditions section of the questionnaires does not reveal much information to help the purpose of the survey.

(6) Strengthening the Environmental Management Activities

MOJA has recently created a section for environmental management and sustainable agricultural activity which seems to monitor all the planning and decision made within the Ministry. When interviewed, majority of the institutions showed interest in cooperating for better management of the Anzali Wetland, and complained about lack of sufficient communication and better understanding of the Wetland's status, and were enthusiastic about their possible role in an integrated management system.

5.3.2 Provincial Planning and Development Council

It may be concluded that development of an efficient mechanism is essential to define the rules and procedures for participatory management of Anzali Wetland and roles of all stakeholders in such participatory management system. To understand the possible means of communication and cooperation within the network of provincial organizations and institutions, it is necessary to study the frameworks of the Provincial Planning and Development Council and related Thematic Working Groups.

(1) Provincial Planning and Development Council

The Council has been created to study, weigh, prioritize and approve provincial development plans, on the basis of Central Government's strategies and development policies. The members of the Provincial Planning Council are:

1) The Governor (President)
2) Head of Provincial Management & Planning Organization (Secretary)
3) Head of Provincial Finance & Economic Affairs
4) Head of Provincial Housing & Urban Planning Organization
5) Head of Provincial Department of Environment
6) Head of Provincial Commerce Organization
7) Head of Provincial Roads & Transportation Organization
8) Head of Provincial Jihad-Agriculture Organization
9) Head of Provincial Employment & Social Affairs
10) Head of Provincial Medical Science and Health Care Services
11) Head of Provincial Mine & Industries Organization
12) Head of Provincial Education & Training Organization
13) Head of Provincial Culture & Islamic Guidance Organization
14) Head of Provincial Cooperative Organization
15) Provincial Representative of Ministry of Oil
16) Provincial Representative of Ministry of Energy
17) Provincial Representative of Ministry of Post &Telecommunication
18) Provincial Representative of Universities Presidents (Non-Medical)
19) Provincial Representative of Banking System
20) Governor's Consultant in Women's Affairs
21) Representative of National Youth Organization
22) Representatives (2) of local University Professors
23) Representative of Mayors of provincial Municipalities
24) Head of Provincial Natural Resource Organization
25) Head of Provincial School Development & Equipping System
26) Head of Provincial Justice Organization
27) Head of Provincial Radio & Television Network
28) Head of Provincial Intelligence
29) Head of Provincial Physical Education Organization

30) Representative of Provincial District Governors
31) Representative of Provincial Veterans Organizations
32) Head of Provincial Islamic Council
33) Heads of all Thematic Working Groups
34) Mayor of the city that hosts the Council
35) 2 Members of the Islamic Parliament (no votes)

The duties of the Council which are the most relevant to Environmental Management:

- Study & approval of provincial "Long Term Development Plans" on the basis of country's long term strategy and "National Land Use Policies"
- Study & approval of provincial "Medium Term Cultural, Social & Economical Development Plans" & recognition of high priority investment projects
- Study & approval of suggested annual provincial Budget including provincial, national & special funds, in the frameworks & on the basis of the National General Budget
- Management of "Cooperation" & "Public Participation" in development activities

The Council Has Official Monthly Meetings and all approved issues must be obeyed, implemented and results reported by all provincial organizations & institutions, and the Secretariat is responsible for monitoring & follow ups.

(2) Thematic Working Groups

The Thematic Working Groups are conglomerates of specialized bodies that identify the problems and needs, and prepare appropriate proposals to be submitted to the Council for approval, budgeting and implementation. In some cases, the Council assigns thematically specific and related problems and/or issues to proper Working Groups for necessary follow-ups and actions. Council's Thematic Working Groups include:

1) Administration Promotion Planning Working Group
2) * Infra-structure & Development Working Group
3) * Water, Agriculture and Natural Resources Working Group
4) * Industry & Mine Working Group
5) * Fuel Wise Use Working Group
6) * Urban Development & Architecture Working Group
7) * Land Use & Environment Working Group
8) * Tourism & Cultural Heritage Working Group
9) * Employment & Investment Working Group
10) Export Development Working Group
11) * Research, Statistics & IT Technology Working Group
12) Education & Training Working Group
13) * Social Affairs Working Group
14) * Hygiene, Health Care & Social Security Working Group
15) Culture, Arts & Physical Education Working Group

16) Women & Youth Working Group

* The General Director of Provincial DOE is member of 11Thematic Working Groups that are marked above. Groups 3 & 7 directly relate to Anzali Wetland.

Note 1: Decisions of the Thematic Working Groups can become implemental if approved by the Council.

Note 2: Decisions of the Thematic Working Groups must be reflected to the Council's Secretariat within one week's time.

Note 3: The Secretariat of each Thematic Working Group will reside within the organization that its Secretary is member to.

The Land Use & Environment Working Group institutional arrangement is as follows:

1) The Governor (President)
2) Head of Provincial Management & Planning Organization (Secretary)
3) Head of Provincial Housing & Urban Planning Organization
4) Head of Provincial Roads & Transportation Organization
5) Head of Provincial Department of Environment
6) Head of Provincial Jihad-Agriculture Organization
7) Representative of Ministry of Defense (Designated by the Minister)
8) Managing Director of the Regional Water Company
9) Head of Provincial Mine & Industries Organization
10) Head of the Islamic Housing Foundation of the province
11) General Director of the Provincial Cultural Heritage Organization
12) Head of the Provincial Tourism Organization
13) General Director of the Provincial Natural Resources Organization
14) General Director of Provincial Tribal Affairs Bureau
15) Director of the Provincial Education and Training Organization
16) Managing Director of the Provincial Water &Wastewater Company
17) General Director of the Technical Office of the Provincial Government
18) Managing Director of the Industrial Areas of the Province
19) Director of the Economic Planning Office of the Provincial Government
20) Director General of the Provincial Social Affairs Organization
21) Director General of the Provincial Intelligence Bureau
22) Official representative of Provincial NGO Network (Without Vote)

* Other non-official members (Mayors, University Professors, Head of Provincial Islamic Council)

While close relationship of the Provincial Organizations through the above network of Thematic Working Groups seems to enable the Council to enjoy very efficient inter-sectoral communication and cooperation, preparation of a participatory management plan for Anzali Wetland does not seem to be an easy task.

Attachment 1 Sample Questionnaire

Engineer/Specialist together with the Department of Environment and Ministry of Jihad-e-Agriculture is currently carrying out a planning study to improve the environmental management of the Anzali Wetland. As a part of the study, we are carrying out this survey in order to identify the activities of your organizations and any constraints and opportunities to improve your environmental management capabilities. We highly appreciate your cooperation in answering the questionnaire. Thank you,

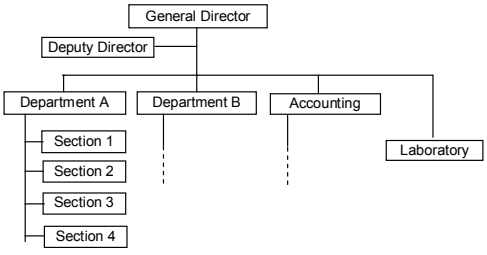
Hirofumi Sadamura
Team Leader
JICA Study Team
The Study on Integrated Management for Ecosystem Conservation of the Anzali Wetland in the Islamic Republic of Iran

Date (day/month/year) : / /2003

Name of Organization	
Name of Respondent	
Title	
Address	
Telephone/FAX	
e-mail	

1. Organization

(1) Please draw an organizational chart of your organization, and describe the structure of your organization.



A sample organizational chart

(2) What are the duties and responsibilities of each section of your organization?

Department	Section	Number of Staff		Duties and Responsibilities
		Specialist*	Other	

*: staff with specialized knowledge and skills, university degree in the subject

2. Environmental Management Activities

(1) What environmental management and conservation activities does your organization do?
(2) Is your organization involved in any environmental management activities in the Anzali Wetland?
(3) Is your organization involved in any environmental management activities in the basin of the Anzali Wetland?
(4) How does your organization relate to other government agencies that are involved in or interested in wetland management?
(5) How does your organization relate to NGOs that are involved in or interested in wetland management?

3. Laws and Regulations

(1) What are the legal status and legal responsibilities of your organization? Please name the relevant laws and regulations.
(2) Are there any environmental issues related to your duties that have no clearly defined legal responsibility or overlapping responsibilities (e.g., environmental monitoring activities or land use control activities carried out by different organizations)?
(3) What legal authorities does your organization have over other organizations with respect to environmental management (e.g., authority to inspect pollution/environmental control activity of other organization, charge fines to those who violated an environmental law, etc.)?
(4) Are the laws, regulations and standards adequate to carry out your environmental management duties? If not, what kinds of problems do you encounter due to inadequate laws, regulations and standards?

4. Environmental Education and Public Participation

(1) Does your organization have any educational or technical programs to train employees so that they become sensible to environmental problems and work effectively to protect environment?
(2) What does your organization do to collaborate with local people/communities in your duties?
(3) Do you think that the local people/communities are willing to participate in the environmental management activities carried out by your organization? If not, what can be done to encourage them to participate in your activities?

5. Financial Conditions

(1) Please describe the budget and expenditure of your organization for the last 5 years. Do you have sufficient funding for your activities?

Year	Budget	Expenditure
1998		
1999		
2000		
2001		
2002		

(please attach separate sheets from your accounting report or similar)

(2) Please describe the breakdowns of your budget for FY 2002.
(please attach separate sheets from your accounting report or similar)
(3) Please describe the financial sources of your organization by category.
(4) What are the potential financial sources for your organization (e.g., getting additional funding from the central government, collecting user charges for your services, collecting general tax from residents and tourists, etc.), and what are the constraints to get funding from such sources?

6. Strengthening the Environmental Management Capabilities

(1) The environmental conditions of the Anzali Wetland are deteriorating due to various human activities in the basin. What can your organization do to help protect the Anzali Wetland and its basin with the current human and financial resources?
(2) What are needed, in terms of human resources, technical resources and equipment, to implement the activities suggested in (1) ?
(3) From where would you get additional funding for environmental management (e.g., general budget, grant from the central government, collect fees/taxes from users of your service) ? What procedures are involved in getting the fund?
(4) Is there any need to improve regulatory system to effectively implement the environmental management activities of your organization? If yes, please propose specific changes.

(5) Is there any need for organizational change (e.g., organize new environmental section, separate a function from your organization and create a new organization, etc.)?

Thank you for answering the questionnaire,

Data 6: Biological Survey

DATA 6: BIOLOGICAL SURVEY

6.1 General

This survey aimed to collect data related with plants, birds and fish in the Anzali Wetland. The results of the work were used to evaluate the environmental conditions of Anzali Wetland. The following survey was carried out by local ornithologists, fish experts, and botanists under supervision of DOE Guilan and Bony Fishes Research Center.

6.2 Scope of the Work

6.2.1 Macrophyte Survey

(1) Survey Area

The survey areas for the macrophyte survey were Siakeshim, eastern part and western part (Figure 6.2.1).

(2) Survey and Analysis

The macrophyte survey was implemented by both field survey and collecting existing information and data. The survey items and output are in the Table 6.2.1.

Table 6.2.1 Survey Items and Outputs

No.	Survey Item	Expected Output
1	Identification of macrophyte species (submerged, floating, and emergent species) in the survey area	- List of species - List of endangered or threaten species in the survey area
2	Identification of distribution of macrophytes to be considered for examination of relationship between macrophytes and birds or fishes from wetland ecological viewpoint	- Distribution of macrophytes that are beneficial for birds or fishes (e.g., nutriment or habitat) such as to disturb inhabitation of birds or fishes in the survey area, such as *Typha sp.*, *Sparganium sp.*, *Nelumbium sp.* etc. - Distribution of macrophytes to disturb inhabitation of birds or fishes in the survey area, such as *Azolla filicuoides* etc.
3	Measurement of their biomass (above water and below water) by quadrat analysis of representative communities	- Data of maximum and low biomass of macrophytes selected in the survey item 2
4	Examination of possible factors affecting distribution of macrophytes in the survey area	- Examining possible factors related to impact arisen by outside human activities such as eutrophication - Examining possible factor related to impact arisen by human activities in the wetland area

(3) Survey Frequency

The survey was implemented three times in August, September and October, 2003. .

6.2.2 Bird Survey

(1) Survey Area

The survey areas for the bird survey were Siahkesim, eastern part, western part, central part, Selkeh, Sorkhankol and Hosseinbekandeh.

(2) Survey and Analysis

The bird survey was implemented by the field survey. The survey items and outputs are in the Table 6.2.2.

Table 6.2.2 Survey Items and Outputs

No.	Survey Item	Expected Output
1	Identification of bird species in the survey area	- List of species - List of threatened species in the survey area
2	Grouping representative ecological area categorized by type of habitat for birds	- Map of distribution of main feeding area, wintering area for migratory birds, and nesting area for local birds in the survey area
3	Identification of distribution of necessary habitat for noteworthy birds in the survey area	- Distribution map of main habitat for breeding, passage and wintering for noteworthy birds such as *Chlidonias hybridus*, *Phalacrocorax pygmaeus*, *Scolopax rusticola* etc. including other ducks, geese, swans and coots in the survey area - Distribution map of main habitat for raptor such as *Haliaeetus albicilla, Aquila heliaca, Aquila clanga and Falco peregrinus* etc. in the survey area
4	Identification of main migration routes	- Map of main migration routes from September to December (7days / month) - Map of main migration routes in January (every day)
5	Examination of possible factors affecting birds in the survey area	- Examining possible factors related to impact arisen by outside human activities such as eutrophication - Examining possible factor related to impact arisen by human activities in the wetland area

(3) Survey Frequency

The field survey period was from August 2003 to January 2004. The survey was implemented six (6) times. The survey frequency was as follows.

Table 6.2.3 Survey Frequency

Month	Survey Period	Remark
From August to December	Once in month (1 week)	Survey to grasp local and migratory bird species and those habitat
January	20 days	

6.2.3 Fish Survey

(1) Survey Area

The survey areas for fish survey were Siakeshim, eastern part, western part and central part.

(2) Survey and Analysis

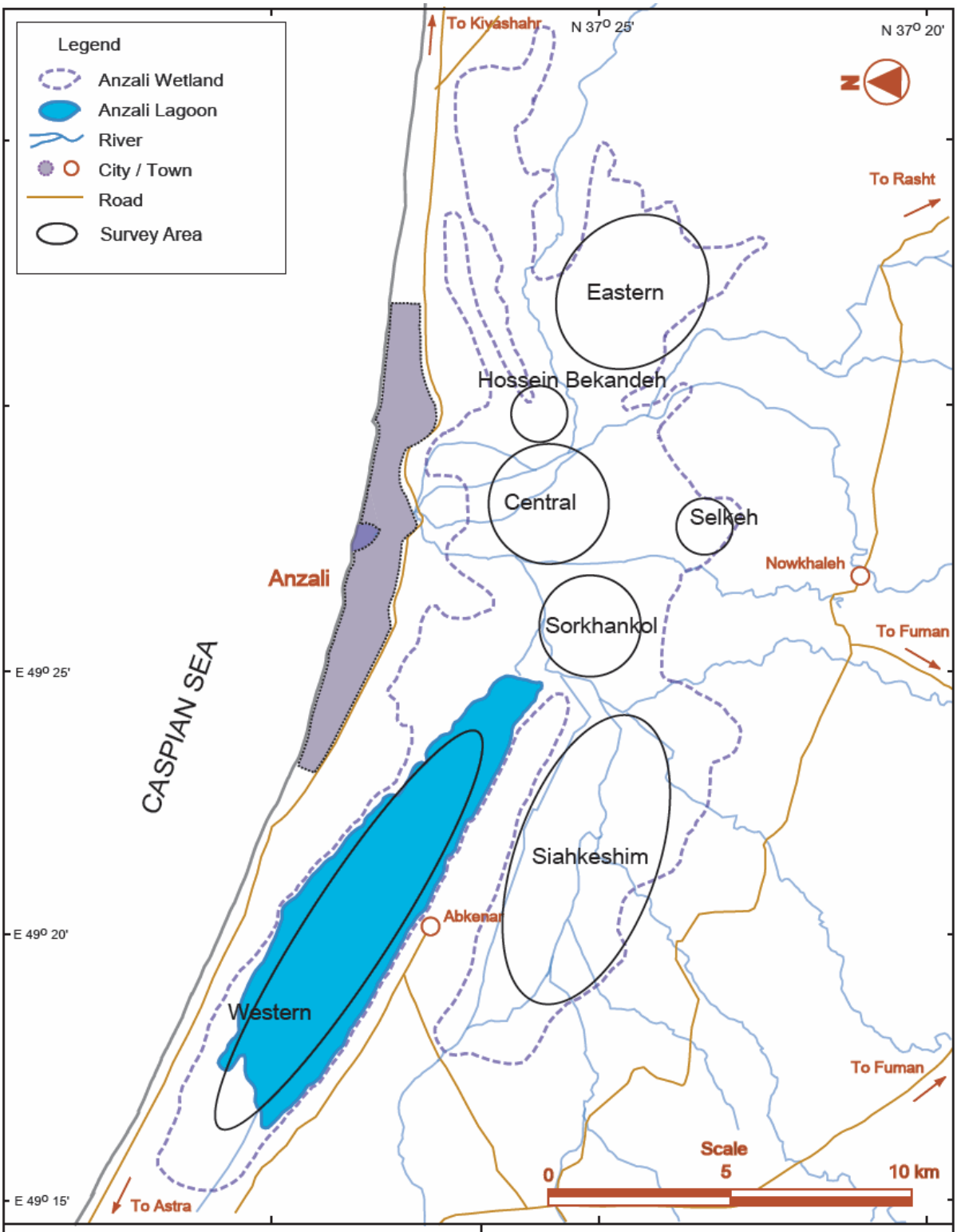
The fish survey was implemented by the field survey. The survey items and outputs were in the Table 6.2.4.

Table 6.2.4 Survey Items and Outputs

No.	Survey Item	Expected Outcome
1	Identification of fish species in the survey area	- List of species - List of threatened species in the survey area
2	Identification of distribution of necessary habitat for noteworthy fishes in the survey area	- Distribution of main habitats for noteworthy fishes such as *Rutilus frisii, Lucioperca lucioperca* etc. considering from biodiversity viewpoint and fishery value viewpoint
3	Examination of possible factor affecting fishes in the survey area	- Examining possible factors related to impact arisen by outside human activities such as eutrophication - Examining possible factor related to impact arisen by human activities in the wetland area

(3) Survey Frequency

The field survey period was from September 2003 to January 2004. The survey frequency was five times by each month.



The Study on Integrated Management for Ecosystem Conservation of the Anzali Wetland in the Islamic Republic of Iran

JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.2.1
Survey Area

6.3 Results

6.3.1 Macrophyte

The survey of macrophyte distribution and composition indicate that 24 species were identified and *Phragmites australis* was dominant. Eutrophic species occupy Anzali Wetland. *Mrophyllum* is substituted by *Ceratophyllum, Lemnaceae* and *Typha*, which increase in eutrophic condition. *Potamogeton* species are also increasing and dominant in the open water area such as lagoon.

6.3.2 Birds

In the field survey, eighty nine species and 146,000 individual birds were identified as shown in Table 6.3.1.

Table 6.3.1 Number of Identified Species and Individuals Recorded from Field Survey

(Unit: no.)

Indicator	1	2	3	4	5	6	7
species/individuals	62/9,056	42/15,406	50/9,324	70/18,888	42/32,525	38/8,748	63/49,607

Note: 1: Eastern 2: Hosseinbekandeh 3: Central 4: Selkeh 5: Sorkhankol 6: Western 7: Siahkeshim
Source: Result of Field Survey made by DOE Guilan (2004).

With regard to the wintering waterfowl, 27 species and 110,000 individuals were recorded. Among the bird species, *Anas crecca* (Common Teal) with 40% has the highest population of migratory birds; *Fulica atra* (Common Coot) with 30 % has the second position; and *Anas querquedula* (Garganey) with 18% has the third population position. These three species account for 88% of all wintering waterfowl.

6.3.3 Fish

In the field survey, the fish shown in the following table were identified.

Table 6.3.2 The Number of Identified Species and Individuals Recorded from Field Survey

Taxon	Western	Siakeshim	Central	Eastern
Clupeidae	1/1	0/0	0/0	4/6
Cyprinidae	14/539	14/4,680	11/493	17/4,672
Gobiidae	0/0	1/3	1/3	3/10
Others	4/52	4/419	5/201	4/611
Total	19/592	19/5,142	17/697	28/6,057

Note) Number of species and individuals are shown as 'species/individuals'
Source) Result of Field Survey made by Caspian Sea Bony Fishes Research Center (2004).

Thirty four species and 12,488 individuals were identified. Among them *Alburnus filippii* (Kura bleak), *Barbus capito* (Bulatmai barbell) and *Rutilus rutilus caspicus* (Roach) are endemic species (Caucasus - Black Sea area). These species have adapted and differentiated in this area. *Carassius auratus gibelio* (Prussian carp), *Ctenopharyngodon idella* (Grass carp) and *Gambusia holbrooki* (Eastern mosquitofish) are exotic species. These exotic species are changing the ecological character of fish in the wetland. For example, *Carassius auratus gibelio* and *hemiculter leucisculus* (Sharpbelly) are tolerant to the water pollution, and this might be the reason why they became dominant in the wetland.

The result of the survey shows that there are differences about the distribution of fish among the survey areas. Fish are relatively abundant in Siakeshim and the eastern part compared with the western and the central part. Siakeshim and the eastern part have shallow water and high density of *Phragmites*, and these areas appear to be the main habitats for smaller fish. On the other hand, the western and the central parts have large open and deep-water areas (2 to 3 m depth). Therefore, large fish mainly inhabit in these parts. These might be the reasons for the difference of the size of fish among the different environment and the biomass might not be so different among the locations. The numbers of fish species are not much different among the parts of the wetland, but the eastern part has a relatively large number of species.

6.4 Survey Data

6.4.1 Macrophyte

Table 6.4.1 List of Aquatic Species from Aug. 2003 to Oct. 2003

	Species	Siahkesim	Western	Eastern
1	*Ceratophyllum demersum*	○	○	○
2	*Phragmites australis*	○	○	○
3	*Potamogeton crispus*	○	○	○
4	*Potamogeton pictinatus*	○	○	○
5	*Myriophyllum spicatum*		○	○
6	*Myriophyllum verticiliata*		○	
7	*Hydrocotyle ranunculoides*	○	○	○
8	*Hydrocharis morsus*			○
9	*Azolla filicoides*	○	○	
10	*Iris pseudo- acorus*			○
11	*Chara fragilis*	○	○	○
12	*Trapa natans*	○	○	○
13	*Lemna minor*		○	○
14	*Lemna trisulcata*		○	
15	*Spirodella polyrihiza*			○
16	*Polygonum sp*		○	
17	*Cyperus longus*		○	
18	*Mentha aquatica*		○	
19	*Sparganium neglectum*		○	○
20	*Typha latifolia*	○	○	○
21	*Scirpus lacustris*		○	
22	*Nelumbium caspicum*	○	○	○
23	*Nymphoides indicum*			○
24	*Nastartium officinalis*			○
	Total	10	19	17

6.4.2 Birds

Table 6.4.2 List of Bird Species from Aug. 2003 to Mar. 2004

No	Scientific Name	Sorkhankol	Hossein Bekandeh	Siahkeshim	Selkeh	West	Center	East
1	*Ardea cinerea*	18	21	142	18	71	165	200
2	*Asio flammeus*		1					
3	*Ardea purpurea*	2		4	12	7	240	15
4	*Ardeola ralloides*		184	1600	1850	32	270	1450
5	*Alcedo atthis*	12	15	44	14	13	34	32
6	*Accipiter nisus*			1				
7	*Acrocephalus scirpaceus*	7		16	24	13	24	17
8	*Anser anser*	14	125	35	265	7		125
9	*Anser albifrons*				3			
10	*Anas angustirostris*				5			
11	*Anas platyrhynchos*	2500	1350	4500	680	535	1700	1740
12	*Anas crecca*	28000	22000	45000	12500	6400	10400	25000
13	*Anas querquedula*	124	1900	27000	3500	2400	3700	28000
14	*Anas clypeata*	1215	265	470	720	16	342	523
15	*Anas penelope*	225	8	44	154	65		257
16	*Anas strepera*	1640	542	2065	1375	142	620	665
17	*Anas acuta*	142	43	27	210			25
18	*Aquila clanga*	3	4	8	2	24	5	5
19	*Aythya ferina*	2720	1870	2450	1415	650	2750	2800
20	*Aythya nyroca*	413	15	7	42		5	
21	*Aythya fuligula*	165	43	24	37	65	17	
22	*Aythya marila*	242		65	37			
23	*Apus apus*						2	
24	*Bucephala clangula*				14			
25	*Bubulcus ibis*			32	42		150	185
26	*Botaurus stellaris*		4	5	3	7	15	7
27	*Cygnus cygnus*	3		6	114			
28	*Cygnus olor*	4		4	13	4		7
29	*Circus pygargus*	11	7	42	37	65	24	24
30	*Circus aeruginosus*	37	27	64	13	65	142	83
31	*Cuculus canorus*			3				3
32	*Corvus corvus*			13			32	
33	*Corvus corone*	4	4	10			15	15
34	*Corvus frugilegus*						7400	570
35	*Calidris temminckii*				65			
36	*Childionias hybrida*	750	480	2300	1450	1800	350	1300
37	*Charadrius alexandrinus*			65	14			
38	*Egretta alba*	15	110	34	7	23	39	45
39	*Egretta garzetta*	15	230	250	44	220	1340	425
40	*Fulica atra*	15400	27500	22000	11700	7600	8400	21500
41	*Falco pelegrinoside*			2	1			
42	*Falco peregrinus*						1	2
43	*Falco tinnunculus*			4			3	
44	*Falco naumanni*				3		7	4
45	*Gallinula chloropus*	147	94	263	136	125	517	440
46	*Gallinago gallinago*	134		365	165	131	244	75

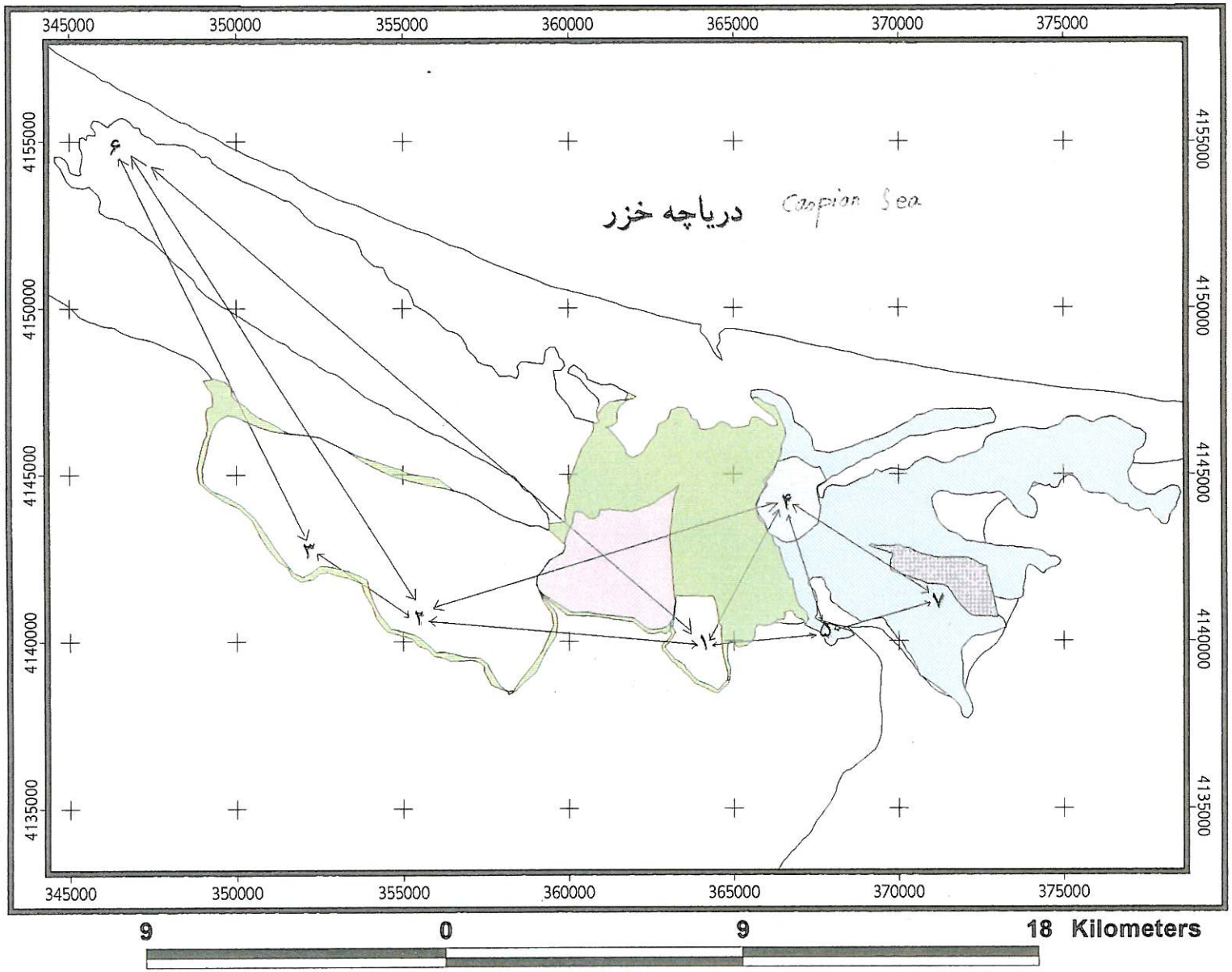
Table 6.4.2 List of Bird Species from Aug. 2003 to Mar. 2004

No	Scientific Name	Sorkhankol	Hossein Bekandeh	Siahkeshim	Selkeh	West	Center	East
47	*Gallinago sp.*				34			5
48	*Himantopus himantopus*			26	7		14	
49	*Haliaeetus albicilla*			2	1			
50	*Ixobrychus minutus*			5	4	13	15	7
51	*Larus argentatus*	137		1220	124	242	85	207
52	*Larus ridibundus*	363	145	560	204	1850	216	645
53	*Larus minutus*	460	325	584	302	2015	523	960
54	*Larus ichthyaetus*	15	15	27	13	213		15
55	*Larus fuscus*							10
56	*Lymnocryptes minimus*	189	46	260	175		470	422
57	*Limosa sp*							5
58	*Limnosa limnosa*						4	
59	*Mergus albellus*	12			3			
60	*Motacilla alba*			17	15		45	75
61	*Milvus migrans*			2		11		11
62	*Milvus milvus*						4	
63	*Merops apiaster*				7			
64	*Nycticorax nycticorax*		152	77	236		758	380
65	*Numenius arquata*							15
66	*Netta rufina*		15	15	7			4
67	*Pelecanus onocrotalus*	6			7			4
68	*Pelecanus crispus*				3			
69	*Podiceps nigricollis*		7		20	107		24
70	*Podiceps ruficollis*	54	45	32	24	275		27
71	*Podiceps cristatus*	7	3			72		
72	*Podiceps grisegena*					54		
73	*Porphyrio porphyrio*	74	90	245	145	65	107	280
74	*Pandiom haliaetus*				1			
75	*Phalacrocorax pygmaeus*	104	22	430	7	143	165	127
76	*Phalacrocorax carbo*	2300	145	456	26	1400	1430	935
77	*Phoenicopterus ruber*				2			
78	*Pica pica*		4	15	3		21	21
79	*Plegadis falcinellus*		12	157			12	35
80	*Rallus aquaticus*	65	7	84	23		315	27
81	*Recurvirostra avosetta*			21	197			24
82	*Sturnus vulgaris*			162	420		520	1350
83	*Sterna repressa*			7				
84	*Tringa stagnatilis*	113		260	354		250	210
85	*Tringa tatanus*			175	350		407	506
86	*Tadorna tadorna*		12	12	15			12
87	*Tadorna ferruginea*				6			12
88	*Vanellus vanellus*		210	1300	530		2820	1720
89	*Upupa epops*							4

Swan Habitat & Emigration Path in the Anzali Wetland

Figure 6.4.1 Swan Habitat and Movement in Anzali Wetland

نقشه ۵ MAP 5



1. Selkeh Wildlife Refuge
2. Siahkeshim Protective Area - Nargestan clo
3. " " - Esphand clam
4. Hossein Bekandeh No-Hunting Area
5. East Part of Wetland - Baghlaken water reservoir
6. West Part of Wetland : kargan-Sangachin water reservoir
7. East Part of Wetland : Jirehsarbagherkhil water reservior

پناهگاه حیات وحش سلکه:۱
منطقه حفاظت شده سیاه کشیم -کلاس نرگستان:۲
منطقه حفاظت شده سیاه کشیم -کلاس اسفند:۳
منطقه شکار ممنوع حسین بکنده :۴
ناحیه شرقی تالاب - آبندان باقلا کش:۵
ناحیه غربی تالاب -آبندانهای کرگان- سنگاچین:۶
ناحیه شرقی تالاب-آبندان جیره سرباقرخاله:۷

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W
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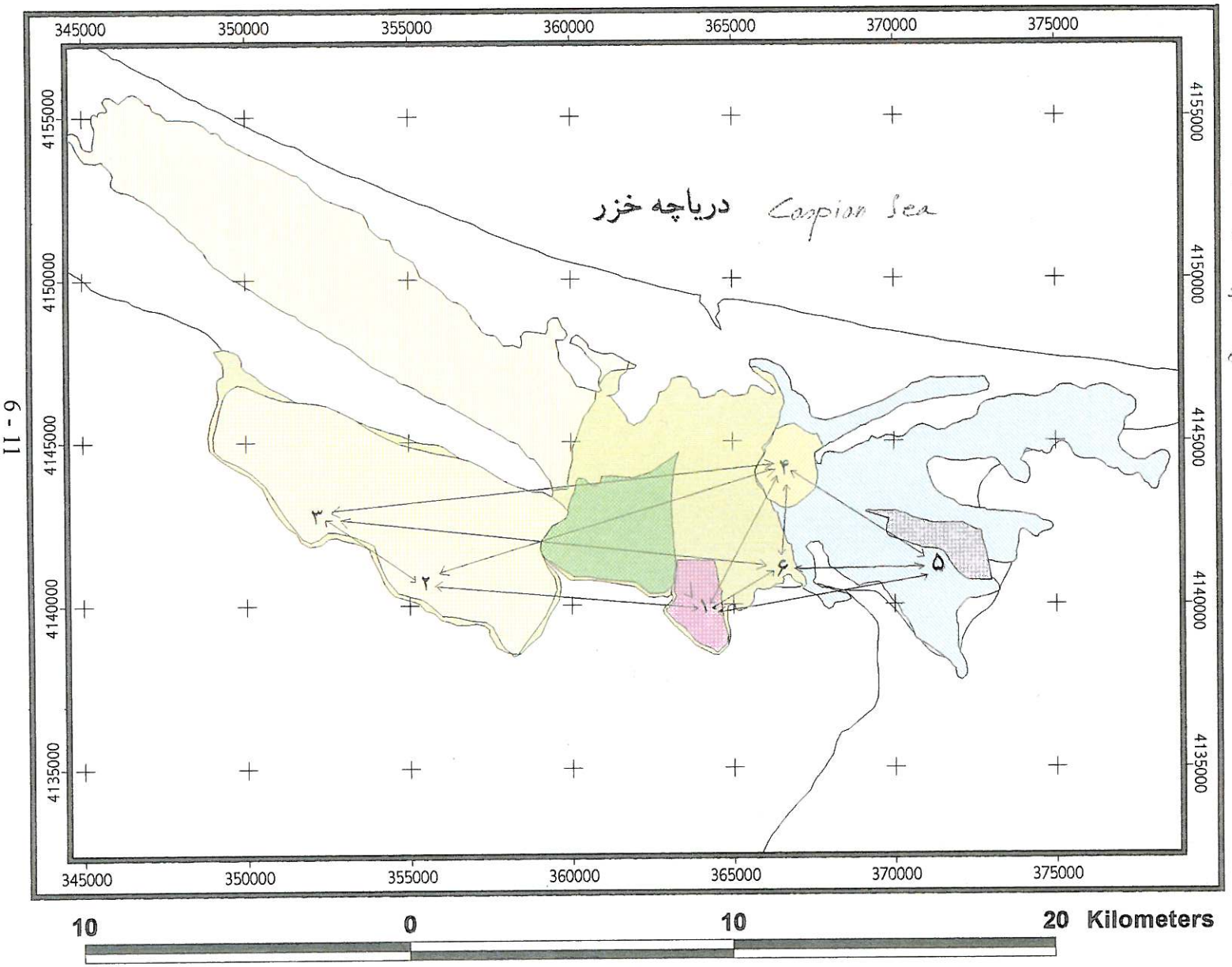
Goose Habitat & Emigration Path in the Anzali Wetland

Figure 6.4.2 Goose Habitat and Movement in Anzali Wetland

نقشه ۶

Map-6



1: Selkeh Wildlife Refuge

2: Siahkeshim Protective Area - Margeston dam

3: " " - Esfand dam

4: Hossein Bekandeh No-Hunting Area

5: East Part of Wetland; Jirehsar Bagherkhaleh water reservoir

6: Central Part of Wetland; Gazgisheh water Reservoir

پناهگاه حیات وحش سلکه:۱

منطقه حفاظت شده سیاه کشیم -کلاس نرگستان:۲

منطقه حفاظت شده سیاه کشیم -کلاس اسفند:۳

منطقه شکار ممنوع حسین بکنده:۴

ناحیه شرقی تالاب -آبیندان جیره سر باقر خاله:۵

ناحیه مرکزی تالاب -آبیندان گاز گیشه:۶

N

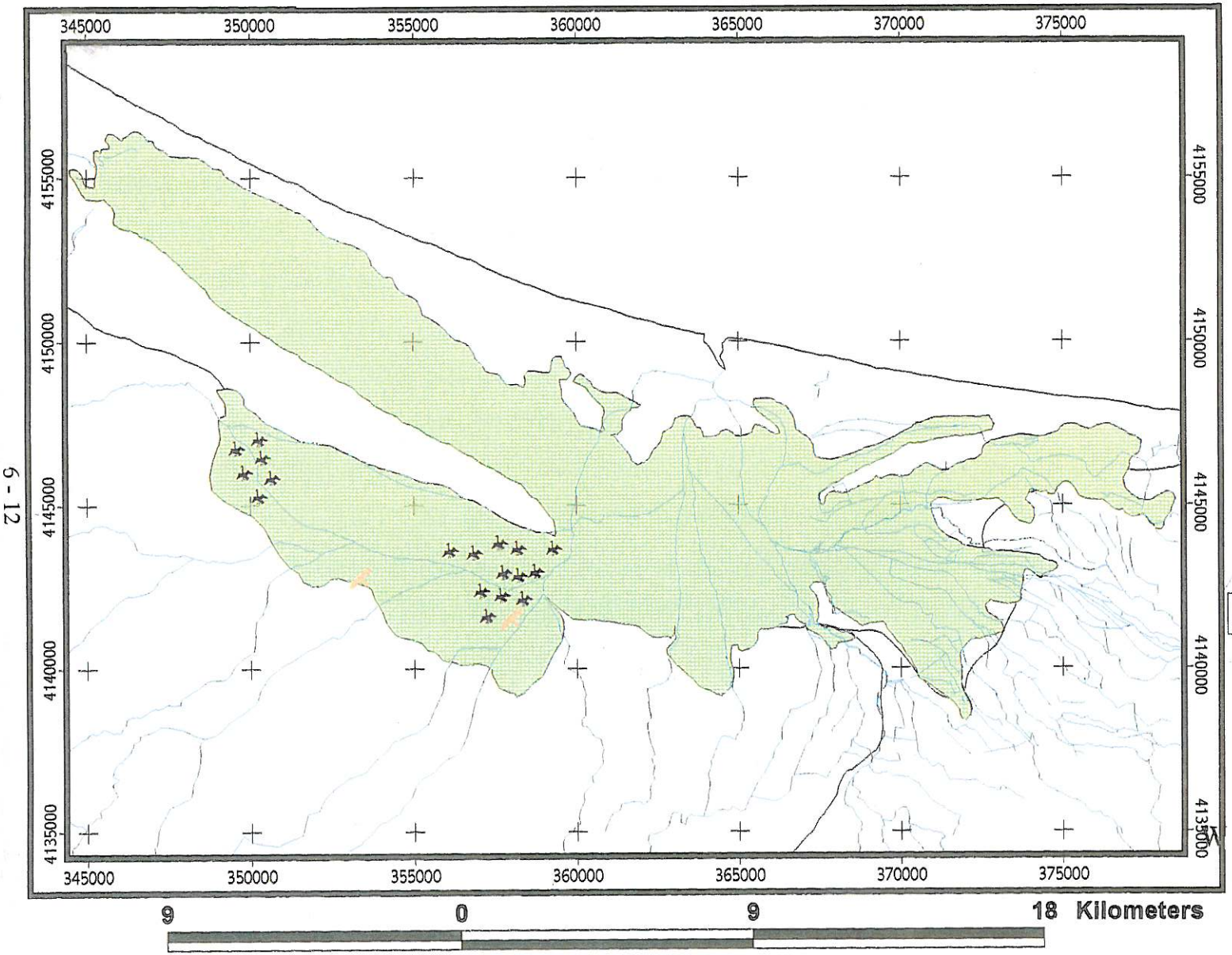
W E

S

Different Breeding Locations of Phalacrocorax pygmeus & Haliaeetus albicilla

Figure 6.4.3 Different Breeding Locations of *Phalacrocorax pygmeus* and *Haliaeetus albicilla*

نقشه ۷



map - 7

Haliaeetus albicilla
عقاب دریایی دم سفید

باکلان کوچک Phalacrocorax pygmeus

رود river

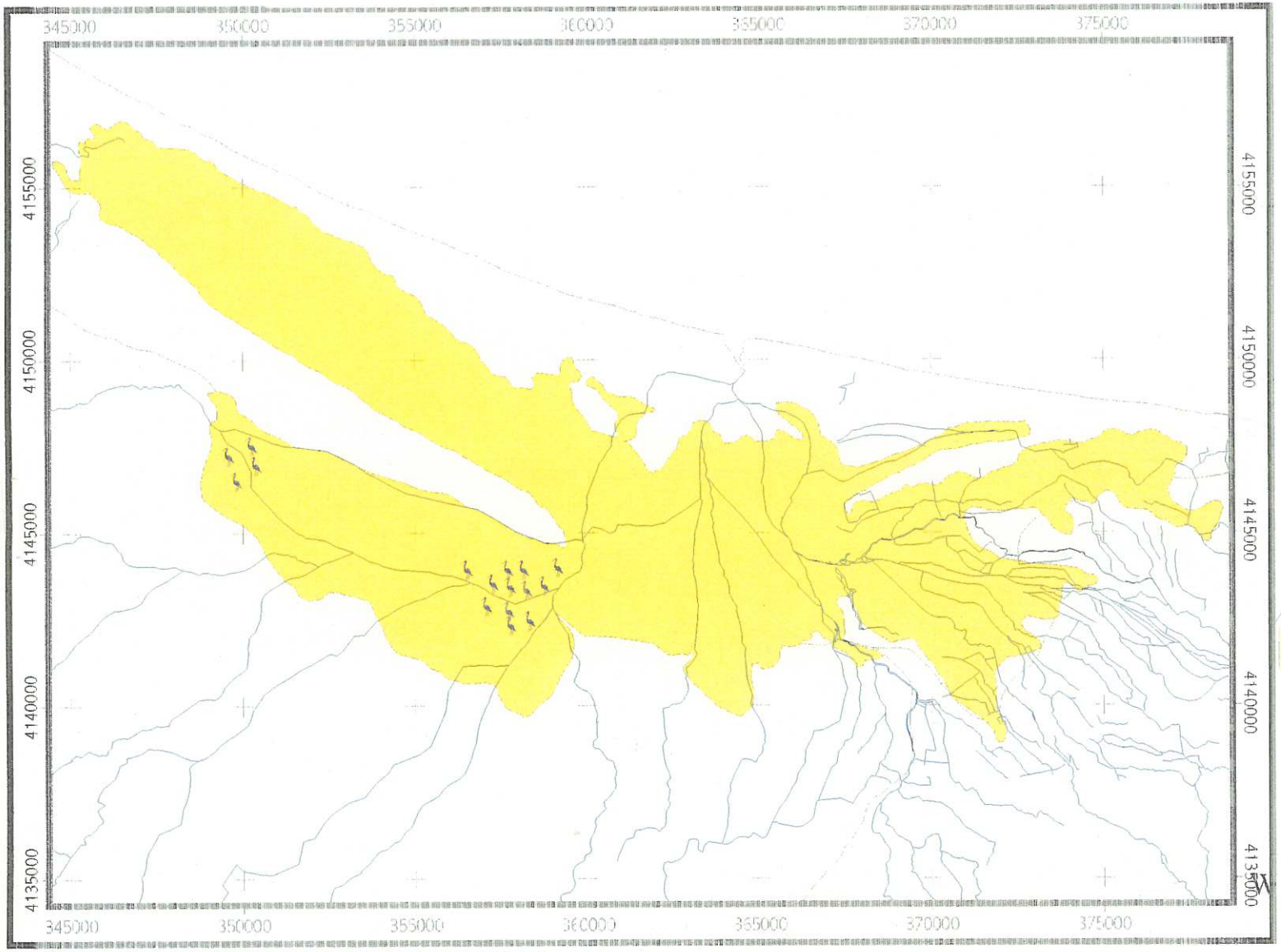
تالاب انزلی Anzali wetland

Different Breeding Locations of Ardea cinerea

Figure 6.4.4 Different Breeding Locations of *Ardea cinerea*

نقشه ۸

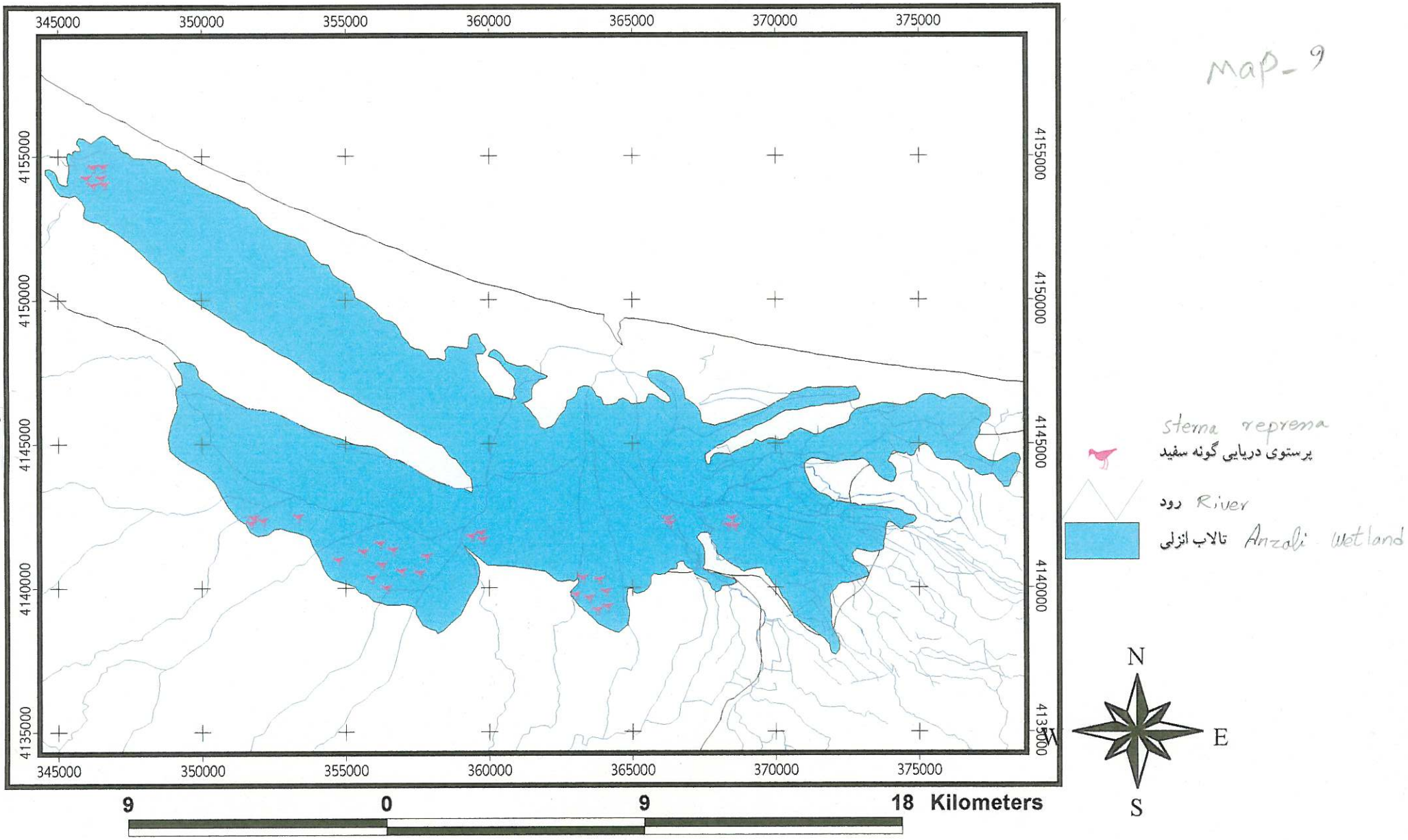
map - 8



Different Breeding locations of sterna reprena

Figure 6.4.5 Different Breeding Locations of *Sterna reprena*

نقشه ۹

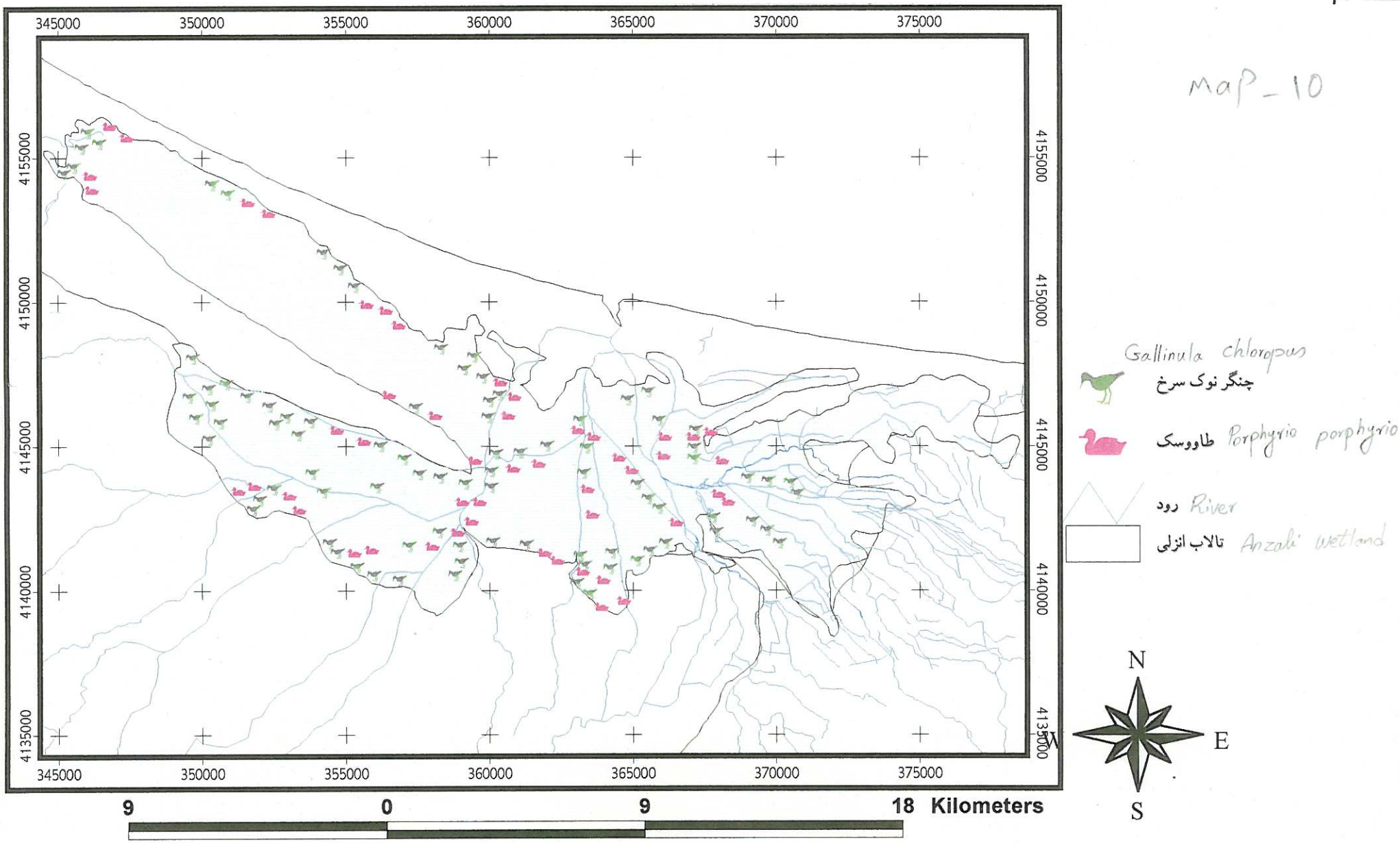


Different Breeding Locations of Gallinula chloropus & Porphyrio porphyrio

Figure 6.4.6 Different Breeding Locations of *Gallinula chloropus* and *Porphyrio porphyrio*

نقشه ۱۰

Map-10



6.4.3 Fish

Table 6.4.3 List of Fish Species in Western Part

No.	Scientific Name	Sep. 2003	Oct. 2003	Nov. 2003	Dec. 2003	Jan. 2004	Total
1	*Alosa caspia ssp.*	1	0	0	0	0	1
2	*Alosa brashnikovi*	0	0	0	0	0	0
3	*Alosa kessleri*	0	0	0	0	0	0
4	*Clupeonella cultriventris*	0	0	0	0	0	0
5	*Abramis brama orientalis*	1	0	0	1	0	2
6	*Alburnoides bipunctatus*	0	0	0	0	0	0
7	*Alburnus alburnus*	15	13	5	4	11	48
8	*Alburnus filippi*	0	0	0	0	0	0
9	*Barbus capito*	0	0	0	0	0	0
10	*Blicca bjoerkna*	32	24	18	8	1	83
11	*Carassius auratus gibelio**	72	43	23	7	0	145
12	*Chalcalbunus chalcoides*	2	0	0	3	23	28
13	*Ctenopharyngodon idella**	0	1	0	0	0	1
14	*Cyprinus carpio*	6	1	2	0	0	9
15	*Hemiculter leucisculus**	62	26	21	14	3	126
16	*Hypophthalmichthys molitrix**	0	0	0	0	0	0
17	*Leucaspius delineatus*	5	3	2	4	1	15
18	*Leuciscus cephalus*	0	0	0	0	0	0
19	*Pseudorasbora parva**	2	4	6	3	0	15
20	*Rhodeus sericeus*	14	18	13	4	0	49
21	*Rutilus frisii kutum*	0	0	0	0	0	0
22	*Rutilus rutilus caspicus*	0	0	0	0	0	0
23	*Scardinius erythrophthalmus*	3	2	5	4	1	15
24	*Tinca tinca*	1	0	0	1	0	2
25	*Vimba vimba persa*	0	0	1	0	0	1
26	*Cobitis taenia*	0	0	0	0	0	0
27	*Silurus glanis*	1	0	0	0	0	1
28	*Esox lucius*	2	1	1	4	0	8
29	*Gambusia holbrooki**	8	16	12	5	0	41
30	*Gasterosteus aculeatus**	0	0	0	2	0	2
31	*Perca fluviatilis*	0	0	0	0	0	0
32	*Neogobius kessleri*	0	0	0	0	0	0
33	*Neogobius melanostomus*	0	0	0	0	0	0
34	*Proterorhinus marmoratus*	0	0	0	0	0	0
	Sum of fish specimen	227	152	109	64	40	592

*: Alien Species

Table 6.4.4 List of Fish Species in Eastern Part

No.	Scientific Name	Sep. 2003	Oct. 2003	Nov. 2003	Dec. 2003	Jan. 2004	Total
1	*Alosa caspia ssp.*	1	2	0	0	0	3
2	*Alosa brashnikovi*	0	1	0	0	0	1
3	*Alosa kessleri*	1	0	0	0	0	1
4	*Clupeonella cultriventris*	1	0	0	0	0	1
5	*Abramis brama orientalis*	1	0	0	0	0	1
6	*Alburnoides bipunctatus*	0	0	1	0	0	1
7	*Alburnus alburnus*	24	28	39	62	3	156
8	*Alburnus filippi*	0	0	0	0	0	0
9	*Barbus capito*	0	0	0	0	0	0
10	*Blicca bjoerkna*	36	496	35	266	9	842
11	*Carassius auratus gibelio**	16	1190	46	85	18	1355
12	*Chalcalbunus chalcoides*	4	23	4	81	35	147
13	*Ctenopharyngodon idella**	0	2	0	1	0	3
14	*Cyprinus carpio*	7	41	1	11	0	60
15	*Hemiculter leucisculus**	74	1306	458	108	91	2037
16	*Hypophthalmichthys molitrix**	0	0	0	0	0	0
17	*Leucaspius delineatus*	14	16	15	61	28	134
18	*Leuciscus cephalus*	0	1	0	0	0	1
19	*Pseudorasbora parva**	5	13	6	3	0	27
20	*Rhodeus sericeus*	16	17	19	6	0	58
21	*Rutilus frisii kutum*	2	524	0	6	0	532
22	*Rutilus rutilus caspicus*	0	0	0	1	0	1
23	*Scardinius erythrophthalmus*	4	37	25	6	0	72
24	*Tinca tinca*	0	0	0	0	0	0
25	*Vimba vimba persa*	1	0	0	2	0	3
26	*Cobitis taenia*	2	6	0	0	8	16
27	*Silurus glanis*	2	9	0	0	0	11
28	*Esox lucius*	3	48	5	26	2	84
29	*Gambusia holbrooki**	124	344	21	8	3	500
30	*Gasterosteus aculeatus**	0	0	0	0	0	0
31	*Perca fluviatilis*	0	0	0	0	0	0
32	*Neogobius kessleri*	1	0	0	0	3	4
33	*Neogobius melanostomus*	0	0	0	0	1	1
34	*Proterorhinus marmoratus*	1	0	1	3	0	5
	Sum of fish specimen	340	4104	676	736	201	6057

*: Alien Species

Table 6.4.5 List of Fish Species in Central Part

No.	Scientific Name	Sep. 2003	Oct. 2003	Nov. 2003	Dec. 2003	Jan. 2004	Total
1	*Alosa caspia ssp.*	0	0	0	0	0	0
2	*Alosa brashnikovi*	0	0	0	0	0	0
3	*Alosa kessleri*	0	0	0	0	0	0
4	*Clupeonella cultriventris*	0	0	0	0	0	0
5	*Abramis brama orientalis*	0	0	0	0	0	0
6	*Alburnoides bipunctatus*	0	0	0	0	0	0
7	*Alburnus alburnus*	35	16	3	5	0	59
8	*Alburnus filippi*	0	0	0	0	0	0
9	*Barbus capito*	0	1	0	1	0	2
10	*Blicca bjoerkna*	16	8	9	10	0	43
11	*Carassius auratus gibelio**	30	38	89	7	25	189
12	*Chalcalbunus chalcoides*	4	2	1	0	0	7
13	*Ctenopharyngodon idella**	0	0	0	0	0	0
14	*Cyprinus carpio*	4	7	13	1	0	25
15	*Hemiculter leucisculus**	64	18	9	0	0	91
16	*Hypophthalmichthys molitrix**	0	0	0	0	0	0
17	*Leucaspius delineatus*	12	0	0	4	0	16
18	*Leuciscus cephalus*	0	0	0	0	0	0
19	*Pseudorasbora parva**	4	4	3	0	0	11
20	*Rhodeus sericeus*	17	7	3	16	0	43
21	*Rutilus frisii kutum*	0	0	0	0	0	0
22	*Rutilus rutilus caspicus*	0	0	0	0	0	0
23	*Scardinius erythrophthalmus*	3	0	0	3	0	6
24	*Tinca tinca*	0	0	0	1	0	1
25	*Vimba vimba persa*	0	0	0	0	0	0
26	*Cobitis taenia*	1	0	0	0	0	1
27	*Silurus glanis*	1	1	3	0	0	5
28	*Esox lucius*	6	3	8	4	21	42
29	*Gambusia holbrooki**	31	47	71	3	0	152
30	*Gasterosteus aculeatus**	0	0	0	0	0	0
31	*Perca fluviatilis*	0	0	0	1	0	1
32	*Neogobius kessleri*	0	0	0	0	0	0
33	*Neogobius melanostomus*	0	0	0	0	0	0
34	*Proterorhinus marmoratus*	1	1	1	0	0	3
	Sum of fish specimen	229	153	213	56	46	697

*: Alien Species

Table 6.4.6 List of Fish Species in Siahkeshim

No.	Scientific Name	Sep. 2003	Oct. 2003	Nov. 2003	Dec. 2003	Jan. 2004	Total
1	*Alosa caspia ssp.*	0	0	0	0	0	0
2	*Alosa brashnikovi*	0	0	0	0	0	0
3	*Alosa kessleri*	0	0	0	0	0	0
4	*Clupeonella cultriventris*	0	0	0	0	0	0
5	*Abramis brama orientalis*	0	0	0	0	0	0
6	*Alburnoides bipunctatus*	0	0	0	0	0	0
7	*Alburnus alburnus*	38	62	777	6	18	901
8	*Alburnus filippi*	0	3	0	0	0	3
9	*Barbus capito*	1	0	0	0	0	1
10	*Blicca bjoerkna*	16	203	735	19	5	978
11	*Carassius auratus gibelio**	39	37	50	11	3	140
12	*Chalcalbunus chalcoides*	8	20	82	5	17	132
13	*Ctenopharyngodon idella**	0	0	0	0	0	0
14	*Cyprinus carpio*	12	33	11	0	0	56
15	*Hemiculter leucisculus**	89	133	1643	0	46	1911
16	*Hypophthalmichthys molitrix**	1	2	2	0	0	5
17	*Leucaspius delineatus*	7	31	151	2	5	196
18	*Leuciscus cephalus*	0	0	0	0	0	0
19	*Pseudorasbora parva**	11	1	49	0	1	62
20	*Rhodeus sericeus*	27	147	103	0	0	277
21	*Rutilus frisii kutum*	3	9	2	0	0	14
22	*Rutilus rutilus caspicus*	0	0	0	0	0	0
23	*Scardinius erythrophthalmus*	4	7	33	0	0	44
24	*Tinca tinca*	0	0	0	0	0	0
25	*Vimba vimba persa*	0	0	0	0	0	0
26	*Cobitis taenia*	1	0	0	0	0	1
27	*Silurus glanis*	2	4	5	0	0	11
28	*Esox lucius*	3	14	29	2	2	50
29	*Gambusia holbrooki**	64	83	209	1	0	357
30	*Gasterosteus aculeatus**	0	0	0	0	0	0
31	*Perca fluviatilis*	0	0	0	0	0	0
32	*Neogobius kessleri*	0	0	0	0	0	0
33	*Neogobius melanostomus*	0	0	0	0	0	0
34	*Proterorhinus marmoratus*	0	0	1	2	0	3
	Sum of fish specimen	326	789	3882	48	97	5142

*: Alien Species

Data 7: Survey on Livelihood of Graziers

DATA 7: SURVEY ON LIVELIHOOD OF GRAZIERS

7.1 Background and Objective

According to the Natural Resources General Office (NRGO), grazing of livestock in the rangeland by all graziers living in the forest will be prohibited to control the number of livestock from the carrying capacity viewpoint of the rangeland under the governmental decree on north forest conservation[1]. In addition, parts of the graziers have to be relocated from the forest and to resettle in the low land under the relocation schedule prepared by NRGO[2]. Consequently, the graziers have to change their livelihood activity from grazing to others in either forest or resettlement site.

However, future livelihood improvement alternatives on graziers seem not to be well secured by the government, but it depends on the graziers. Such situation would leave high potential of social issues, which would occur both in the forest and low land in the future, since the graziers would face difficulties in the change of their livelihood activity. Therefore, preparation of a livelihood improvement plan for the graziers is required before prohibition of the grazing activity and implementation of the relocation.

Due to the fact found by the JICA Study Team during the master plan study, the Study on Livelihood Improvement for the Graziers (the Survey) were conducted by Cenesta as a subletted contractor, under supervision of the JICA Study Team to examine present socio-economic and livelihood conditions of graziers, to demonstrate adequate participatory process and to propose livelihood alternatives with necessary conditions through studying and examining the present livelihood conditions of the graziers. The Survey was implemented between June and October.

This survey was sublet to the Center for Sustainable Development (Cenesta).

[1] A decree on integrated plan for northern forest conservation approved by the Iranian Cabinet in September 2003

[2] According to NRGO, grazier community which has more than 20 households will be allowed to stay in the forest as estimated at about 2,000 households without relocation. Rest of community which has less than 20 households and independent household who does not belong to any community are targeted for the relocation. Out of the total target grazier households to be relocated at about 1,700 households, about 400 households have already been relocated and rest of 1,300 households will be relocated in six years from 2005 to 2009 in the Anzali wetland watershed. In Guilan province, about 15,000 grazier households in total will be affected by ban of the grazing activity.

7.2 Study Area

The study area covers forest area where the graziers whose grazing activity will be prohibited are residing and low land for the market research study in the Anzali wetland watershed. Location of the study area is shown in Figure 7.2.1.

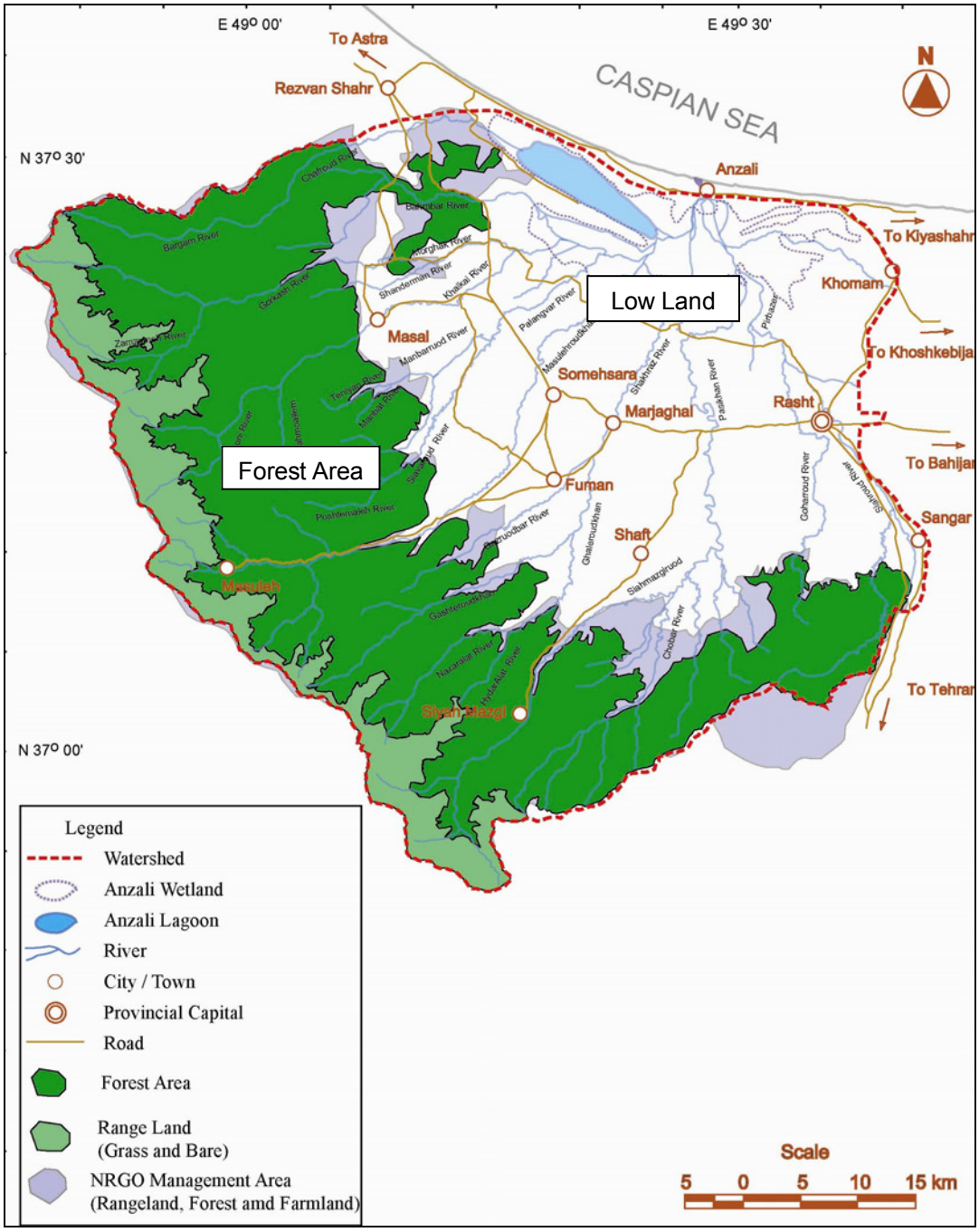


Figure 7.2.1 Map of the Study Area

7.3 Methodologies

Main items to be surveyed and methodologies are shown as follows.

7.3.1 Information Collection on Socio-economic and Livelihood Characteristics of Graziers

Data and information on socio-economic and livelihood characteristics of graziers were comprehensively collected by using participatory method such as the Participatory Rural Appraisal (PRA). The information were collected from two groups: grazier communities including the communities which have more than 20 households and do not need the relocation (The number of samples shall be 3 to 5 communities at least.) and independent grazier households who do not belong to any community (The number of samples shall be 3 to 5 households at least.). Main information collected are shown below.

Table 7.3.1 Main Information Collected

Information on household level
a) Number of livestock by kind b) Cash income and non-cash income c) Seasonal activity by type of activity d) Detail of livelihood activity e) Role of family member (gender and children) f) Market route to sell their product/produce g) Availability of public utilities such as water supply, electricity, gas, toilet, and solid waste disposal, wastewater disposal h) Formal and informal education for children i) Constraints on social adaptation in the low land
Information on community level
a) Social structure of the community b) Social custom of the community c) Decision making process in the community d) Communal activity and work e) Communal assets f) Annual events in the community

7.3.2 Needs and Capability Analysis on Graziers

Needs and capabilities of the graziers were analyzed to clarify their intentions, advantages, disadvantages, potential and constraints based on their social backgrounds such as education level and occupational experience to identify possible livelihood alternatives for the graziers.

In addition to the information on socio-economic and livelihood conditions collected above, additional information on the needs and capability of the graziers were collected by using participatory survey method. For the grazier community, needs and capability of both community and household levels were analyzed.

7.3.3 Case Studies of Participatory Planning on Livelihood Improvement

Case studies of participatory planning on livelihood improvement for both grazier communities and independent grazier households who do not belong to any community were conducted. In the case studies, activities for new livelihood improvement alternative(s) for each sample grazier community/household were examined by using the participatory planning method. As results of the case studies, important points and recommendations on participatory planning to be applied for other grazier community/household in the study area were examined.

For the grazier community, the workshop method were applied with participation of the community members on the above items (1) to (3). A facilitator of the workshop was community member who was preliminary trained by a participatory planning expert of the subletted NGO on how to organize the workshop. During the workshop, experts of the subletted NGO assisted the facilitator in case of need. The half-day workshop was held around several times by one community. The day for the workshop was carefully selected to maximize the number of participants.

7.3.4 Market Research Study

Even the livelihood improvement alternatives are proposed based on the needs and capabilities of the graziers, the proposed livelihood improvement alternatives have to be commercially feasible. Therefore, market potential including employment opportunity was examined in conceivable various commercial and industrial sectors such as agricultural produce, handicraft making and industrial animal husbandry.

Data and information on the market potential were obtained by direct inquiry and secondary data collection from various sources such as relevant governmental agencies, industrial associations, markets/shopping streets, etc..

7.3.5 Recommendations on Livelihood Improvement Alternatives for the Graziers

Based on result of the needs and capability analysis, case studies, and market research study, livelihood improvement alternatives for the graziers, which can be applied to the graziers in the study area, were proposed with necessary conditions such as capacity building and infrastructure. The livelihood improvement alternatives were comprehensively examined to implement by the graziers from various viewpoints such as technical, commercial and social aspects.

In terms of the commercial feasibility, preliminary financial analysis by comparing between conceivable cost and profit was done to clarify commercial feasibility on the proposed livelihood improvement alternatives.

Regarding the necessary conditions to realize the proposed livelihood improvement alternatives, necessary assistance by governmental and/or non-governmental organizations was also proposed such as capacity building program and infrastructure preparation.

Linkage among the above study items is shown in the following figure.

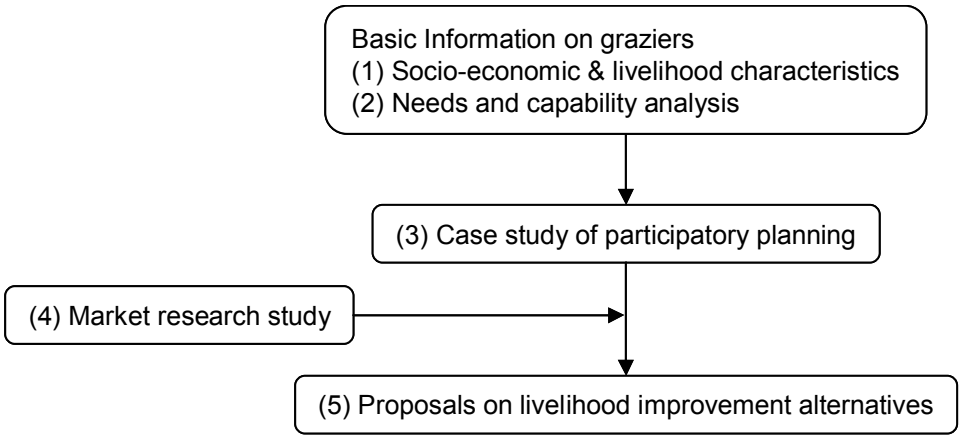


Figure 7.3.1 Linkage among Study Items

7.4 Results of the Survey

Main results are shown as attached below. The results of the survey were combined as a Final Report, which is available in DOE Guilan.

Main Results of the Survey on Livelihood Improvement for Graziers
(Based on the Final Report Prepared by CENESTA)

Table of Contents

Chapter 1 Modes of Settlement in the Study Area and Recent Developments

In the social structure of the study area that illustrates a rural pattern founded on a tribal life-style and ultimately moving towards urbanization, there is an increasing tendency since the last few decades (particularly after the Revolution of the Islamic Republic) for livestock breeders to settle down in rural areas, rural inhabitants equally have a tendency to move to urban areas, and urban dwellers tend to concentrate in major population centers that are important at provincial level. Thus, the new patterns of settlement and rural life-styles can be summarized as follows.

1.1 Tribal Life-Style

Dating back to the beginning of the century, this settlement pattern has revealed a variation that finally gave way to rural settlements and today majority of the migrant livestock breeders have settled down in permanent residences. Seasonal migrations have been transformed into semi-migrations thereby this makes them take residence in rural settlements for part of the year and gradually paves the way to a permanent settlement in that area. However, in present conditions the tribal life-style demonstrates a mid and long-term residence in rural settlements and the only means or income in life is livestock breeding.

1.2 Rural Life-Style

Rural settlements in the region and settlement of livestock breeders from one side and on the other hand, the migration of the rural population to the cities have given rise to new changes in the mode of settlements which has the following characteristics:

- The formation of small and scattered settlements that have taken root in a tribal form and therefore do not conform to sustainability

- The discharge of small settlements from its inhabitants forming even smaller settlements with a meager population
- The evolution of larger settlements with a larger population

1.3 Urban Life-Style

In this settlement pattern, residence is sought in urban areas of the region where generally means a populated city. The general tendency towards urbanization:

- The transformation of highly populated rural areas to urban areas
- The physical expansion of cities to include marginal settlements around the cities
- The increase in marginal settlements on the fringes of big cities due to the migrant rural and tribal society.

The actual spheres of activity in the Anzali watershed is primarily agriculture and orchard keeping, and then traditional livestock breeding with seasonal migrations. Rangelands at the upper limit and mid-level forests are utilized for grazing various types of cattle, and related activities in large and traditional scale are present for the settlements in this area. Adequate rainfall, suitable land resources and decent vegetation coverage has provided the ground for such activities in the study region. Thereby, livestock breeding that has been a dominant activity in this area from the long past reveals a suitable pattern with the actual mode of settlements which is mainly in elevated and semi-elevated areas. Majority of the cattle in this area are sheep, goats and cows.

Chapter 2 Socio-economic Structures

The area under study comprises of various environmental conditions forming several kinds of livelihoods different socio-economic structures. This variation within duration of time in various parts of the region has given rise to socio-cultural diversity of population. Alongside the environmental and internal factors that have provided diversity, investments from outside have caused a greater impact. Therefore the recognition of this socio-economic and cultural diversity and selection of some of these elements as potential opportunities at local level for socio-economic development can prove to be extremely helpful.

Taking into view the environmental conditions present in the region and the socio-economical growth therein (i.e. the various sectors within the area) three types of socio-economic structures can be identified:

2.1 Socio-economic Structure Relying on Agriculture and Orchard Keeping

Villages with such structural formations (that are not included within the area of study) were generally located in the plain regions with abundant water and with an agricultural background that has become more or less commercial. Transformations in the past few decades along with the expansion and growth of the new economical relationship with agricultural produce and its importance in the market has had an impact on the cultural and social aspects of the study region. An example of this change can be seen in the gradual behavioral changes in their daily life. In these types of villages that are basically involved in agriculture and orchard keeping, particularly rice and tea plantations, despite gradual transformations, still the former traditional cultural

characteristics prevail. Paternal respect and family bonds are held strong. Even with the growth of production technology, collective work plays an important role.

2.2 Socio-economic Structure Relying on Livestock Breeding and Agriculture

In the majority of the study region where livestock breeding is being practiced, a special kind of livelihood pattern has been formed which has its roots in the tribal societal system. A historical survey has revealed that land ownership in some parts of the region even before the Land Reforms pertained to the small landowners. However, as a greater portion of the income of families depended on livestock breeding, still many cultural characteristics which are founded on tribal economic system govern the region. Thus the social relations in these villages in comparison to the previously mentioned villages show some difference. Social relations in these villages are similar to those villages which economically rely on livestock breeding and limited agriculture, and have tribal roots.

2.3 Socio-economic Structure Relying on Livestock Breeding and Seasonal Migration

Some of the villages in the elevated areas of the region for various reasons have preserved their livelihood pattern to a great extent, the same being mainly active in traditional livestock breeding. Their activity is mainly based on forested areas located at higher altitudes. Here small seasonal migrations can still be noticed. This kind of economy is one that is self-consuming and self-reliant, hindering expansion of economy and contributing to a closed socio-economic system in these villages. This foundation reflects a unique socio-cultural structure that resembles that of the tribal systems in the past. In villages with such structures, many of the traditional cultures and customs of the past dominate, correlating economic structures and functions. Family bonds and household size, patriarchal relationships, collective working system, are all aspects of these cultural characteristics which distinguish these villages from the others.

Chapter 3 Sociological Assessment of the Socio-economic Relationships in the Study Area

As mentioned above, the watershed basin of Anzali wetlands, particularly the rural areas generally comprise of three different socio-economic structures (depending on agriculture and orchard keeping, livestock breeding and agriculture, and livestock breeding with seasonal migrations), resulting in a diversity of relationships between various villages and with cities.

The existing information reveals a greater population growth in the rural areas than in the urban ones, with more limited occupational growth in the former in comparison with the latter. The urban areas of the region in particular the large cities which form the provincial population centers attract the active population of the rural areas, a phenomenon which is directly related to the economical status of the rural areas. In this manner, villages which have a fortified work standing provide a lesser amount of manpower to the urban areas.

The interrelations between the cities and villages of the region have a direct impact on the surrounding environment which can be summarized as follows:

Women have replaced manpower in villages due to rural-urban migration and this will gradually bring about changes in the occupational system and the social division of work in rural areas

- Villages with a larger population and a stronger economic structure will benefit from a better welfare status (such as clinics, telecommunications, suitable roadways, etc.) thus, relieving them from being dependant on the approximate cities.
- Villages with a minimum amount of occupation and with close proximity to cities that are highly populated with job opportunities, render manpower to the surrounding cities (usually in the form of laborers working on daily wages). These villages are devoid of any type of social welfare and utilize the welfare services that the nearby cities offer.

Each of the two types of villages classified above are encompassed in the fiscal-national economics and are vulnerable to the impact of the national economic transformations. However, if we make a draw back from villages in the plains and move towards those favoring livestock breeding and seasonal migration, the economical status will prove to be more self-dependant with a better state of livelihood.

In villages with an economic structure dependant on agriculture and orchard keeping, with a background in livestock breeding and seasonal migration, the produced find a market in the cities, in addition to sustaining household livelihoods. These villages are in fact in a transition phase to be included in the regional and national economy.

Villages that are located at mid-level altitudes have less access to facilities and suffer from inadequate infrastructure and weak communication with the cities in comparison with the villages mentioned previously. The former also have a closed type of economy. In these villages, the vital occupation or livelihood depends on livestock breeding. Besides, in these villages welfare services (such as higher level schools, telecommunication center, etc.) and sanitation (such as public bath, etc.) are limited and the inhabitants have to utilize the services that are available in other villages or nearby towns. The governing culture of livestock breeding and seasonal migration in these villages has brought about tight bonds at family and village level, which limits the number of people willing to migrate to seek work in the cities. In fact, the closed economy in the village uses most of the available manpower.

In villages that have an entirely tribal foundation, with a socio-economic structure that relies on livestock breeding and seasonal migration, the socio-economic system and social structure is rather closed and the economy is more self-dependant in comparison with other villages. Such a socio-economic structure paves the ground for collective work, and reduces the economic dependence on other economies and societies. Thus, these type of villages have a minimum or limited amount of economical ties with the cities. The dairy products produced by these communities is offered in the market directly on a daily or weekly basis. The only difficulty is inadequate infrastructure and facilities in sanitary, educational and welfare services that are readily available in larger villages downstream and in smaller towns of the study region.

Chapter 4 Patterns of Use of Various Resources

The results of field investigation and participatory observations show that in forested areas of the Anzali watershed, seasonal/migrant rural livestock breeding is more common and more widely distributed than other methods of livestock breeding. In fact, most rural households are engaged in livestock breeding. Along with this

activity, limited agriculture and other activities such as orchard keeping, and silk worm breeding are also practiced.

The level of involvement of community in livestock breeding is closely associated with the geographical distribution of villages, distance from cities, level of development, traditional heritage, quality of the forests, customary laws and ownership system of tribal societies living at higher altitudes, plus other limiting factors. As a result, there is an increasing relationship between socio-economic and livelihood patterns and various sectors of urban economy (or larger rural population centers), which has a direct impact on the level of interest of livestock breeders in continuing their activity or not.

It is in this framework that a livelihood pattern composed of both livestock breeding and agriculture has been formed in the study region, and that rural people take most advantage of livestock breeding depending on their own financial capacity. Accordingly, if the number of livestock is limited to 40-50, all related activities are run by the household members. If the number of livestock is more, someone (e.g. shepherd) will be hired to help with the foraging of the herd. In general livestock breeding in this region is following a rural or a tribal system of organization.

4.1 Migrant tribes engaged in livestock breeding

Forested areas of the watershed at mid-level altitude and rangelands at higher altitudes have been one of the most important population centers for Talesh tribes who practiced seasonal livestock breeding. Even though in this century the Talesh tribe has endured multiple and deep changes, but it has preserved its unique characteristics regarding the productivity system. Increased level of involvement in agricultural activities, orchard keeping, degradation of the political structure of the tribal society and deep changes in the social system, changing conditions and means of seasonal migration, relative improvement of the living conditions, and increased level of awareness (technical or social) and literacy, and new relationships with urban environment and economy, are all among major factors of change in the tribal society of the study region.

In the past decades, many of the tribal livestock breeders, due to the above changes have chosen to settle down and follow up livestock breeding that is common in rural communities. Even those who continue to migrate, have finally adopted some of the above changes that had an impact on their livelihood pattern and production methods. Despite all the above developments, the methods of breeding livestock and holding herd composition has still been preserved so that migrant livestock breeders still depend on rangelands and forests to provide forage for their cattle.

In the past years, provision of forage especially in winter has been one of the biggest challenges of the livestock breeders. This problem is enhanced in mid-level altitude and plain areas. In fact, livestock breeders have to buy part of the forage requirements such as barley from the market, which undermines the level of economic benefit they get from livestock breeding. The products are mainly live animals, and marginal products such as wool, oil, cheese, and handicrafts. Live animals are usually sold to “Parvarbandan” and dead animals to “Chubdaran”, whereas other products are sold to urban and rural dwellers or middlemen.

As mentioned previously, the herds are mostly composed of smaller animals such as goat, sheep, and some cows. Villages in forested areas at mid-level altitudes and margins of the forest are the main residential areas for seasonal livestock breeders in this watershed. At present, there are in general there are two tendencies for seasonal livestock breeding:

First: To continue the method of seasonal migration, taking advantage of the traditional system of land ownership which is now only practiced by larger livestock breeders.

Second: To settle down and reduce the number of livestock and limit the migration, with increased agricultural and orchard keeping activities, or moving to urban environment and looking for employment.

In fact, the decision between the two above options and whether to settle down or move out of the of forested areas very much depends on the number of animals they have.

4.2 Livestock breeding among rural communities

Rural communities are those who have settled down and practice livestock breeding not far from their residential area. However, one can also observe semi-seasonal livestock breeding in rural areas. This method reflects a transition phase between traditional livestock breeding which was mostly seasonal and settlement era, moving gradually towards activities such as agriculture and orchard keeping. Rural livestock breeding which is mostly practiced by rural households, employs household members as manpower (with no salary or payment). The products are red meat (live animals) and related products.

One of the obvious characteristics of rural livestock breeding in Guilan plain and in Anzali watershed is that livestock (mainly cows) forage freely inside the forest. At the end, live animals are sold to the market or to the professional "Parvarbandans". Other products such as wool, milk, etc. are first used by the household and then the extra amount is sold to the market. The forage of these animals comes from rangelands located near the villages and trees.

Chapter 5 Land Ownership System

In the study region the rural user groups are not the same and differ in terms of function, with different level and methods of production, human resources, financial status, and technical skills. The geographical distribution also gives rise to different economic and use patterns among livestock breeders. Especially climatic factors as well as the quality of the land and its distance from major urban and industrial centers is of prime importance in this regard.

In the past decades, the rural use groups have been undergoing radical changes such as increased level of knowledge in technical issues and skills, expansion of economic relations, diversification of economic activities and income sources, changes in life-styles, and increased level of literacy.

However, user groups also suffer from some structural limitations and difficulties. One of these limitations that can be observed in most households is inadequacy of economic scale when compared with production units. In other words the composition of production resources and means is not well-planned, but is only a result of the historical trends and socio-economic and cultural changes in a certain region.

Ways and means of implementation of "Land Reform" laws, excess or lack of resources, household size and employment that is not necessarily based on agriculture, distance from urban areas, all have a role in quantity and quality of production and have an impact on the efficiency of use of natural resources. In addition, any new policy and government or interagency initiative might have a direct impact on the production and impose new

and unpredictable conditions for user groups.

Unfortunately in the past two decades, another negative development has emerged that is the “escape” of new generations from “low social prestige” of rural life style and livestock breeding in comparison with urban living. Increased literacy and awareness in addition to individual and social needs and wants have enhanced the above phenomena. Another reason for this tendency for migration towards cities is the pressure on the head of the household for investing in new opportunities in urban areas and abandoning livestock breeding all together. The latter phenomena have also been mentioned by some community leaders in the study area.

It is clear that under these circumstances the economic role and function of the production units is seriously undermined. As a result, young generations and middle age men prefer to work as driver, middlemen, and shop-keeper in the city rather than farmer.

Even though there might be an increase in the level of income but this is a waste of resources and decrease in the level of production based on the natural resources. As a result, the traditional models and systems of production including livestock breeding which is so critical to produce food for the country is being collapsed.

Chapter 6 Socio-cultural Background of Participatory Work

The economic structure of livestock breeding and its historical background in the region has given rise to socio-cultural framework which still can be found despite the new economic structures in place. In the past, earning livelihoods based on livestock breeding among migrant tribal societies, absence of technology in production systems, closed economic systems, and absence of "capitalism" in such societies had contributed to a unique socio-cultural structure. Collective work in various aspects of communal life contributed to the economic efficiency and cohesiveness of the traditional production systems.

However, changes in economic structures in the past decades have gradually undermined the socio-cultural backbone which was supporting traditional economic structures including collective work. Despite this phenomena one still finds the above-mentioned traditional cultural elements as they are deeply rooted in such societies. Identification of these cultural elements, and the revival of some aspects could strengthen and enhance the ground work for participatory work in the region with emphasis on people’s participation in local resource management projects.

In the following sections, such structures and collective decision-making systems are discussed for rural areas with different socio-cultural structures located in the Anzali watershed. It is worth mentioning that the study does not include those villages which are engaged in agricultural activities as these are mainly located in plain regions.

6.1 Villages with a socio-economic structure relying on cultivation and livestock breeding

In villages bearing the above-mentioned characteristics, despite the economical changes, due to a long-standing tribal pattern and livelihood from livestock breeding, have preserved their cultural and social seasonal migration life-style. In that a sense of responsibility and help in the various social, economic and cultural aspects still exists between the local populace, leading to a dutiful participation. This brings about cooperation alongside the traditional management which help in preservation of the above socio-cultural structure.

Within this socio-cultural framework, management acts towards participatory and cooperative work as the

ground is already laid out traditionally for such activities.

Despite favorable socio-cultural ground for public participation in development activities and a participatory of natural resources, a great obstacle can be observed which might hinder this process. The obstacle is the negative attitude, mistrust and adverse reaction of local people towards government run projects. Most of these rural development plans have taken place historically without the consultation of the rural habitants. This aspect has been even stronger in villages that are more remote and at a distance from cities, with less access to communication, and having more closed societies.

Therefore, the need for participation requires a detailed planning that could function on the above-mentioned grounds by eliminating the negative attitudes and acquiring active participation in several fields that could demonstrate the innermost energy in localized scopes towards a joint natural resource management.

6.2 Villages with a socio-economic structure relying on livestock breeding and seasonal migration

In the previously mentioned villages with a socio-economic structure relying on livestock breeding and seasonal migrations, along with lack of modern technology in the production field, limited expansion in the modern economic sphere, limited relationship with the cities etc. along with a closed economic system have all contributed to the preservation of traditional collective work system. In this type of system which economically very efficient and satisfies the needs of the local community, the social bonds are stronger, which helps in return the empowerment of the management system.

As illustrated above, villages with these characteristics and an economy that depends on livestock breeding offer great potential for participatory work. The vital point here is that attention must be paid to the informal management in the village that holds strong in this category, which is the key to taking any development initiative in these communities. In that by identifying the decision-makers and gaining their interest and cooperation, the whole community will be involved. In these kinds of communities, where education is in a low level, prevailing tribal livelihoods, with little economical contacts with outside world, and meager socio-cultural relationships with the cities, village management within the traditional social framework holds good and this can easily call for participation in various activities where these elements could prove to be useful.

On the other hand, obstacles arising in this type of community (noticed to a lesser extent in the previously described villages), is a closed social–cultural circuit that limits an entrance to this kind of system, and if this is not gained a serious participation of the community will be not attained.

Finally, a serious obstacle for gaining community participation in government projects (in here livestock breeders) is the limited worldview of the government of the concept of community participation which is usually limited to monetary aids and manpower (either free of charge or entailing wages). Lack of empowerment of people and treating them as passive objects instead of active subjects, creating dependency to government organizations are among other mistakes in rural development initiatives. Weakening such strategy and eliminating it in long-term requires the strengthening of the participatory decision-making approach. This will only be possible if the changes are made with a sense of truthful willingness on behalf of the government organizations. As the government organizations are devoid of socio-cultural experts, this phase has not attained due attention.

Ultimately attention must be drawn to the fact that, government organization (Rangelands and Forests Organization, etc.) resource management approach has lagged behind in applying participatory approach and has

remained completely indifferent to the global standards in this respect, whereas this is an asset to the rural community who could play an essential role in the management of natural resources.

Another interesting and important aspect that has taken place recently is voluntary organizations that are working in group activity with local communities on traditional management issues. The special point lies in the fact that the said organizations do not rely on any government backing and encourage self-reliance based on memberships. This kind of phenomena is seen in developed countries and in some third world countries, that are usually motivated from outside. The role of NGO's is very vital in this respect.

Within the limits of the area of study, development organizations and government managers do not pay due attention to community participation in resource management and only recognize it as part of government channels. In this case, with a top-down approach to public participation acts only as a lever and preserves a distance from the actual participation program that contributes to development. Public participation throughout the world, that has given better results than our stand, is a share of the local community (especially the poor) to be empowered and have an opportunity to access scarce resources and make a difference in their life.

Chapter 7 Possibility of Involving People through Non-governmental Organizations

There are two main socio-economic structures which are closely related to the topic of the study. These socio-economic structures have been undergoing substantial changes within the past four to five decades. Without due consideration of these changes, knowledge of the new economic structures, and recognition of the existing local management schemes as a socio-economic tool for conservation and management, it would not be possible to find out a sustainable solution for natural resource

management.

As local management schemes have been developed during centuries and as a result of socio-economic structures, in adaptation with the life-style of the rural community or tribal society, a more clear understanding of these traditional management systems will greatly facilitate in future planning and management initiatives.

Considering the harmony that exists between the different components of a socio-economic structure, there are different type of management systems within each socio-economic structure which are described below.

7.1 Villages with socio-economic structure relying on agriculture and livestock breeding

In fact one of the characteristics of these villages is that since a few decades ago, agriculture has been more dominant economic activity than animal husbandry.

A historical review of these type of villages shows that animal husbandry used to be a major activity in the past, and their goal was purely to sustain their livelihood, as opposed to increasing their income (commercial approach). The economic structure was in complete harmony with socio-cultural beliefs which represents indeed a tribal socio-cultural structure.

The stable conditions of the past gradually gave rise to a new system where agricultural production for the market and increased communication (especially economically) with urban centers caused radical changes in the above structure. In this new system agriculture dominated and production for the market became a priority. As a result the seasonal migrations became less attractive and people started to settle down. Considering these past

factors at present the economic system in these villages is based on both agriculture and livestock breeding which is not commercialized.

Taking into account the new economic developments and the roots of the tribal society in this region, it is surprising to find out that there are still people who migrate seasonally and this reflects the presence of a tribal socio-economic structure which still exists.

In these villages still a powerful patriarchal management system, large household size, community consultation with elder leaders, are considered as valuable assets. The level of unity and cohesiveness in these villages in rather high and the role of the elder community leaders is prominent. They are considered as economically powerful and socially highly ranked which allows them to have a critical role in decision making. They also have a deep knowledge of the community as well as customs and religious and cultural beliefs, and finally their reasoning capacity.

These leader are highly influential and very well trusted by the community. Major decisions at village level are taken by these community leaders and also well respected by the community.

The above patriarchal system of decision making may also be observed at household level. Men in general are more empowered than women in decision-making, however, women play an important role in livestock breeding and its products.

High social coherence and the presence of one or few community leaders that are influential could greatly enhance conservation and resource management program at local level if the involved government organizations can take advantage of this opportunity.

On the other hand, this type of societies are closed systems and in case, interventions from outside are not consulted or coordinated with community leaders they could face serious implementation problems at local level, especially for those activities which require active community participation.

7.2 Villages with socio-economic structure that relies on livestock breeding and migration

A socio-economic structure that is based on migrant livestock breeding is mostly being practiced in remote areas. These villages have been less influenced by outside changes such that livestock breeding is still a source of livelihood for them. Such villages are mainly located at higher and mid-level altitudes of forested regions.

Based on this type of economy a unique socio-economic structure has been formed that is in close association with the economic structures and functions (for example, the collective work system). The customary laws and regulations regarding the land issue is one aspect.

The management system in these societies is purely patriarchal. The rest of the society obeys the head of the community who is well respected and trusted because of his age, traditional knowledge, wisdom and charismatic personality.

Among other characteristics of these societies is the cohesiveness of the social structure, importance of the patriarchal system, less capitalistic relations, importance of the male child, etc. In this way the value system of the tribal societies have remained intact.

As it can be observed form the above descriptions, the first and second group of villages are not much different in terms of social structure. They both benefit from strong community bonds and presence of empowered community leaders, both of which aspects can be used in natural resource management initiatives. In return not

using these opportunities and potentials could seriously hinder any development project. Thus identification of the community leaders are essential in facilitating project activities.

Chapter 8 Examination of the Present Limitations and Potentials

8.1 Environmental limitations and potentials

8.1.1 Limitations and potentials in forested areas

The study area has considerable limitations and opportunities which need to be considered in order for planning. With no doubt these opportunities and limitations are viewed in different ways by different stakeholder groups such as livestock breeders, government organizations involved in project implementation, wood production industries and middlemen, inhabitants of villages inside and on margins of the project area, and other groups. The project team has tried to take into consideration the overall picture and list down the limiting factors as well as opportunities. However, as the methodology for this study is using a participatory approach, the views of the livestock breeders has been recorded during participatory assessment workshops. The results of these studies reflected the following points:

- Degradation of forests mostly due to unsustainable use of forests by wood industries and middlemen
- Change in Land use
- Lack of consultation with the rural communities within the forests
- Lack of participation of livestock owners and breeders in decision-making process
- Absence of any planning for alternative job opportunities for livestock owners
- Lack of consideration of cultural beliefs and traditional life style of forest dwellers

All the above factors have contributed to the degradation of forest ecosystems and reduced forest cover. Problems contributing to this trend of degradation can be mentioned as follows:

- Land use change through physical expansion of rural population centres, new constructions
- Insufficient attention to the revival mechanisms of forest ecosystems and unsustainable use of forest products especially wood, and absence of a monitoring mechanism to survey the activities of wood industries
- Establishment of paper production factories regardless of the wood type and amount as primary materials

Existence of population centers inside the forests as a threat while their presence could be considered also as a critical tool for conservation of forests. However, lack of any planning and program for addressing the needs and requirements of these communities (fuel, and any alternative livelihood programs) have contributed to the unsustainable use of forests.

Regardless of all the limitations that exist for the forests, there are also many opportunities in this sector. Giving due attention to these potentials could hinder the trend of degradation and encourage revival of forest ecosystems. These potentials are as follows:

Existence of rare plant species

Biodiversity of animal and plant species which could not only address the needs of industries but also could be

used for ecotourism

Presence of human communities could be considered as a plus as these communities could help in conservation and sustainable use of forests. However, the communities need to be given a sense of ownership and belonging and be involved in decision-making processes from the beginning.

8.1.2 Limitations and potentials of rangelands

Studies show that forest dwellers still consider rangelands as continuous source of income and production to sustain their livelihoods. Despite this belief, their participation in management and sustainable use of natural resources and involvement in decision-making and planning stays limited. It would have been more ideal if the level of income of users increased to such a degree that they had a sense of belonging and ownership towards these resources and considering their traditional management systems and indigenous knowledge of natural resource management they could contribute substantially to the sustainable preservation of these resources. At present, the most important constraints on sustainable management of rangelands are as follows:

- Lack of involvement of user groups in decision-making systems and planning
- Inadequate use of the potential capacity and traditional knowledge of the management of natural resources
- Destroyed traditional natural resources management systems
- Intervention of some stakeholders by imposing new policies which takes the resources away from the forest dwellers
- Lack of awareness raising about the new laws and policies on forest and natural resources for forest dwellers
- Insufficient attention to the economic and environmental role of rangelands in the macro-economic structures and national income
- Lack of coordination between laws and regulation on one hand and policies and implementation on the other hand
- Lack of coordination between various agencies involved in rangeland management and inadequate organizational structure
- Cumbersome laws and regulations which limit the possibilities of getting financial aid form banks

Apart from the above limitations which build a constraint in sustainable use of rangelands, the rangelands in the study area especially at higher altitudes offer the following opportunities:

With reference to the official documents and comparing the production level in Protected Areas and control samples, the potential capacity of rangelands is three times higher than the present capacity which could be used if a decent management system is in place

In addition to the production of more than 50% of forage, other alternative activities such as bee hive keeping, fish breeding, poultry, tree plantation and medicinal plants cultivation, mushroom breeding, silk worm breeding, semi-industrial poultry, decorative plants breeding, handicrafts, industries that are related to livestock breeding and animal husbandry products, tourism industry, etc. which could all help in creating income for livestock breeders.

Existence of indigenous knowledge of forest and rangeland management that dates back to thousands of years and taking advantage of this knowledge for sustainable use

Studies have demonstrated that some livestock breeders who have limited number of cattle are willing to give up this activity all together, so it would be wise for the government to plan for alternative employment opportunities for them and provide them the necessary financial support.

Production of products from medicinal and industrial plants that can be found in rangelands may also contribute to national income.

8.2 Limitations and Potential Socio-cultural Capacities

Study of socio-cultural factors and their impact on the livelihood pattern of forest dwellers especially livestock breeders highlights the importance of socio-cultural elements. But it seems that in the past four to five decades this aspect has been more or less ignored in decision-makings. The following are some constraints that are caused by socio-cultural factors:

- Lack of a sense of belonging on behalf of rangeland users sue to the degradation of the traditional social structures
- Lack of involvement in decision-making systems
- Lack of government interest in participatory approaches while planning
- Weak relationship between user groups and government organizations
- Existing gap between policy makers and decision makers
- Lack of interest in following up laws and regulations by user groups as they have not been involved from the beginning in the planning process and policy making
- Old age of rural populations and migration of the youth to the cities
- Lack of interagency coordination with regards to natural resource management
- Cultural differences between the old and new generation in the same households
- Lack of interest of the youth to get involved in livestock breeding and farming (lack of prestige of this type of work)
- Inefficiency of the present management system in rural areas
- Decline of the tribal system and lack of new and adequate models to replace it
- Poverty in rural areas
- Unemployment and lack of job opportunities in rural areas
- Lack of an efficient information sharing mechanism for various user groups regarding natural resource management
- Land price speculations (as the easiest way to increase capital) and its impacts on changes in land use and conversion of rangelands and forests (whether legal or illegal)

Socio-cultural characteristics of rural communities should not be perceived as limitations for planning but they offer valuable opportunities for hindering degradation of forests and rangelands if used properly. The following section refers to some of these opportunities:

the geographical distribution of villages which is normally perceived as a constraint in providing services to the rural areas, could be considered as an opportunity for establishing centers for protection of natural resources and promoting sustainable use.

Rural-urban migration could be perceived as a positive phenomena as it would take away the population pressure from natural resources and prevent land degradation. However, this type of migration would also contribute to

the abandon of villages and provide a secure niche for wood smugglers, etc.

One of the main reasons for lack of implementation of planned programs has been the difference in worldviews of user groups and natural resources experts. However, in recent years experts have been more or less familiarized with participatory approaches.

Even though literacy is not directly associated with degradation of natural resources, but an increase in the level of education of the rural populations has reduced the gap between expert groups and user groups which opens up opportunities for information sharing and discussions.

Training of Islam as a comprehensive religion could address both the needs of user groups and help in reducing the human pressure on natural resources and promote sustainable use.

Presence of non-governmental organizations and cooperatives could potentially reduce the gap between people and experts which is recent years have had more opportunities to get involved in development, and their number is increasing.

Existing cultural beliefs which is reflected in songs, idioms, and children stories that are common knowledge could be explored to prepare the ground for natural resource protection

There is an indigenous knowledge of natural resources conservation and management among the local user groups (livestock breeders, farmers, etc.) for example on the balance of livestock and rangeland forage, which needs to be recorded and used. Fortunately there is a general recognition now of this type of knowledge (as a result of increasing international projects in Iran), however, combining the modern and indigenous knowledge systems still requires due attention and special efforts.

8.3 Limitations and Opportunities Offered by Promoting Public Participation

Lack of an efficient management system for land management in rural areas and related problems are one the main reasons for land degradation. Lack of rural management systems and confusion that has been caused in the past four decades has had a considerable impact on the trend of land degradation. Along with rural management systems, the decline of the tribal social structures and traditional management systems are one of the main causes of rangeland degradation and soil erosion. According to the National Combat Report on Desertification in 90% of the watersheds of the country the traditional management systems have declined.

Before such a decline occurred, the tribal societies of the country had their customary laws on the protection and sustainable use of natural resources. They followed up a regular schedule for their seasonal migrations, they had special guidelines on how to use the natural resources so that they remain renewable. The social structure and customary laws that governed the tribal societies obliged all members to obey these rules and regulations and a result the natural resources were used in a sustainable manner. However, because of the government intervention in this traditional management system and decline of the tribal societies, there has been a competition in using natural resources for individual benefits, which has resulted in the degradation of forests and rangelands.

Even though in some organizations public participation is encouraged and enhanced, but this concept is not yet implemented in a systematic manner from planning to implementation stage.

One of the main topics which is important in gaining public participation is to prepare organizational frameworks to make best use of traditional and indigenous knowledge in ongoing program. In the consultative workshops which have taken place, the participants emphasized on the fact that government organizations did

not really involve local people in planning and decision-making processes, and seldom shared their views with the local community (especially livestock breeders). For sure taking advantage of the local stakeholder views could be helpful in ensuring successful implementation of projects.

In general, the present constraints in using public participatory approach can be mentioned as follows:

- Lack of formal institutions such as cooperatives has hindered the rural community to be able to express themselves a united voice and defend their rights
- Absence of non-governmental organizations in the region or lack of capacity in building the bridge between people and government organizations
- Lack of sufficient support for those NGOs which are working on natural resource management
- Worldview of experts working in government organizations from public participation is very limited

Even though in recent years there have been efforts for improving rangeland management through creating a new system of ownership (land could be owned if used and revived properly), there seems that more innovative initiatives are needed to raise motivation of the rural community for sustainable use of rangelands

One major constraint is the national level planning system which does not consider public participation as a need and requirement for planning

Some of the opportunities and potentials that are created through public participation approach are as follows:

Existence of collective decision making systems for natural resource management especially among migrant livestock breeders of the region who have a tribal background

Sense of devotion which is still strong and could be considered as a social asset

Increasing tendency of government organizations in gaining public participation in natural resource management projects

Increased awareness of local people about various issues including natural resource management and causes of land degradation

Cultural beliefs of the local community also have a role in protection of the natural resources

For example it is in general believed that natural resources should be respected (some trees such as olive and fig trees are considered as holy), rangelands should be used in a sustainable manner, etc.

8.4 Limitations and Potentials of Government Organizations

Past experience shows that people, resources and participatory approach are the three main component of successful and sustainable resource management. Governments in general will have difficulty in managing natural resources and preventing degradation without help of the local people. As participatory approach is a dynamic concept, active and voluntary participation of people, NGOs and government organizations (especially those working in the area of public participation) are necessary to promote natural resource conservation.

Experience has shown that one main reason for unsuccessful implementation of government projects is that they are not addressing local needs, wants and interests. In this regard, gaining public participation could have the following benefits:

- Involvement of people and creating a sense of ownership

- Transferring authority to people
- Use of indigenous knowledge
- Participation of local people in decision-making and discussions
- Creating a sense of satisfaction
- Designating responsibilities and providing opportunities for decision-making
- Providing up-to-date information about the needs, priorities and capacity of local people
- More reliable feedback from government projects
- Building trust between government organizations and local people
- Improving quality of implementation of projects.

Chapter 9 Natural Resources from the Point of View of Government and Forest Dwellers

On one hand government in general and government organizations which are involved in natural resource management in particular, and on the other hand the forest dwellers and user groups are the main stakeholders of this project. Each of these stakeholders have their own worldview of natural resources and its sustainable management. Although these worldviews have evolved since two decades ago getting even closer to each other, however, these two stakeholder groups still do not have a common language to address the root causes of natural resource degradation. In the following section these worldviews are summarized. The first section is the result of a workshop held with local stakeholder groups and the second section has been extracted from government documents especially the "National Combat against Desertification":

9.1 Viewpoints of Forest Dwellers

Studies show that forest dwellers are quite interested in environmental protection, but socio-economic conditions have created pressures on them which despite their interest, they do not have a sense of belonging to natural resources anymore. Some of the reasons for such a feeling are mentioned below:

Nationalization of natural resources due to which the rural communities have lost their ownership of the land and natural resources. In the workshop sessions many people pointed out to this fact that without this sense of ownership the trend of degradation has been accelerated as it is not anymore their land but the government's land.

Income from oil and its role in the economy of the country have cause the decline of agriculture and over-dependency of the government on the income from oil instead of role of people in economy. In return, this system has created dependency of people on the government.

Despite the above two points, local people specially livestock owners have a relatively harmonious relationship with nature and considering the fact that their livelihood depends on these resources, they feel quite responsible towards their protection. In the following section the worldview of local people in expressed in more details:

9.1.1 Viewpoints of livestock breeders about the main causes of natural resource degradation

The concept of forest and rangeland degradation and resettlement of livestock breeders outside the forests is the

main topic in the present project From the point of view of the government, livestock breeders are the main cause of forest degradation. However, it seems that many other factors cause this type of degradation, and according to the livestock breeders their share in this trend is quite minimal. The causes of degradation that have been identified by livestock breeders are as follows:

- Illegal over-harvesting of wood by middlemen who are working with government organizations and wood industries.
- Lack of control of government organizations over the wood industries who are destroying the forests
- Wood smugglers and local agents who are earning their income from forest degradation
- Natural disasters such as floods which destroy the soil and vegetative cover
- Cattle that are wandering in the forest
- Inadequate implementation of laws and regulations by government employees at local level.

9.1.2 Viewpoints of the livestock breeders about the main issues concerning natural resources

A recognition of the potential and actual problems which exist for protection of natural resources are quite important in future planning. As the main stakeholder group in this project are the livestock breeders, thus hearing about their view of the problem could be helpful for government planners. According to them the main problems concerning forest and rangelands can be mentioned as follows:

- Unsustainable use and over-harvesting practiced by wood manufacturing companies that have contracts with the government
- Wood smuggling and sale of forest wood through middlemen and unemployed non-local people who work closely with some local people
- Lack of sense of ownership on behalf of livestock breeders towards natural resources
- Unfriendly relationship that exists between Forest and rangeland Organization and livestock breeders
- Intervention of the government in the timing of migrations of livestock breeders
- Limited number of grazing permits while the increasing number of livestock
- Destruction of trees by some user groups in order to provide forage for their cattle
- Use of trees for forest wood in villages with no access to facilities
- Natural disasters such as floods and fires
- Wandering cattle inside the forest

9.1.3 Some solutions for protection of natural resources suggested by livestock breeders

The results of participatory workshops with local community (livestock breeders) have shown that there is a potential for involving the local people in conservation projects. Livestock breeders as the main stakeholder group in this project can help by sharing their views as well as in the implementation phase. The following are some solutions suggested by this group for better natural resource conservation:

To involve livestock breeders in project which has to do with their livelihoods, by providing them an opportunity to participate in the process. They should be informed about projects by government organizations from the

beginning and in a very honest way about what is going on.

Land resources that have been traditionally belonged to local people should be left to be managed by them, with government playing only a supervisory and supportive role for conservation of these resources

Intervention of government is necessary in stopping the wood smuggling through middlemen, and contracts with wood industries should correspond to the real capacity of forests in providing wood

Management of grazing and migration should be undertaken by local people, and government should be supportive of sustainable livestock breeding

Livestock breeders should be recognized as a productive unit and should be able to benefit from loans and financial support of the government

Permits should be given to the livestock breeders to make them responsible for protection of forests and customary lands

Livestock breeders with larger herds should be encouraged and supported by government

9.1.4 Viewpoint of livestock breeders about the project

The results of participatory evaluation and interviews with the livestock breeders which took place in various areas of the study region, reflect a lack of transparent awareness raising policy on behalf of government organization which are in charge of project implementation. In fact, the study shows that despite the implementation of the project in some areas, the main stakeholder group that is the livestock breeders, they do not have a clear and common understanding of the project and its objectives, the role of government and locals, the scope of the project, compensation measures offered for moving the cattle out of the forest. It is only when they are involved directly in the project that they find out about these aspects and this delay contributes to confusion, undermining the interest of livestock breeders in getting involved in the project, or even opposing it all together. In the meanwhile the approach of those livestock breeders who have smaller herds and those who are involved in this activity in parallel with other activities is quite different from those livestock breeders who own large herds. The former are in general more flexible than the latter and are satisfied as long as they are paid enough and guaranteed some job in the downstream villages, as well as are provided with some residence.

However, the results of the study show that the project is opposed more strongly by those living in Masal, Fuman, Masuleh and Shaft which needs to be careful attention for future planning processes. It seems that villages that are located in Siahmezgui Shaft (including Kajdam and Vine-bene) agree with the project (25%).

In general the views of the livestock breeders about the project can be summarized as follows:

In this project livestock breeders have not been considered as main stakeholder group

The project will cause poverty and unhappiness to the livestock breeders

The Natural Resources Organization had not clearly explained the objectives of the project and had kind of fooled the livestock breeders

The project will destroy both the forest and the livestock breeders community

With the implementation of the project, wood smuggling and illegal harvesting will increase

The government might benefit from this project but the locals won't

With this project and migration to the cities, the poverty and drug abduction will increase in the cities

Government should respect the views of the livestock breeders in order to have a successful project implementation

Livestock breeders should be given their rights and compensated accordingly

9.2 View points of the Government Experts about Natural Resources

Natural resources government experts are already aware of the viewpoints of the local people. In fact, in the government reports the following points have been mentioned as the main reason for lack of cooperation on the part of the local people in natural resource protection:

- Lack of transparency about the ownership status of rangelands
- Overlap of project implementation with the timing of seasonal migrations
- Long-term benefits of the projects and short-term expectations of the user groups
- The dependency of local people on wood for fuel
- Expectation of the government from the local people to work for free in government projects
- Inadequate attention to socio-economic aspects due to obligation of following up administrative guidelines

Some of the experts as a result of experience gained in the past few years have concluded that the best way to protect natural resources is to address the problems of user groups and let them participate in the planning process. The key for participation of the local people is to pay attention to their role as the main stakeholders in forest and rangeland protection. But still the ways and means for involving local people in government projects is not clear.

Chapter 10 Analysis of the Market Potentials

10.1 Major Economic Sectors

An assessment of the economic structure of the study region and employment rates in various sectors (industry, agriculture and services sectors) shows that there are substantial differences between level and types of employment in various sub-provinces (Shahrestan) of the region. The services sector especially in urban areas has been able to attract the highest level of employment. Especially in the sub-province of Rasht which is the administrative center and development pole of the Guilan province, the role of services sector is quite prominent. Even in sub-provinces that agriculture sector is more important (like sub-province of Shaft), again the services sector attract more than 50% of total employment.

The high level of employment in the services sector more than being an advantage, it reflects the inability of other sectors in creating employment. The average per capita area of cultivation for each household is 1.25ha in rural areas of the study region, which considering the average household size in rural areas, reflects a lack of potential of the market for creating enough employment opportunities. On the other hand, an assessment of change in the level of employment in the agriculture sector shows that since 1984 the level of employment in the agriculture sector has been reducing gradually. This trend of decrease in relatively developed sub-provinces such as Rasht is more obvious than in sub-provinces that have a rural-urban economic structure (like Shaft sub-

province). However, within the past twenty years, a reduced number of 6000 which were previously employed in the agriculture sector in the sub-province of Somehsara illustrates this trend of decreased employment in the agriculture sector in the study region.

These study show that most probably in the coming years the region will not have the potential to create new employment, and the rate of unemployment will increase. Even if all the predicted employment opportunities for the Third Socio-Economic Development Plan are realized in the province, only 18% of the unemployed population will have a job. Considering the age structure of the society and the number of active population who will be entering the job market, with no doubt unemployment rate will be increasing to more than 12.4 (in 1994).

Taking into account the above framework, any change in the present employment structure especially with respect for the livestock breeders, will add to the unemployment rate, because this group of society who have exclusively worked in the field of traditional livestock breeding lacks the necessary skills and do not have the individual capacity of getting employed in other sectors.

This situation illustrated the fact that the trend for employment in services sector and agriculture not being able to address the need for new employment opportunities, plus lack of large capital investment for development of industries will continue in the future.

10.2 Employment Opportunities

10.2.1 Industry

Rasht and Fuman sub-provinces have historical background in industrial activities and have the highest employment rate in the industry and manufacturing inside the study region. However, there are many limiting factors which hinder the growth of this sector: Lack of major investment especially in larger industries with high employment potential, environmental limitation for establishment of industrial units and insufficient land for physical expansion of industrial towns, which all contribute to decrease of employment opportunities in this sector.

An assessment of the rural industries show that there is a potential capacity for creating employment in industries which have received work permit (but have not fulfilled their capacity to date). For example, food industries, chemical and cellulose industries have a higher potential in this respect.

Studies also show that for creation of one employment opportunity, about 4 million tomans (t) capital investment is required which varies depending on the sub-provinces. This figure is 4200 000t in Rasht, 3,700,000t in Somehsara, 3,500,000t in Fuman, 4,000,000t in Masal and 4,650,000t in Shaft. Thus, the potential for employment in manufacturing and industries is mostly in the smaller industries. Each of these industrial units have the potential to employ up to six people, if all the necessary requirements including improvement of individual skills, increased capital, expertise, etc. are met.

Extrapolation of this situation to the study group, who do not have neither expertise nor capital, plus other limiting factors, do not seem very logical. In reality, for some reason, for about 70% of handicrafts manufacturing units which have permits, the predicted number of employment opportunities has not been realized.

In this sector, the largest number of units and highest no of employment are located in Rasht sub-province. Handicraft industries such as carpet and kilim weaving, miniature arts, and wood carving have the potential to

hire more people. In most of these industrial units 1.4 persons are working. In the study group (livestock breeders community) some handicrafts are being produced by women for the use of the household.

It seems that scarf knitting in some areas also contributes to the economic livelihood of the households but is gradually losing it traditional value. It seems that handicrafts can't be replacing livestock breeding as a sustainable livelihood.

10.2.2 Agriculture

As mentioned above, the agriculture sector in rural areas of the study region, have an important role in employment, even though in the past two decades it has lost its value, and employment has increased in services sector. However, this trend varies in different sub-provinces, such that some activities related to agriculture sector has attracted zero employment in some sub-provinces. Activities such as fisheries, industrial cattle breeding, poultry industries, silk worm breeding and fish farming are practiced to different levels in different sub-provinces. Thus, while planning, the socio-economic conditions for each sub-province needs to be considered carefully. Farming, especially livestock breeding which is directly related to the topic of this project should also be considered in this context.

In rural areas of four sub-provinces of the study area the employment opportunities that have been created are mainly based on the economy of agriculture, especially cultivation (e.g. rice). Activities such as traditional and industrial cattle breeding, poultry industry, silk worm breeding, fish farming and orchard keeping are the main activities in the study region. Taking into account the above discussions about employment opportunities in the agriculture sector, different options for creating new employment opportunities for livestock breeders need to be studied carefully. These options should concentrate primarily on livestock breeding and orchard keeping and secondarily on agriculture. Only in this case the livestock breeders will have the necessary skills for new jobs.

Activities that are being followed up by livestock breeders in parallel to their main livelihood activity could be a safer option to start with because it will reduce negative socio-cultural impacts of changing the present livelihood patterns.

With the division of agricultural land into smaller pieces, mechanization of agriculture instead of using human power, low financial returns of small-scale agriculture, the agriculture sector is becoming less attractive for employment.

10.2.3 Services

Services sector has attracted the highest number of employed especially in the urban areas (more than 50%). In this field rendering services to the public sector is more prominent than other sub-sectors.

It can be concluded that at least in the services sector in rural areas of the study region, we are facing a situation where we have to deal with over-employment on one hand and crisis on the other hand. Over-employment in the services sector because the rate of employment is more than the capacity in this sector, and crisis situation because agriculture sector does not have the potential to attract new employment, similarly large industries are not able to create any new opportunities to replace the services sector.

The future of development of industrial sector is not very clear in the documents relating to the Third Socio-Economic Development Plan for the province. According to these reports, the highest rate of employment during

this period is predicted for services sector (37%), and handicrafts sector (30%).

10.3 New Possibilities for Employment

The results of this study show that any new employment opportunities for the livestock breeders community who are at present in forest areas, need to be founded on their present skills and potentials. Activities that are practiced by livestock breeders in parallel to their daily activity are closely associated with their socio-economic conditions, and have the potential to be used as new employment opportunities, even though from a financial point of view the benefits are quite limited.

An analysis of the employment trend in the study region shows that agriculture sector is losing its potential for employment with increasing population growth, and can't be considered as an important potential for future employment. As investment for development of industries in this region (through private sector or government) is also quite limited, employment opportunities in this sector also remain limited.

Thus, in the present socio-economic framework, employment options for those who give up livestock breeding are not many. Even those activities which are being practiced in parallel to livestock breeding are somehow limited.

As a result, to reduce the negative socio-cultural impacts of changing the status quo any kind of planning for employment of livestock breeders need to be in accordance with the present livelihood patterns and with the goal of preserving the forest and rangeland ecosystems. Employment that involves industrial or semi-industrial cattle breeding and poultry, tea plantation, rice cultivation, handicrafts industries, tourism, transport services, fish farming, silk-worm breeding and orchard keeping are all activities for which the livestock breeders have the potential to be trained for. Limitations of these activities are discussed in the previous section about market studies.

Activities which have better economic returns are tea plantation, rice cultivation, agriculture and orchard keeping. An increase in the area of cultivated land however, would require a change in land use affecting forests. A cost-benefit study would show that the benefits of such activities would hardly be higher than its costs, especially that most livestock breeders do not have the necessary skills for rice cultivation or tea plantation. Orchard keeping in forested areas also does not offer enough economic incentives for improving the livelihood of livestock breeders.

Thus, all the above-mentioned activities have their own limitations. One should identify employment opportunities which have the least negative socio-economic and cultural impacts, while helping to preserve the forest and rangeland ecosystems.

The following recommendations which have been gathered during participatory workshops and interviews with the livestock breeder community are hereby presented. These recommendations even though are not supporting the current policies of the Forest and Rangeland Organization which aim to move the cattle out of the forests and resettle of the livestock breeding community outside the forests, they might reduce the negative socio-cultural impacts of changing the present livelihood patterns for which the community has not even been consulted. These recommendations aim to prevent livestock breeder community to become a marginal community along urban areas contributing to poverty, unemployment and corruption. These recommendations emphasize on the fact that the present socio-cultural structure could be considered and built upon as a valuable social asset of the country, and that planning for alternative livelihood patterns need to be carefully considered with the ultimate goal of preserving the forests and rangelands, and their sustainable use.

Chapter 11 An analysis of the Capacities and Needs

Forest dwellers who are livestock breeders have been going under a lot of socio-economic changes lately, as a result, their needs and expectations with respect to various social, economic and cultural aspects have changed. The simple and closed society of before required certain things which are quite different from today's needs. In the same manner, the capacities of this community have changed. Thus, in assessment of the needs and capacities of livestock breeders, the past socio-economic changes should be taken into account. On the other hand, the capacities could be used as potential for planning programs to improve livelihoods of this community, using a participatory approach.

These capacities and needs which are essential to the socio-economic livelihood of livestock breeders could be described as follows:

11.1 Capacities of the Target Community

11.1.1 Economic capacity

The role of livestock breeders in the national economy cannot be ignored. The capacity of this section of society in producing meat and other products for the urban community should be recognized. However, their capacities may not be limited to producing dairy products but their role in contributing to the cycle of circulation of resources and money in the economy of the region. The high number of livestock breeder community in rural areas of this region is definitively an economic asset for the region.

11.1.2 Social capacity

The livestock breeders community are an important part of the population of the region, especially in rural areas. In the past decades the social life of this community has gone under tremendous changes. Increased communication with urban and other rural areas, higher level of education, participation in the social and political aspects of life at regional level, all have increased the potential capacity of this group to participate in development projects. In the past years, although the younger generation shows less interest in staying in the villages and tends to migrate towards urban areas, but in this process has been able to introduce some of the capabilities from urban areas to the villages.

11.1.3 Cultural capacity

The studies livestock breeders are originally from the Talesh tribe and have all the characteristics of this tribe in terms of clothing, language, customs, literature, social behavior, etc. In addition, they have preserved their unique culture such as architecture, beliefs, productivity systems, traditional social organization, management models, labor division, etc. Although level of practicing cultural activities is now much reduced, one cannot ignore the role of cultural elements which could help in the process of planning for better livelihoods for this community.

11.1.4 Environmental capacity

In the planning process one cannot separate the Talesh tribe from the environment especially forests and rangelands because of the inter-relationship. Along with these two components, the livestock is the third dimension of this relationship between human and environment. Thus, the mode of life of this local community requires a harmony between the three components (which has been the case for centuries). There is an organic bond between the three components (forest/rangeland, livestock, community). Considering this historical background, the life of the livestock breeders depends on the environment and vice versa. This mutual relationship ties the future of livestock breeders and the natural resources to each other and one cannot be saved to the detriment of the other.

11.1.5 Livelihoods

The livestock breeding community is the third part of the Iranian society. This section, along with other urban and rural sections, contributes to the socio-economic life of the study region. In this organizational structure is such that planning for problems, potentials and solutions cannot be achieved without including the above community into the equation. In the planning process, the livestock breeders community with its traditional knowledge and experience offers unique potentials for identification of sustainable livelihood models. This community acts as the backbone of the rural and urban communities, not only for providing food but also in terms of social assets.

11.1.6 Management capacity

The livestock breeders that are forest dwellers are quite strong in the area of management of natural resources. Although these management capacities have not been recorded anywhere but the fact that this mode of life has been able to survive over centuries is in itself a proof of this capacity. Recognition and use of these capacities could contribute to the sustainable management of natural resources.

11.1.7 Institutional capacity

The main reason for survival of this group of society despite so many changes has been its strong traditional institutional structure. In the planning process the organic structure and function of these traditional societies could be used as a potential asset for management of natural resources. In fact, these traditional institutions are often more efficient than government institutions in terms of organizational structure for management of natural resources.

11.1.8 Personal characteristics

The personality of the Talesh tribes is such that they are quite hard working, persistent, resistant against problems, dependent on livestock and rangelands, willing to participate, kind, reliable, and flexible, with relatively low expectations. A combination of these positive personal characteristics if used beneficially could contribute to the ability of this tribe to take an active participatory role in the protection of natural resources and planning processes.

11.2 Needs and expectations

The needs of the livestock breeders community are multiple and can be summarized as follows:

11.2.1 Livelihood needs

This type of livestock breeding which is combined with seasonal migrations has its own problems which include: ecosystem conservation, forage provision, sales of the products, relationship with administrative authorities that are involved in natural resource management, etc. Among those, provision of winter forage is one of the main problems, and then getting the necessary permits to build residential areas or livestock barns is of second priority. The intervention of the government organizations in the patterns of use of rangelands over which the community has customary rights is also another important issue which the community wishes to resolve.

11.2.2 Management needs

The methods of usage of forest and rangelands are the main topics of disagreement between the government organizations and livestock breeders community. The nationalization of natural resources and changes in use patterns from one side, and the continuation of traditional usage of natural resources based on the permits issued by the Forest and Rangelands Organization on the other side, have contribute to the continuation of the disparities. Resolving these differences will be one of the essential needs of the local community of livestock breeders. The intervention of government organizations in the timing of migrations and duration of use of rangelands, rejection of use of middle-level rangelands, lack of support in provision of winter forage, not giving grazing permits, lack of balance between the number of livestock with grazing permits and the total number of livestock which are using the natural resources, etc are among management issues which can be resolved through a participatory management approach.

11.2.3 Social needs

The target community has the potential capacity to get involved in a participatory management program if it is founded on the basis of the traditional management systems. Not paying enough attention to this potential on behalf of the government organizations is one of the serious limiting factors in the planning process. Transfer some of the management rights to the community as the main stakeholders, is a possibility which needs to be considered by planners.

An increase in the level of unemployment especially among the young and educated members of the tribal society in the best case scenario will lead to rural-urban migration with its negative socio-economic impacts. One of these impacts is the loss of manpower from the cycle of production. Thus, creating new employment opportunities and supporting the livestock breeding activity could be an incentive for the younger generations to stay with their families.

11.2.4 Cultural needs

The remoteness of some rural areas and lack of access to facilities and infrastructure is a serious obstacle for the

households to get familiar with civil and cultural opportunities. In fact, this has enhanced the differences between government organizations and local communities, and has a negative impact on the planning process.

Infrastructure needs: Most of the villages that are involved in livestock breeding lack infrastructure and basic facilities such as roads, fuel, etc. Although these shortcomings have hindered the outsiders to over-exploit forest resources and contribute to the protection of forests to some degree, however due to this problem, the local community has to use forest resources as fossil fuel in winter. So the above needs to be considered in the future planning initiatives.

11.2.5 Need in services

Lack of services with respect to education, health, and other essential needs of the community are among factors that need to be considered in the planning processes especially in the villages where the accessibility to downstream villages and services are limited.

An analysis of the capacities and needs of the livestock breeders community shows that a combination of issues need to be considered in the planning processes, and this kind of planning requires a bottom-up approach with direct participation of the local stakeholder group.

Chapter 12 Recommendations

12.1 Policy framework

A review of the past planning processes shows that in the past there was a lack of a very clear policy framework to create a stable environmental condition. In addition, inadequate attention has been given in the planning process to the local community as the main stakeholder group, and their participation in the process has not been sought. Thus, the following recommendations by the study team aim to improve future planning processes:

12.1.1 At Macro-level

- To include the sustainable development approach in the planning
- To give priority to preventive measures to reduce degradation of natural resource directly involving the local community as the main stakeholder
- To plan for research programs with emphasis on indigenous knowledge in forest and rangeland conservation
- To review the present laws and regulations and to complete them with new laws and regulations in line with sustainable development in order to prevent degradation of natural resources
- To increase public awareness about the danger of natural resources degradation
- To prepare the ground for community participation especially the livestock breeders in the planning, management and implementation of the resettlement project
- To use new approaches which would combine research and indigenous knowledge for better implementation of the project

12.1.2 At Micro-level

- To decentralize and empower the local community (in here livestock breeders and tribal society) in making decisions regarding the protection of the natural resources they are using (instead of government organizations playing this role)
- To implementation of a participatory management approach in the protection, revival, sustainable use of the forest resources in the study areas
- To use a forestry planning and management method which would benefit from indigenous knowledge of the local community
- To harmonize the benefits of the private sector with the national benefits by supporting the customary rights of the local community and including them in project planning, management, monitoring and evaluation
- To assess the current use patterns and compare them with modern and traditional usage of natural resources
- To include women as an important component in the use of the rangeland and forest resources
- To develop ecosystem management approach to ensure sustainable use of the natural resources
- To protect and promote sustainable use of biodiversity with emphasis on combining new technologies and indigenous knowledge
- To enhance productivity by promoting institutionalization of production processes
- To provide fossil fuel and forage in winter for communities (especially in this case livestock breeders) living in remote areas who have difficult access to downstream facilities
- To recognize formally the local and traditional institutions and to support their development
- To study the environmental sustainability of road networks being constructed in the forest areas in order to better protect the natural resources
- To move towards using renewable energies

12.2 Suggested inter-sectoral programs for action

Based on the above policy recommendations, in here a list of potential and possible programs for action which are closely associated with the above recommendations:

12.2.1 Programs for gaining public participation

Decentralization of decision-making process by shifting from a government run project to a more balanced decision-making system which would empower the local community and include them in the implementation of the project as the main stakeholder

Raising awareness of the public about the protection of natural resources to increase their knowledge and to add a new dimension to their worldview about natural resources

Formally recognizing and empowering traditional institutions at local levels with the aim of increasing their role in the planning and management of project

Preparing the ground for the involvement of women and their active participation in the resettlement project

Supporting NGOs and providing a framework for their active participation in protection of natural resources

Giving the right and responsibility to people in the protection of the natural resources and increase their willingness to participate in the project

12.2.2 Social programs

Socio-cultural values are indeed linking human with the environment. To protect natural resources and improve the living conditions of the local communities, it is necessary to plan for social programs. Some of these programs according to the present study team might be as follows:

- Revival and support of traditional usage of natural resources especially by people (instead of government organizations)
- Support of local institutions that are involved in the management of natural resources in rural areas
- Provide insurance services and other social welfare programs to the community level user groups, especially to cover for forest dwellers (livestock breeders and their herds)
- Recognize customary rights of livestock breeders over land in rangeland areas

Create new employment for the active population group that is ready to enter the job market, especially supporting activities that are diverse (from different sectors) and do not contribute to the degradation of natural resources.

12.2.3 Cultural programs

Raise awareness of local people (urban and rural) about the importance of protecting natural resources and its role in sustaining human livelihoods, as well as the causes of degradation (e.g. through mass media, exhibitions and festivals)

Train managers and experts in natural resources about the participatory management approach

Include environmental education with emphasis on natural resources in the text books at different levels of school education

12.2.4 Legal reform programs

Improve the current system by including people's participation in drafting new laws and regulations (especially involving local communities in the decision-making process)

Replace a top-down approach by a bottom-up approach by empowering local communities, NGOs, and other local stakeholder groups dealing with legal matters

Introduce the traditional laws and regulations to the society at large

Review the existing laws and regulations regarding protection of natural resources (with respect to ownership, usage, protection, etc.)

Simplification of laws and regulations

Form formal institutions locally based on the traditional laws and regulations.

12.3 Future needs for better project implementation

The results of this study group on the social and economic issues reflects that the project will have many difficulties at the implementation stage. The reality is that despite the detrimental effect of cattle that is wandering in the forests and rangelands and its negative impact on these resources, however, there are many other more important negative impacts from the project activities which cannot be ignored. Thus, the resettlement project needs to be refined to minimize such impacts.

The study showed that in general there are two points of view from livestock breeder community's part:

The first group are those who own/manage a small herd and have poor access to facilities, they are also active in other areas than livestock breeding and already have some experience working in the urban environment, or other sectors of the economy such as agriculture and services. This group shows a willingness to move out of the forest if their financial requirements are met.

The second group are those with large herds and have been involved in this activity for centuries. They strongly oppose any radical change in their livelihood system.

Thus, it seems that the indicator for implementing the project more successfully instead of focusing on the number of household per village (20 households is the limit), needs to focus on the size of the herd. The project will have much less success with livestock breeders who have more than 100 animals (mostly small animals), and recommendations need to take this reality into consideration.

The study team has concluded that without active participation of the livestock breeders community the project will not be successful. The need for such an initiative becomes more urgent when considering the present economic and market potentials in the region and lack of necessary skills of livestock breeding community in getting engaged in alternative livelihood programs. Otherwise, the project will have serious negative socio-economic impacts.

12.4 Final recommendations

The implementation of a pilot project in a sub-region focusing on the research aspect of involving local community in the protection of natural resources and focusing on the participatory management approach.

Moving towards collaborative management in a formal and institutional way. The definition of such a management system is given below and it is worth noting that this type of management has already been implemented in many areas of the world as well as nationally to promote sustainable use of natural resources.

Co-management of Natural Resources

> ***'co-management'*** *—*
> *a situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources*

Co-management is:

a pluralist approach to managing natural resources (NRs), incorporating a variety of partners in a variety of roles, generally to the end goals of environmental conservation, sustainable use of NRs and the equitable sharing of resource-related benefits and responsibilities

Natural resource management (NRM) is a major political arena. In the past, many traditional societies formed relatively closed systems in which natural resources were managed through complex interplays of reciprocities and solidarities. These systems were fully embedded in the local cultures and accommodated for differences of power and roles – including decision-making – within holistic systems of reality and meaning. Dialogue and discussion among interested parties on the basis of field experience (what is referred to as "co-management" today) were widely practiced in some of these societies. In others, different social values such as religious authority, caste predestination and cultural norms determined most NRM decisions and the related sharing of costs and benefits. Communal property was generally widespread, and constituted a crucial element in the cohesion and sustainability of traditional NRM systems. Local knowledge and skills, built through extended historical experience, were another cornerstone. Most importantly, local communities tended to create themselves around a body of natural resources that they could manage together. In other words, **in traditional societies the units of natural resource management and the units of social life tended to coincide**.

The historical emergence of colonial powers and nation states, and their violent assumption of authority over most common lands and natural resources led to the demise of traditional NRM systems virtually everywhere. The monetization of economic exchange weakened local systems of reciprocity and solidarity, as did the incorporation of local economies into increasingly global systems of reference. In addition, the rise in power of modern, expert-based, "scientific" practices induced severe losses in local knowledge and skills. This generalized breakdown of local NRM systems finally resulted in the disempowerment and "de-responsi-bilisation" (see Banuri and Amalrik, 1992) of local communities. Attitudes of confrontation and reciprocal mistrust between local communities and the representatives of the state became widespread. Community-based trial and error and the detailed discussion of local NRM practices, wherever they existed, were largely substituted by the coercive imposition of practices through laws (e.g. the nationalization of NRs), external rules, extension services, the police and the army.

Brainstorming with the experts of NRGO and the representative of JICA Study Team on selection of pilot communities

The flood in forest highlands and flow of mud and sediments in Masal River

Meeting with experts of NRGO of Guilan and JICA Study Team for justification of Resettlement Project in Rasht.

Garbage dumping site of Rasht city and the cattle feeding from garbage in the forest, these garbage re destructive in the forest

Preliminary workshop with herders of Gale Dahane in the village tea house

A house of a herder supposed to be demolished

A house of a livestock herder located in halfway rangelands of Masal forests

Human interferences in the forests of Masuleh- Siah Kooh village

Co-existence of human, livestock and rangeland

A sample of livestock herders house in the forest

Social Survey of the research team in forest highlands of Siah Kooh village

Social Survey of the research team with the households of Siah Kooh village

Landscape of rangelands in the heights of Salim Abad

Interview with livestock herders in Zoodel village-Masuleh Sub Basin

Social Survey of the research team with the households of Siah Kooh village

Participatory workshop with livestock herders of Kajdom and Vene Beneh villages In Shaft sub basin

A livestock herder from Fuman while facilitating a participatory workshop in Gale Dahane and Malak Sar villages

Summering grounds of livestock herders

Social Survey of the research team with the households of Siah Kooh village

Landscape of rangelands in the heights of Masal

Participatory workshop with livestock herders of Salim Abad and Ler villages in their summering grounds

Participatory workshop with livestock herders of Kajdom and Vene Beneh villages in Khorram Kesh mosque in Shaft Sub Basin

Wandering cattle in forest

A village in the high forest lands of Masal