Summary of the Joint Pilot Activity

< Wetland Ecosystem Conservation >

Summary of the JPA (1):	Comprehensive Ecosystem Survey
Summary of the JPA (2):	Monitoring of the natural environment in the Anzali Wetland
Summary of the JPA (3):	Wetland Conservation and Restoration
Summary of the JPA (4):	Monitoring of Water and Sediment Qualities in the Anzali Wetland and Its Watershed
Summary of the JPA (5):	Environmental Zoning and Land Use Management Activity

< Watershed Management >

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< Sewage Management >

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Summary of the JPA (13):	Development Project of Vacuum Sewerage System in Koliver Area of Anzali City

< Waste Management >

Summary of the JPA (14):	Valuable recyclables collection activity
Summary of the JPA (15):	Organic waste composting & in-house treatment activity
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< Ecotourism >

Summary of the JPA (18):	Community-based Ecotourism Development
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< Environmental Education >

Summary of the JPA (20):	Implementation of the EE Program by using the Anzali Wetland Environmental Education Center (AWEEC)
Summary of the JPA (21):	Preparation and Implementation of EE Curriculum for School Class and Implementation with Teachers' Training Program
Summary of the JPA (22):	Implementation of Broader EE Program
Summary of the JPA (23):	Public Relations Activities

Summary of the Joint Pilot Activity (1)

(1) Name of the JPA

- Comprehensive Ecosystem Survey

(2) Objective(s)

- In order to grasp the baseline of the wetland ecosystem for wetland management, a comprehensive fauna and flora survey should be implemented by DOE Gilan in cooperation with the member of SC and scientists.

(3) Location(s)

- Inside of the whole Anzali Wetland zone. The area is divided Selkeh WR, Sorkhankol WR, Choukam WR, Siahkeshim PA, West Lagoon, North Area of Wetland, East Area of Wetland, North West of Wetland.
- For aquatic category such as fish, the inflowing rivers in the watershed of the Anzali Wetland were included as survey area.

(4) Implementation period

Item	Period（Field Survey）
1) Mammal Survey	Jan 2015 to Jan 2016
2) Bird Survey	Jan to Dec 2015
3) Satellite Tracking Survey of Migratory Birds	Feb- May 2016 (Dalmatian Pelican) May 2017- Dec 2017(Purple Heron) Mar 2019- (Dalmatian Pelican)
4) Reptile and Amphibian Survey	Mar 2018 to Sep 2018
5) Fish Survey	Mar 2016 to Sep 2017
6) Aquatic Plant Survey	Oct to Nov 2018
7) The other categories	Not implemented

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Wetland Conservation and Restoration WG under Wetland Ecosystem Conservation SC
- Main Responsible Organization: DOE Gilan

(6) Outline of the activity

- Field surveys of mammal, bird, reptile, amphibian, fish and aquatic plant (only in Selkeh WR) were implemented.

(7) Output of the activity

- The field survey recorded 21 mammal species, 243 bird species, 17 reptile species, 3 amphibians, 57 fish species and 50 vascular plant species (Only in Selke WR) by field survey.
- Identification of the migratory route of Dalmatian Pelicans and Purple Herons

(8) Effect and impact of the activity

- Through the JPA, some reliable data of the ecosystem were grasped. These data can be used as the reference data for long-term wetland management and baseline for planning the conservation and restoration activities, and this is considered a significant achievement.
- Based on the result of surveys, the RIS of the Anzali Wetland was updated by DOE HQ in cooperation with JET.

(9) Sustainability of the activity

- The scientific baseline survey is a very basic obligation for Ramsar Site of DOE Gilan. All conservation and restoration activities should be based on the results of the baseline and monitoring. The budget should be secured continuously.

(10) Secondary effect(s) of the activity

- The results of the comprehensive ecosystem survey were very useful to prepare the educational materials such as posters and booklets.

(11) Approximate cost

Item	Cost
1) Mammal Survey	USD 50,000
2) Bird Survey	USD 25,000
3) Satellite Tracking Survey of Migratory Birds	USD 43,200
4) Reptile and Amphibian Survey	USD15,000
5) Fish Survey	Unknown (by Iranian Side)
6) Aquatic Plant Survey (only Selkeh WR)	USD 2,000
Total	**USD 135,200**

(12) Expected future action by Iranian side based on this JPA after completion of the project

- The comprehensive ecosystem survey has not been completed yet. Aquatic plant survey (Whole Anzali Wetland and full season), planktons, Benthos and insect survey should be implemented as soon as possible.
- Also, the Ramsar Information Sheet (RIS) of the Anzali Wetland must be updated at least every six years based on the Resolution VI.13 of the Ramsar Convention. It is an international obligation of DOE HQ and DOE Gilan. The RIS of the Anzali Wetland was recently updated in June 2018 with the support of JET just before COP13. Therefore, in order to grasp the baseline information to manage the Anzali Wetland all of the items of comprehensive ecosystem survey must be implemented every six years.

(13) Recommendations

- In the Project, DOE Gilan did not implement the comprehensive ecosystem survey very well. The baseline of the ecosystem is the most important information to manage the Anzali Wetland. In order to manage the wetland ecosystem, DOE should have ecosystem survey based on their own plan based on the Mid-term Plan) in cooperation with relevant organizations such as NIWAI.

(14) Remarks

Photos

Mammal Survey on 13 May 2015

Bird Survey on 22 Feb 2016

Satellite Tracking (Dalmatian Pelican) on 4 Mar 2016

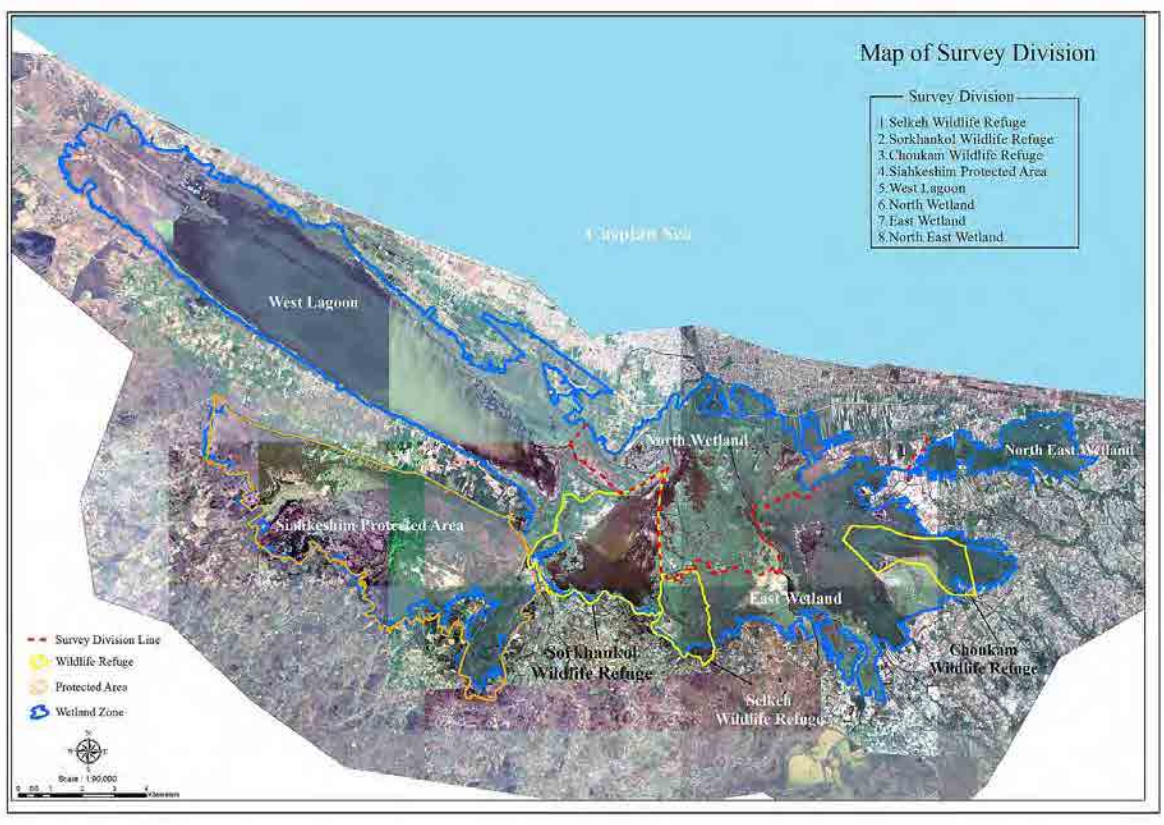
Satellite Tracking (Dalmatian Pelican)on 13 Mar 2019

Satellite Tracking (Purple Heron) on 30 May 2017

Fish Survey on 5 Dec 2016

Reptile and Amphibian Survey on 18 May 2018

Aquatic Plant Survey on 11 Nov 2018



Source: JICA Expert Team

Location Map of the Anzali Wetland for Comprehensive Ecosystem Survey

Summary of the Joint Pilot Activity (2)

(1) Name of the JPA

- Monitoring of the natural environment in the Anzali Wetland

(2) Objective(s)

- In order to introduce regular monitoring of the natural environment to implement adaptive management of the wetland.

(3) Location(s)

- Whole Anzali Wetland and the inflowing rivers in its watershed.

(4) Implementation period

Item	Period
1) Mid-winter waterbird census	Jan 2014 to Jan 2019 (from 2006)
2) Monitoring by using visual observation tool	Jun 2014 to Mar 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Wetland Conservation and Restoration WG under Wetland Ecosystem Conservation SC
- Main Responsible Organization: DOE Gilan, NIWAI

(6) Outline of the activity

- DOE Gilan has implemented the "International Waterbird Census (IWC)" based on the protocol of Wetland International. Experts of DOE Gilan have counted the number of waterbird in each wetland every mid-winter at least from 2006.
- Multi-copters took aerial photos and videos.
- There were many items to be monitored based on the action plan at the beginning of the project. However, most of the monitoring has not been implemented.

(7) Output of the activity

- It was clarified that the number of individual and species of waterbird in midwinter was increasing gradually.
- Many photos and videos recording the situation of the wetland were taken by visual observation tools
- The time-lapse camera recorded the water fluctuation and sedimentation around the Sorkhankol Guard Station.

(8) Effect and impact of the activity

- The annual trend of waterbirds was used to update the Ramsar Information Sheet in June 2018.

(9) Sustainability of the activity

- DOE guards became able to identify the Water Hyacinth quickly. They can monitor and remove the small number of WH during the routine patrol.

(10) Secondary effect(s) of the activity

- The videos and photos taken by the visual tool were used for the public relation materials.

(11) Approximate cost (Only Japanese Side)

Item	Cost
1) Mid-winter waterbird census	Unknown
2) Monitoring by using visual observation tool	USD 4,500
Total	**USD 4,500**

Note: Mid-winter waterbird census was mainly implemented by DOE Gilan. JET supported to provide a telescope.

(12) Expected future action by Iranian side based on this JPA after completion of the project

- International Waterbird Census (IWC) should be continued every winter by DOE Gilan.
- Many activities should be implemented based on the Mid-term plan for natural environment monitoring as the followings.
  a) Indicator Monitoring

b) Alien Species Monitoring
c) Restoration Activity Monitoring
d) The Other Necessary Indicator Monitoring

(13) Recommendations

- DOE-Gilan needs to monitor other factors, such as conditions of water, sediment, plants, mammals, birds, fishes, reptiles, amphibians, benthos and planktons, land use/encroachment, hydrology, sedimentation, and other items. These should be integrated under a unified framework for monitoring of the Anzali Wetland.

(14) Remarks

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Photos

Selkeh WR by multi-copter on 19th Oct 2018

Chokum WR by multi-copter on 19th Oct 2018

Sorkhankol WR by multi-copter on 11th Feb 2018

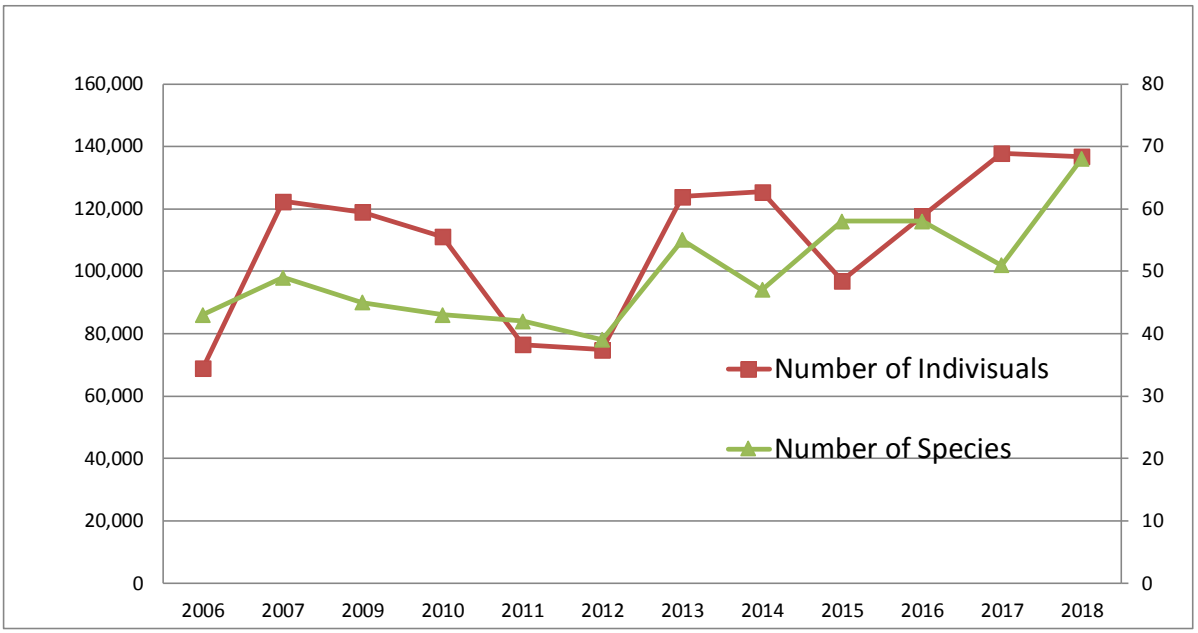
Pirbazar Riv.and Pasikhan Riv. by multi-copter on 25th May 2018

Monitoring by using multi-copter in Siahkeshim PA

Monitoring by using multi-copter at Sorkhankol GS

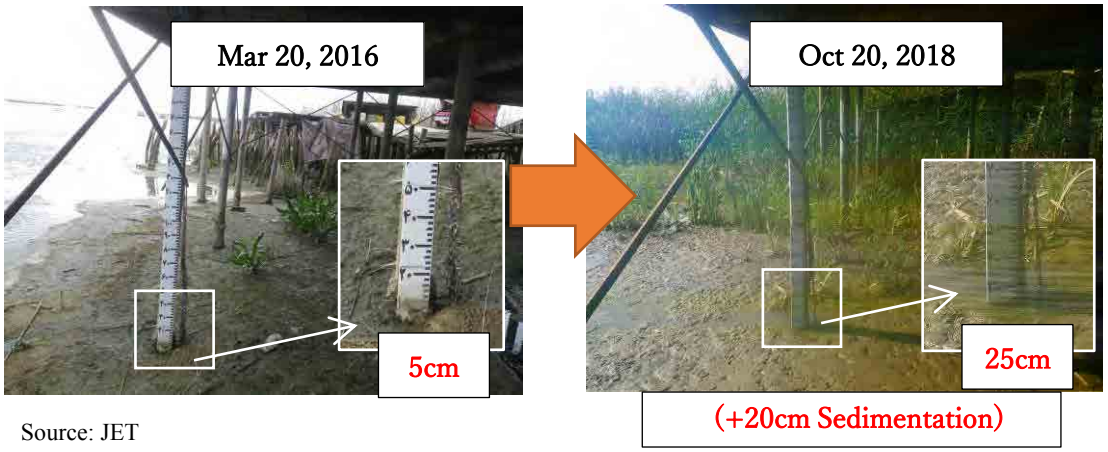
Time-lapse camera under Sorkhakol Guard Station

Gigapan photo on AWEEC Watching Tower



Source: JET prepared by using the data of DOE midwinter bird counting

Trend of Waterbirds in Midwinter in the Anzali Wetland



Source: JET

Sedimentation Deposit at Sorkhankol GS by Time-lapse Photo

22 Aug 2014

19 Dec 2014

8 Mar 2015

27 Nov 2015

18 Mar 2016

12 May 2016

2 Dec 2016

6 June 2017

2 Feb 2018

23 Aug 2018

1 Feb 2019

Source: JICA Expert Team

Gigapixel Panoramas from Selkeh Bird Watching Tower

Summary of the Joint Pilot Activity (3)

(1) Name of the JPA

- Wetland Conservation and Restoration

(2) Objective(s)

- In order to secure the balance of the Anzali Wetland ecosystem by solving the many issues such as drying of the wetland and succession of the vegetation, invasion by alien species, and fragmentation of ecological (river) network by dams based on the result of comprehensive ecosystem survey.

(3) Location(s)

- Whole Anzali Wetland and the inflowing rivers in its watershed.

(4) Implementation period

Item	Period
1) Removal Activity of Water Hyacinth	Sept 2015 to Mar 2019
2) Fishway Construction	Jan 2018 to Mar 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Wetland Conservation and Restoration WG under Wetland Ecosystem Conservation SC
- Main Responsible Organization: DOE Gilan,

(6) Outline of the activity

- Most of Water Hyacinth was removed. Small flock of Water Hyacinth is still remained but under control as of Mar 2019.
- Two siphon type pipe fishways were installed on the Pasikhan dam as a trial in March 2018.

(7) Output of the activity

- The introduction and expansion of Water Hyacinth as invasive alien species was detected in July 2015. DOE Gilan, in cooperation with the other organization, started to remove the plant quickly. Most of the Water Hyacinth was removed and now is under control. Continuing the monitoring and small removal activity is necessary.
- After the installation of the fishways, they were flown out by flood after heavy rain before monitoring of the function. The management of fishway should be improved.

(8) Effect and impact of the activity

- Now the situation of Water Hyacinth is kept under low-density control as of Dec 2018 due to the project.

(9) Sustainability of the activity

- DOE guards became able to identify the Water Hyacinth quickly. They can monitor and remove the small number of WH during the routine patrol.

(10) Secondary effect(s) of the activity

- The developed methodology by the project applied to the other area such as Eynak Lagoon in Rasht City, Chamkhaleh in Rangrud City, etc. The method is not precisely the same. However, the movement and motivation of the removal of WH were increased after the case of Anzali Wetland.

(11) Approximate cost (Only Japanese Side)

Item	Cost
1) Water Hyacinth Removal	USD 5,000
2) Pipe type fishway installation	USD 3,000
Total	**USD 8,000**

Attention) For WH removal, Iranian side (mainly DOE Gilan) spent much cost for the removal activities. However, the cost is unknown.

(12) Expected future action by Iranian side based on this JPA after completion of the project

- The best way of Water Hyacinth control is frequent monitoring and small scale removal at low cost.
- The installation of fishway should be implemented on all artificial river structures to make migratory fish move to upstream.

(13) Recommendations

- There are several invasive alien species except for Water Hyacinth in the Anzali Wetland. The monitoring survey should be implemented to grasp the situation of their invasion. Control activities should be planned and implemented based on the Mid-term plan.
- Many activities should be implemented based on the Mid-term plan for wetland conservation and restoration as the followings.
    a) Conservation of Open Water Surface
    b) Conservation of Variety and Cline of Water Depth
    c) Conservation of Reed Bed and the Other Aquatic Plant Community
    d) Conservation of Toll Forest
    e) Construction of Fish Way and Securement of Maintenance Flow

(14) Remarks

-

Photos

WH Removal in Sangachin Area on 8 Dec 2015

WH Removal in Sangachin Area on 8 Dec 2015

WH in Sangachin Area on 8 Dec 2015

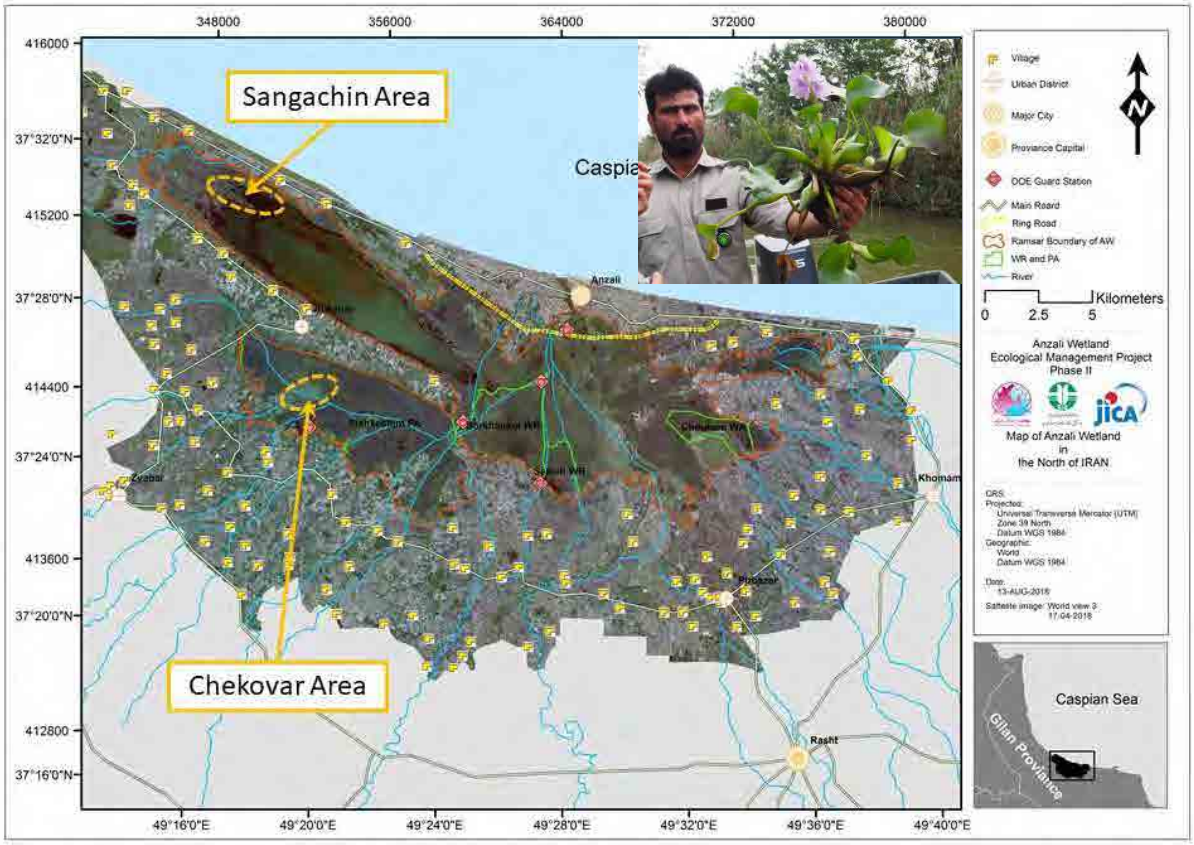
WH Removal in Sangachin Area on 8 Dec 2015

WH in Chekovar Area of Siakkeshim PAon 8 Jun 2016

WH in Chekovar Area of Siakkeshim PAon 8 Jun 2016

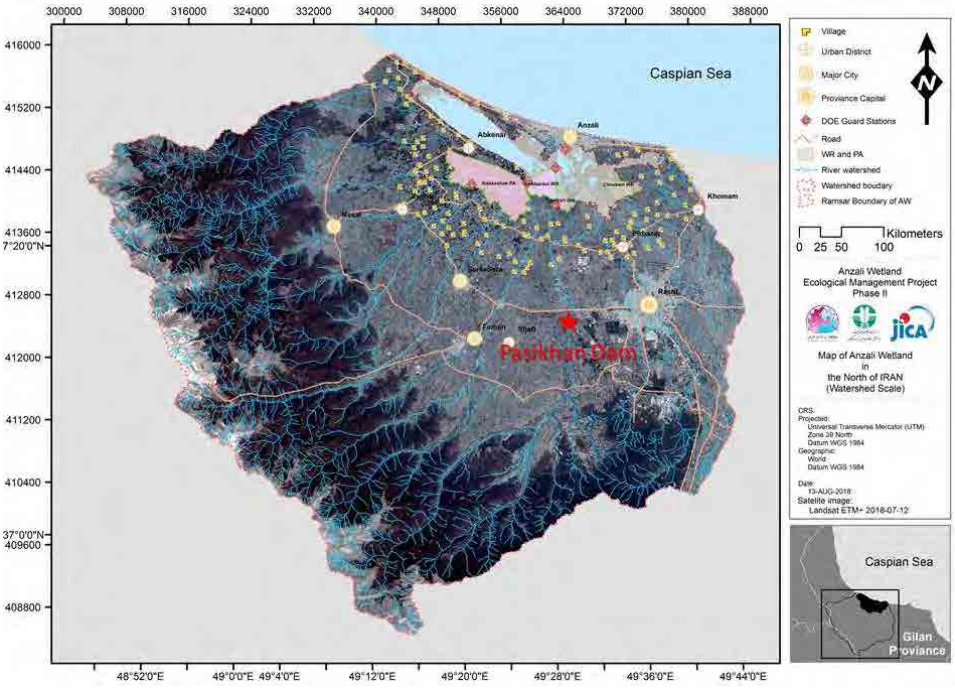
Fishway installation on Pasikhan Dam on 9 Mar 2018

Fishway installation on Pasikhan Dam on 9 Mar 2018



Source: JICA Expert Team

Location Map of the Anzali Wetland for Comprehensive Ecosystem Survey



Source: JICA Expert Team

Map of Fishway (Pasikhan Dam)

Summary of the Joint Pilot Activity (4)

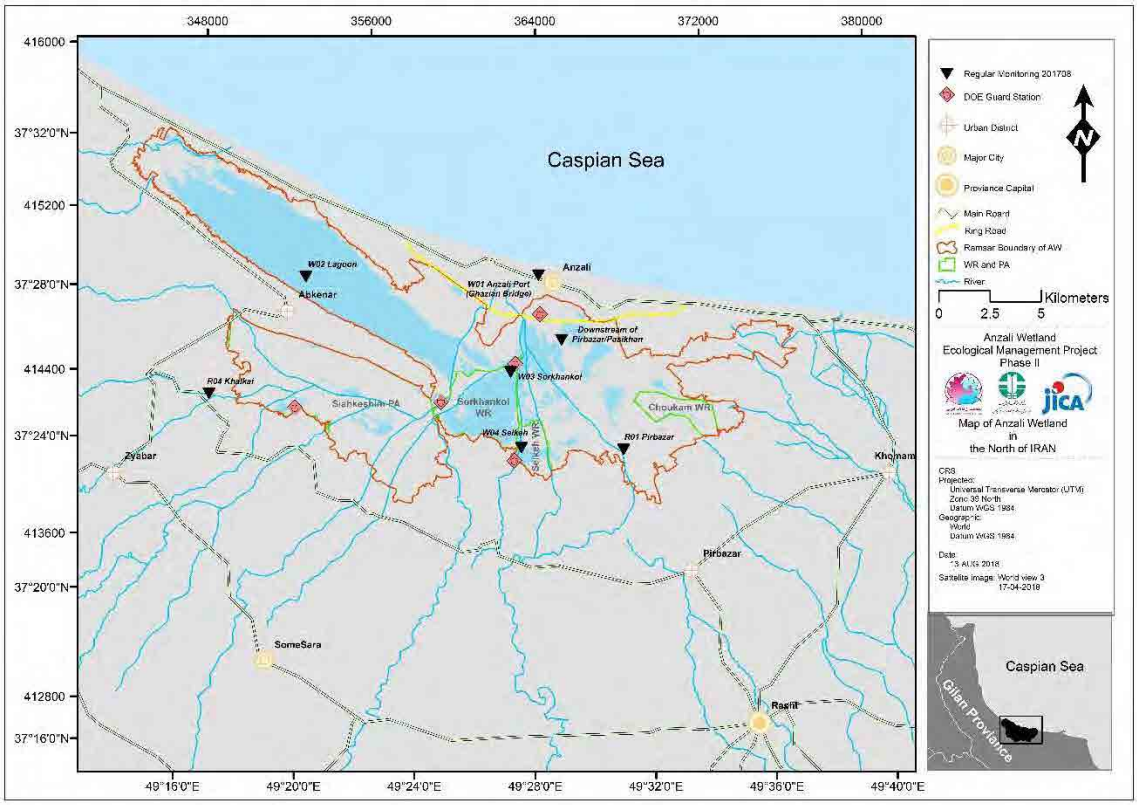
(1) Name of the JPA

- Monitoring of Water and Sediment Qualities in the Anzali Wetland and Its Watershed

(2) Objective(s)

- Obtain reliable water and sediment quality data that become the basis of future monitoring
- Make monitoring DOE Gilan's regular activities with recurrent budget
- Regularly report monitoring results to support environmental decision-making

(3) Location(s)



(4) Implementation period

Works/ Fiscal the Year	2014	2015	2016	2017	2018	2019-	Remarks
JPA(1-3) Monitoring of Water and Sediment Qualities							Target Year: 2014-2019
Preparation for activities							
Implementation of Monitoring of Water and Sediment Qualities							
Review of related data and information							
Implementation of a tentative monitoring program							
Review of the monitoring data and preparation of monitoring reports							Continued review of monitoring data
Revision of the monitoring program							
Implementation of the revised monitoring program							Plan: 30 times; Actual 9 times

Legend
Plan
Actual

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Wetland Ecosystem Conservation SC (Monitoring Working Group)
- Main Responsible Organization: DOE-Gilan

(6) Outline of the activity

- Review of related data and information
- Implementation of tentative monitoring program
- Review of the monitoring data and preparation of monitoring reports
- Revision of the monitoring program
- Implementation of the revised monitoring program

(7) Output of the activity

- Comparative analyses among six laboratories for analytical quality control
- Implementation of regular monitoring (nine times during 2016-2019)
  - General parameters (BOD, COD, T-N, T-P, others)
  - Heavy metals and toxic substances in water/sediment
- Implementation of salinity monitoring (three times)
- Implementation of monitoring of water levels (six times)

(8) Effect and impact of the activity

- Through the JPA, reliable water and sediment quality data were obtained. These data can be used as the reference data for long-term wetland management, and this is considered a significant achievement. Among the key findings are:
  - Overall, the wetland is already eutrophic, though it has not exhibited signs of serious hyper-eutrophication, such as major algal blooms or massive fish kills. To prevent such problems to occur, it is important to control inflow of nutrients from domestic sewage and agricultural fields.
  - Concentrations of heavy metals are not extremely high, but, the levels of some heavy metals, such as Zn, are relatively elevated presumably due to a geological reason. The levels of toxic organic substances, such as PCBs and pesticides appeared to be low, though more data are needed to make an assessment.
  - The salinity monitoring under the JPA clearly captured intrusion of the Caspian Sea water into the wetland. Moreover, monitoring of water level in the wetland has started. These data are also very important for environmental management of the wetland.
- In order to monitor water and sediment qualities in the wetland, DOE-Gilan established the Anzali Wetland Monitoring Office in late 2017, and its first monitoring was implemented in November 2018. This is another significant achievement, as it clarified the structure and responsibility of water and sediment quality monitoring by DOE-Gilan.

(9) Sustainability of the activity

DOE-Gilan has the basic capacity for water and sediment quality monitoring. However, this JPA encountered various problems, such as:

- The Iranian budget was not allocated. Also, it was difficult to ensure active participation by DOE-Gilan as DOE-Gilan tried to avoid the responsibility. These are largely management issues. Only toward the end of the project DOE-Gilan established the Anzali Wetland Monitoring Office, but AWMO implemented only one monitoring under the JPA. Whether DOE-Gilan could sustain the monitoring activities in the future is yet to be seen.
- From technical aspect, data reliability was the main issue encountered. While efforts were made to improve quality control, further efforts by DOE-Gilan are essential.

In order to ensure sustainability of the activities, commitment of the management of DOE-Gilan is essential.

(10) Secondary effect(s) of the activity

None

(11) Approximate cost

Item	Cost
	N/A
Total	

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Implementation of monitoring programs proposed in the Mid-term Plan

(13) Recommendations

The following actions are recommended. Please see the relevant section of the Annex for details of the recommendations.

- Implementation of monitoring programs proposed in the Mid-term Plan
- Adoption of QA/QC
- Monitoring Activities with Academic Institutions
- Integrated Monitoring of Different Environmental Items
- Decision-making through Monitoring

(14) Remarks

None

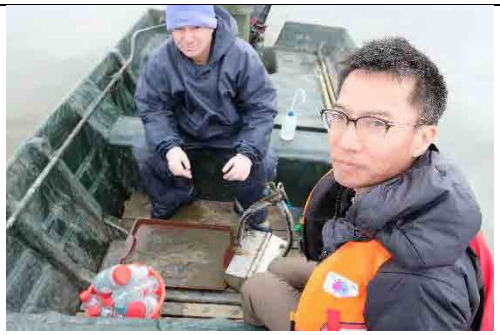
Photos

Sampling in Sarawan Dumpling Site

Sampling in the Anzali Wetland

Salinity Monitoring

Analysis in Laboratory



Sediment Sampling

Sampling in the Anzali Wetland

Water Level Meter

Staff Gauges

Summary of the Joint Pilot Activity (5)

(1) Name of the JPA

- Environmental Zoning and Land Use Management Activity

(2) Objective(s)

- In order to start an appropriate land use management based on the updated zoning plan and land use guideline adapted to the current condition of the wetland.

(3) Location(s)

- Whole Anzali Wetland and surrounding area.

(4) Implementation period

Item	Period
Updating the Zoning Plan	Jul 2015 - Mar 2019
Preparation of Land Use Guideline	Jul 2015 - Mar 2019
Installation of Signboards	May 2016 - Sep 2018
Enhancement of DOE Guard Station Function	Apr 2018 - Apr 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Zoning and Land Use Management WG under Wetland Ecosystem Conservation SC
- Main Responsible Organization: DOE Gilan, GRWC

(6) Outline of the activity

- Data Collection and Field Survey
- Updating the Zoning Plan
- Preparation of Land Use Guideline
- Installation of Signboards
- Enhancement of DOE Guard Station Function

(7) Output of the activity

- The boundary of the Ramsar Site of the Anzali Wetland was updated based on the latest situation of the wetland and the criteria of the Ramsar Convention.
- The concept and draft of the Zoning Plan and Land Use Guideline was prepared to conserve the wetland ecosystem and promote wise-use. However, this plan and guideline should be finalized due to lack of information.
- 42 warning signboards were installed on the boundary of three protected areas. The function of the DOE guard station was particularly enhanced by the boundary patrol, map installation, several pieces of training and equipment.
- Equipment such as multi-copter, GPS receiver, binocular and telescope was handed over to five guard station in the Anzali Wetland to enhance the function.

(8) Effect and impact of the activity

- The new boundary of the Ramsar Site was submitted to the Ramsar Information Sheet in June 2018.
- The concept and draft of the Zoning Plan and Land Use Guideline is beneficial to solve the conflict between the boundary of wetland based on the law on equitable water distribution and the actual land use.
- People became to notice the entrance of the protected areas easily due to signboards installation.

(9) Sustainability of the activity

- DOE guards became able to identify the boundary of protected areas. DOE guards became able to patrol efficiently by using developed capacity and equipment.

(10) Secondary effect(s) of the activity

- Equipment provided by JET, such as binoculars, telescopes, and digital cameras, is useful for the ecosystem monitoring activities.

(11) Approximate cost (Only Japanese Side)

Item	Cost
1) Updating the Zoning Plan (including the purchase of high-resolution satellite images)	USD 95,000
2) Preparation of Land Use Guideline	USD 45,000
3) Installation of Signboards	USD 25,000
4) Enhancement of DOE Guard Station Function	USD 30,000
Total	**USD 195,000**

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Many activities should be implemented based on the Mid-term plan for land use management as the followings.
  a) Establishment of New Guard Stations (Choukam and Chomesghal)
  b) Enhancement of Guard Station Functions
  c) Improvement of Abbandan-dari System
  d) Land use management based on the updated Environmental Zoning and land use guideline

(13) Recommendations

- There is a lack of information sharing among the relevant organization about land use in the Anzali Wetland including protected areas. It caused many gray permissions of land use were issued by related organizations. Information sharing should be enhanced under the WG and SC.
- Regarding the BOW based on the Law on Equitable Water Distribution, relevant organizations are discussing for a long time to revise BOW without any compromise. It was very unproductive. The purpose of the law is flood control but not the wetland conservation. Also, only revision of the BOW cannot solve all conflicts between BOW and local land uses. JET recommend the solution to satisfy both flood control and wetland conservation. The updated zoning plan and land use guideline is a better solution for the many conflicts under the BOW. They should be finalized and approved by AWMC. The draft plan is described in the Mid-term Plan.

(14) Remarks

-

Photos

Signboard on the boundary of Sorkhakol WR

Signboard on the boundary of Sorkhakol WR

Signboard on the boundary of Sorkhakol WR

Signboard on the boundary of Selkeh WR

Signboard on the boundary of Choukam WR

Signboard on the boundary of Choukam WR

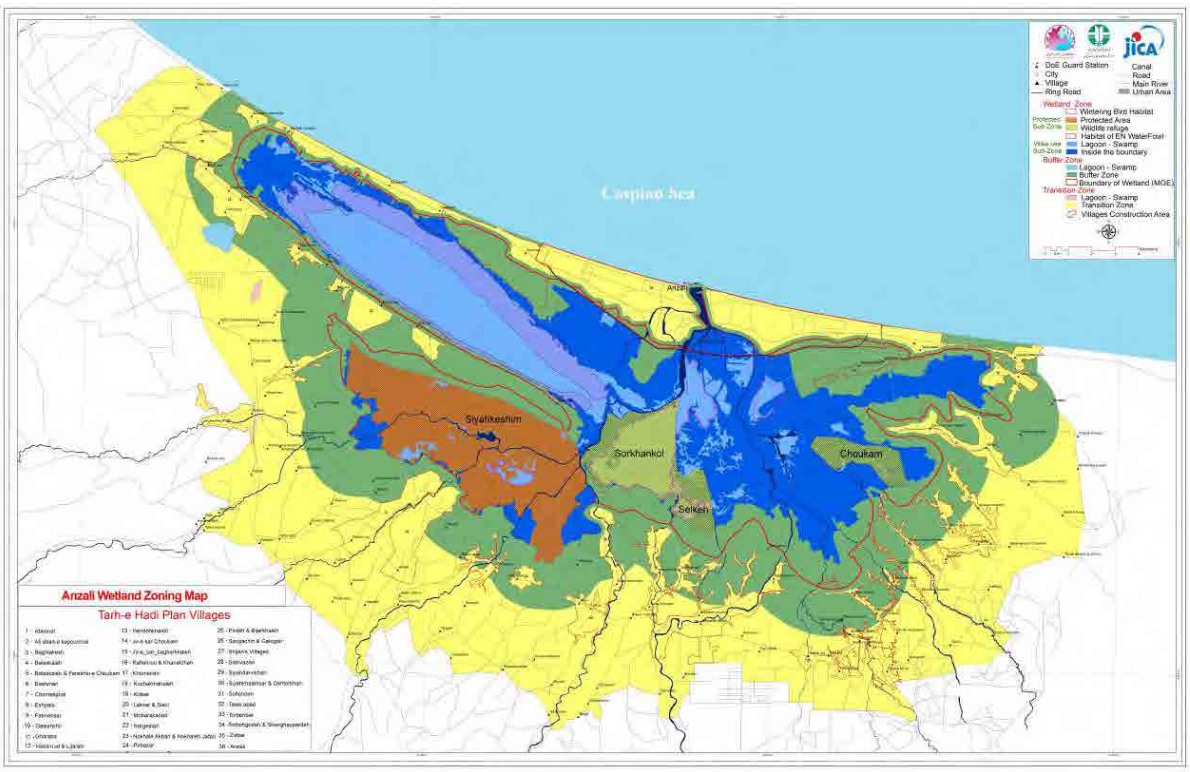
Signboard on the boundary of Choukam WR

Signboard on the boundary of Choukam WR

Definition of Basic Zones of the Anzali Wetland

Zone	Sub Zone	Definition
Wetland Zone (Core Zone)	Protected Sub Zone	Protected sub zone must be protected strictly to maintain the ecological characteristics of the Anzali Wetland. All of the protected areas (*Siahkeshim Protected Area*, *Selkeh, Sorkhankol, and Choukam Wildlife Refuges*) are included within this Sub Zone.
	Wise-Use Sub Zone	Wise-use sub zone must be utilized for Wise Use (low impact and sustainably use) to maintain the ecological characteristics of the Anzali Wetland. The Wetland Zone is essentially the Anzali Ramsar Site, comprising the waterbody, seasonal wetland, aquatic plant communities and an area to connect main wetland with isolated eastern wetland as an ecological network. This area includes *Abbandan-dar* System.
Buffer Zone		Buffer Zone surrounds the Wetland Zone. This is the area that surrounds the wetland within which land use activities may directly affect the ecological character of the wetland itself, and therefore need to be controlled. The Buffer Zone includes the area within which seasonal or longer-term water level rises may be experienced. Thus, it is an eco-tone where the aquatic ecosystem blends into the terrestrial ecosystem, and as such may be a highly diverse and productive habitat. Some of the lands uses, and activities should be allowed with a condition such as flood measure and low impacted method. This zone in the inside of the boundary of wetland based on the Law on Equitable Water Distribution (including buffer zone of this boundary). This zone includes the area defined by "Industrial and Productive Activities and Units Construction Criteria" so that industrial facilities are classified and allowed depends on the distance from the wetland.
Transition Zone		Transition Zone surrounds the Buffer Zone. This zone is a transition area from conservation of ecosystem to local economic activities. The Transition Zone includes the Tarhe-Hadi Plan and 2 km-wide band from the Buffer Zone. The boundary of the transition zone may be varied locally to take account of existing features on the ground. Most of the transition zone is under agricultural use, either as paddy fields, livestock and pasture or fish ponds.

Source: JICA Expert Team



Source: JICA Expert Team

Draft Updated Zoning Plan

Summary of the Joint Pilot Activity (6)

(1) Name of the JPA

- Integrated watershed planning study for erosion and sediment control in Masal River basin

(2) Objective(s)

- to go ahead the sediment control activities in a planned way for reducing the sediment flow into the Anzali wetland by preparing an integrated plan for erosion and sediment control in Masal River basin. The plan was the first time to prepare in Anzali Wetland Basin and it shows a model of erosion and sediment control.

(3) Location(s)

- Masal River basin Area in Anzali Wetland Basin (see location map as attached.)

(4) Implementation period

Item	Period
1) Preparation of TOR for sublet work of survey study	April 2015 to July 2015
2) Bidding and contract of sublet work	July 2015 to September 2015
3) Survey and study of an integrated plan in Masal River basin	September 2015 to April 2016

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Watershed Management SC
- Main Responsible Organization: NRWGO and GRWC

(6) Outline of the activity

- Sediment deposit in the Anzali Wetland is one of the biggest issues for wetland conservation. The integrated planning study for sediment control in Masal River basin was prepared in order to specify the location, amount, and cost of the necessary countermeasures as a study of model basin. The most effective and emergency works in Alenze area for controlling sediment was selected from the integrated plan as results of the integrated planning study, then the detailed design and construction work in Alenze had been implemented after 3rd year.

(7) Output of the activity

- Report of an integrated watershed planning study for erosion and sediment control in Masal River basin
- Necessary structures and cost for sediment control in Masal River basin
- Priority projects for sediment control in Masal River basin
- Workshop on 20th Jan and 8th May in 2016 with attendance of NRWGO, GRWC, DOE and JET (see photos as attached.)

(8) Effect and impact of the activity

- An integrated plan in Masal River basin was established as a model case. By referring the plan, the other river basins will be able to be prepared in the same way.
- By establishing an integrated plan, the construction works will be gone ahead in a planned way. Then, the activity work and cost of sediment control must be minimized effectively.

(9) Sustainability of the activity

- Preparation of integrated planning in all river basins except for the Masal basin had been incorporated into the Mid-Term plan of Watershed Management SC. The establishment of integrated plan in all river basin is anticipated by going ahead with the Mid-Term Plan.

(10) Secondary effect(s) of the activity

- Based on the integrated plan, the construction work in Alenze had been conducted by NRWGO. After the construction work in Alenze, GRWC requested to implement detailed design of river structures in Morghak River based on the integrated plan in Masal River basin. It is secondary effect that GRWC has shown an aggressiveness activity of sediment control work in main river course.

(11) Approximate cost

Item	Cost
1) Cost of sublet work for planning study	USD 79,456
2) VAT, TAX and SSO	USD 22,780
Total	USD 102,236

Exchange Rate: USD 1 = IRR 30,420 (as of 24 May, 2016)

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Preparation of integrated planning in all river basins except for the Masal basin had been incorporated into the Mid-Term plan of Watershed Management SC. Based on the Mid-Term plan, it is expected that the integrated planning in all river basins will be established by leading of NRWGO and GRWC with supporting of Watershed Management SC.

(13) Recommendations

- The activities of sediment control in river basin are necessary to implement for a long term and a huge cost. The construction works should be implemented effectively from a strategic standpoint by establishing the integrated plan in all river basin.

(14) Remarks

- After completion of the integrated planning in all river basins, the Mid-term plan should be updated by referring of the integrated plan of all river basins.

Photos

Site Visit in Masal River Basin

Site Survey in Masal River Basin

Site Survey in Masal River Basin

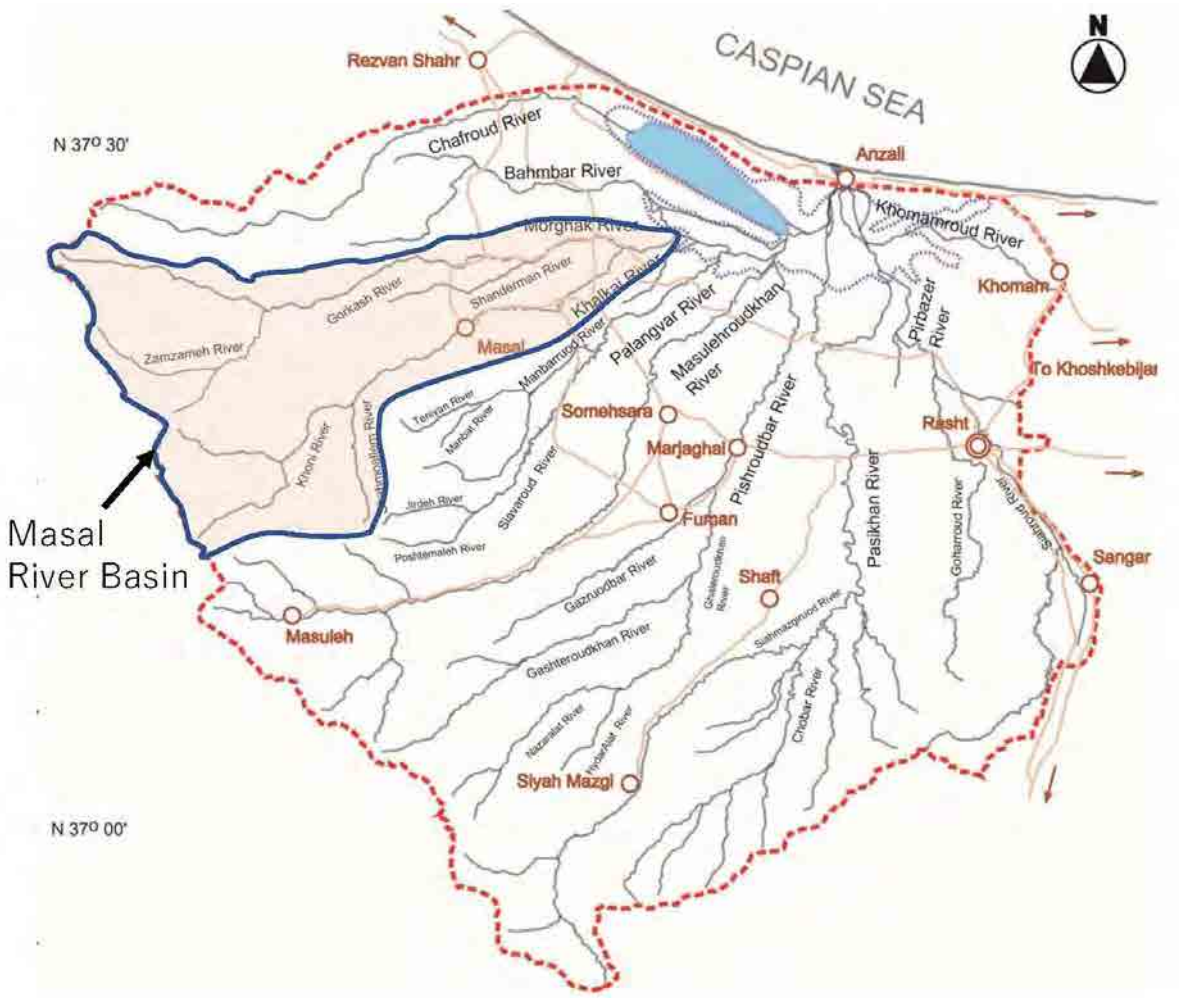
Meeting on Site Visit

1st Workshop on 20th Jan 2016

1st Workshop on 20th Jan 2016

2nd Workshop on 8th May 2016

2nd Workshop on 8th May 2016



Source: JICA Expert Team

Location Map of Masal River Basin

Summary of the Joint Pilot Activity (7)

(1) Name of the JPA

- Detailed Design (DD) Survey for "Construction Work for Mountainous Erosion Control at Alenze Sub-Basin of Masal River Basin in 2017" (JPA 2017)

(2) Objective(s)

- To prepare the detailed design for the erosion control at Alenze (mountain area)

(3) Location(s)

- The upper-stream sub-basin of Morgahk River Basin, which is one river basin of Masal River Basin

(4) Implementation period

Item	Period
(1) Preparation of the TOR of the detailed design survey	April to May 2016
(2) Site survey	June to September 2016
(3) Design, drawings preparation	September to November 2016
(4) Volume calculation and cost estimation	November to December 2016
(5) Report preparation	December 2016 to March 2017

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Watershed Sub-Committee
- Main Responsible Organization: NRWGO

(6) Outline of the activity

- Preparation of TOR of DD survey by NRWGO
- Topographic survey and detailed topographic survey by procured consultant
- Design work and drawing preparation by the consultant with supervision by NRWGO & JET
- Volume calculation and cost estimation for the construction
- Report preparation

(7) Output of the activity

- Topographic survey drawing and survey data
- Drawings of construction work
- Volume calculation and cost estimation sheet
- Report of DD survey

(8) Effect and impact of the activity

Previously, NRWGO almost never prepared such detailed design drawings. They didn't take ground survey neither. Their previous method of drawings preparation and construction was, using typical drawing and modify it at the site. it means that NRWGO prepared the drawings and conducts construction in the same time by direct implementation (by the experienced experts of NRWGO). That was one of the reasons they cannot carried out many construction works per year. And in most of the case, NRWGO's previous construction work was single structures. They didn't prepare the drawings; therefore, it was very difficult to construct combination or series of structures.

Based on the experience of the JPA, NRWGO's C/P has learned importance and necessity of the DD survey and drawings. Also, appropriate cost can be calculated based on the DD survey. It can realize the tender documents correctly.

(9) Sustainability of the activity

During the JPA, only one C/P joined all works (TOR preparation, supervise and inspection of the DD survey). The progress and the results of the DD survey were shared to the other experts of NRWGO; however, it was not sure that all of them understood the DD survey. Therefore, to continue the DD survey by the other experts with supports by the experienced C/P of NRWGO is very important. Such continued works sharing is highly recommended to NRWGO.

(10) Secondary effect(s) of the activity

None.

(11) Approximate cost

Item	Cost
DD survey for the erosion control in mountainous area (Alenze)	500,000,000 Rials
Total	500,000,000 Rials

(12) Expected future action by Iranian side based on this JPA after completion of the project

- To continue the DD survey by the other experts with supports by the experienced C/P of NRWGO

(13) Recommendations

NRWGO has plenty works to control the erosion and sediment flow in the mountain area not only for the mountain area conservation but also for the Wetland conservation and water securement. For this, they shall increase their capacity of implementation and improve their skills; not only single structures but also usage of combination and series of structures. it is highly recommended to NRWGO to understand the importance and necessity of the DD survey and the construction preparation/ supervision based on the DD survey results such as drawings and cost estimation.

(14) Remarks

In addition, such DD survey shall be outsourced and NRWGO will supervise the work with enough knowledge and capacity.

Photos

Setting BM

Preparation of BM

Ground Topographic Survey (Stream)

Ground Topographic Survey (Stream)

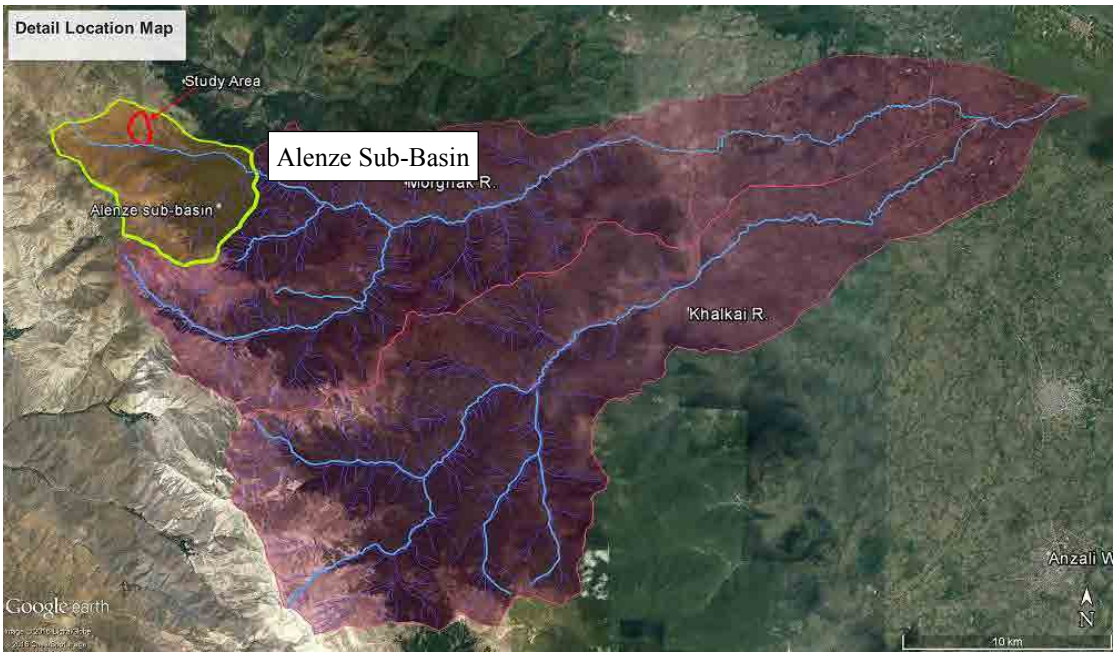
Ground Topographic Survey (Slope)

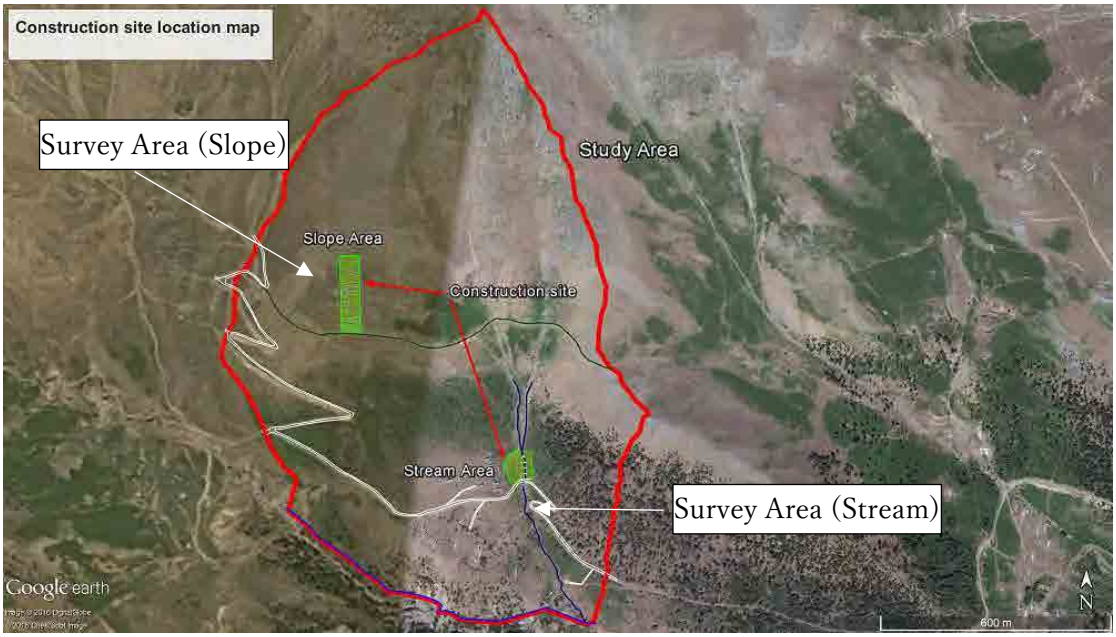
Ground Topographic Survey (Slope)

Inspection of Survey (Stream)

Inspection of Survey (Slope)

Location of Detailed Design Survey

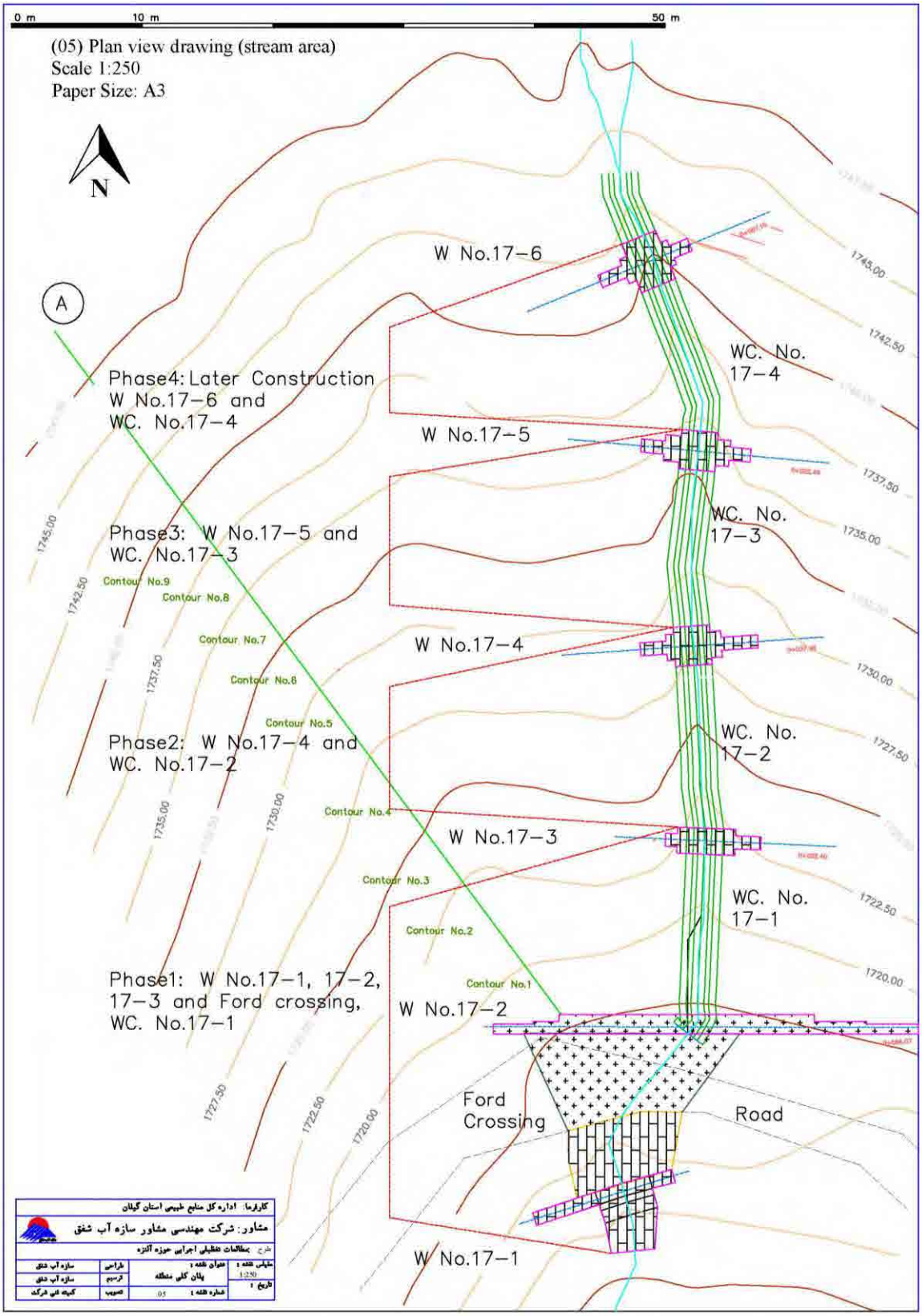




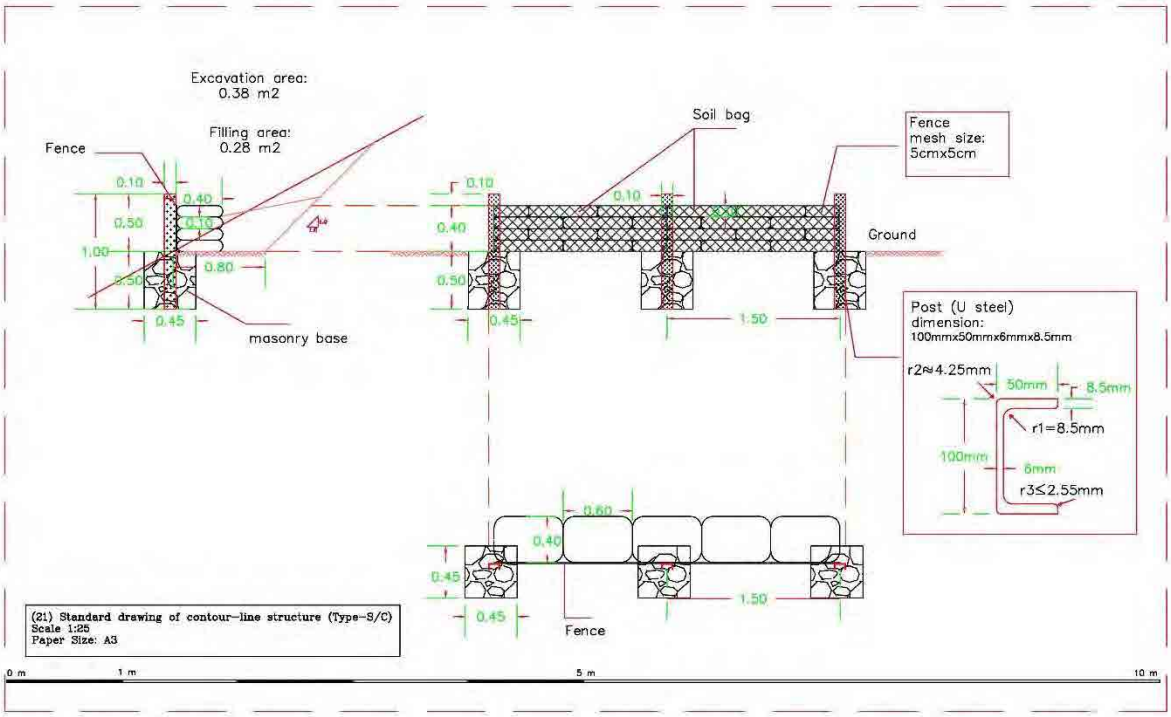
Implementation Schedule

Work Item	2016 Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2017 Jan	Feb	Mar	Apr	May	Jun
Detail Design Work (by Consultant/ NRWGO)																
TOR prepearation and Consultant Procurement (NRWGO)												Legend				
Site explanation												Plan				
Topographic survey												Result				
Detail topographic survey																
Detail design work																
Drawing preparation																
Volume calculation for cost estimation																
Cost estimation																
Report preparation																

Plan View Drawing of the Stream Area (Alenze)



Standard Design of the Contour-line Structure on Slope Area (Alenze)



Summary of the Joint Pilot Activity (8)

(1) Name of the JPA

- Construction Work for Mountainous Erosion Control at Alenze Sub-Basin of Masal River Basin in 2017

(2) Objective(s)

- Technical transfer to Iranian side to control erosion and sediment in mountain area in order to reduce the sediment into Anzali Wetland

(3) Location(s)

- Alenze sub-basin located at upper basin of Morgahk River Basin (one of rivers of Masal River Basin)

(4) Implementation period

Item	Period
(1) Procurement of Contractor and Supervision Consultant	January to April 2017
(2) Construction	April to September 2017
(3) Monitoring and maintenance work	June to September 2018
(4) Final inspection at the end of defect reliable period	August 2018

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Watershed Sub-Committee
- Main Responsible Organization: NRWGO

(6) Outline of the activity

- Preparation of construction and tender document of construction work and supervision work
- Tender and selection of contractor and supervision consultant
- Commencement of construction, supervision of the construction using the consultant
- Phased inspections and final inspection
- Monitoring and maintenance work

(7) Output of the activity

- Completion of the construction
- The completion report was prepared includes following important points:
  - ✓ Situation analysis and cause analysis
  - ✓ Countermeasure principle setting
  - ✓ Consideration of structures distribution and formation, dimension and material of each structure
  - ✓ Construction method
  - ✓ Inspection method and criteria setting
  - ✓ Supervision work including quality, quantity, and safety control
  - ✓ Monitoring and maintenance work

(8) Effect and impact of the activity

NRWGO has never control a construction work with enough supervision, such as daily supervision, progress inspection, final inspection, safety control, using a supervision consultant. They have been working for this type of work by direct supervision. However, not enough budget, mobilization (cars, fuels), they couldn't take enough site inspection. Even if they frequently visit the site, they didn't know the way of detail inspection and step-wise inspection, because they have almost never prepared detailed design drawings. In this regard, the construction and supervision at Alenze 2017, this JPA, was the first experience for NRWGO-Gilan.

There were some typical effect and impact by the JPA as below:

1) Preparation of detailed construction schedule: all break-downed work items for each structure construction were scheduled daily.
2) Safety plan: the contractor prepared the safety plan to prevent car accident, accident on workers/ passengers/ properties, putting some signs to show the construction work, and emergency network to take necessary quick actions when any accident will happen.
3) Ground breaking-survey and amendment of design: based on the results of ground-breaking

survey and initial drawings, the supervisor and contractor discuss and modify the drawing and estimated the cost. In a case of large difference between initial and modification, the contract price was amended.

4) Step-wise inspection: some works such as excavation work and gabion work of the lower potion shall be inspected before proceeding to next work step, because after following works the inspection targets have been hided.

5) Monitoring and maintenance work: such mountain erosion and sediment control structures function when disaster happen. Then, they can't prevent getting damages on themselves at the time. Monitoring and maintenance work shall be taken to keep their functions and extend their lives.

(9) Sustainability of the activity

The JPA @Alenze 2018 followed JPA@ Alenze 2017 using Iranian budget, and it was carried out by mostly by Iranian side with JET advices only. It means if they will follow the way/ method of JPA @Alenze 2017, they can realize the systematic and appropriate construction supervision themselves.

The C/P who worked with JET for whole period of JPA @Alenze 2017 could get the way/method of supervision on the construction. However, the other experts of NRWGO Gilan have not received the experience. Therefore, it is highly expected that NRWGO Gilan would let the other expert to learn the way/ method from the C/P, otherwise, no improvement can be realized to them.

(10) Secondary effect(s) of the activity

A seminar and site visit were taken during this JPA. During the seminar, the way/ method of construction supervision was shared with FRWO, neighbor NRWGOs, and NRWGO of Chahal-Mahal Province. All invited organizations to the seminar and site visit got much impression, because such systematic supervision and also the countermeasures to control the erosion and sediment flow in the mountain area including Japanese technologies were the first experience for them. FRWO would like to expand the way/ method to all NRWGO in Iran.

(11) Approximate cost

Item	Cost
Construction Work	4,500,000,000 Rial
Supervision Work	591,750,240 Rial
Additional construction work	-
Total	5,091,750,240 Rial

(12) Expected future action by Iranian side based on this JPA after completion of the project

Alenze area construction has not been completed yet. 8 years is estimated for completion totally. the remaining works there are all described in the mid-term-plan. The following future actions by Iranian side are expected.

- To continue the work at Alenze and complete necessary construction.
- To extend transferred technologies by the C/P who worked with JET for whole works.
- To implement the following works as scheduled with securement of budget.
- To implement the works with outsourcing.

(13) Recommendations

It is highly recommended for NRWGO Gilan to change their work mind-set from direct supervision to outsourcing work, from typical drawing to detailed drawings, etc. They shall understand the how efficient this JPA construction supervision method is. It is highly expected NRWGO Gilan will follow the results of DD work, construction work including supervision and monitoring maintenance work.

(14) Remarks

None.

Detailed Schedule Comparison (Plan and Actual)

Work Item		2016 Sep	Oct	Nov	Dec	2017 Jan	Feb	Mar	Apr	May	Jun
Tender Work (by JET/ JICA Iran Office)											
	Tender document preperation										
	Tender document distribution & proposal collection										
	Open tender										
	Contract negotiation										
Construction Work											
Mobilization (workshop building, workers, trucks)											
Construction											

Activities		2017 May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	2018 Jan.	Feb.	March	April	May	June
Construction Works in Mountain Area (Alenze)	1. Stream Area - Phase 1														
	2. Stream Area - Phase 2														
	3. Stream Area - Phase 3														
	4. Slope Area - Phase 1														
	5. Slope Area - Phase 2														
	6. Slope Area - Phase 3														
	7. Slope Area - Phase 4 (Enclosing)														
	8. Final Inspection														

Legend
Plan
Actual

Photos

Alenze Construction (Stream Area)

Stream area before construction

Stream area after construction

Progress Inspection on Wall

Progress inspection on excavation of Wall

	
Construction of water channel	Water channel
	
Wall (masonry) and ford crossing	Contour-line terracing work

Photos

Alenze Construction (Slope Area)

	
Slope area before construction	Slope area after construction
	
Progress Inspection on Terracing with fence	Progress Inspection on Terracing with fence

 Progress Inspection on Terracing with fence	 Terracing work
 Progress inspection on enclosing work	 Enclosing work

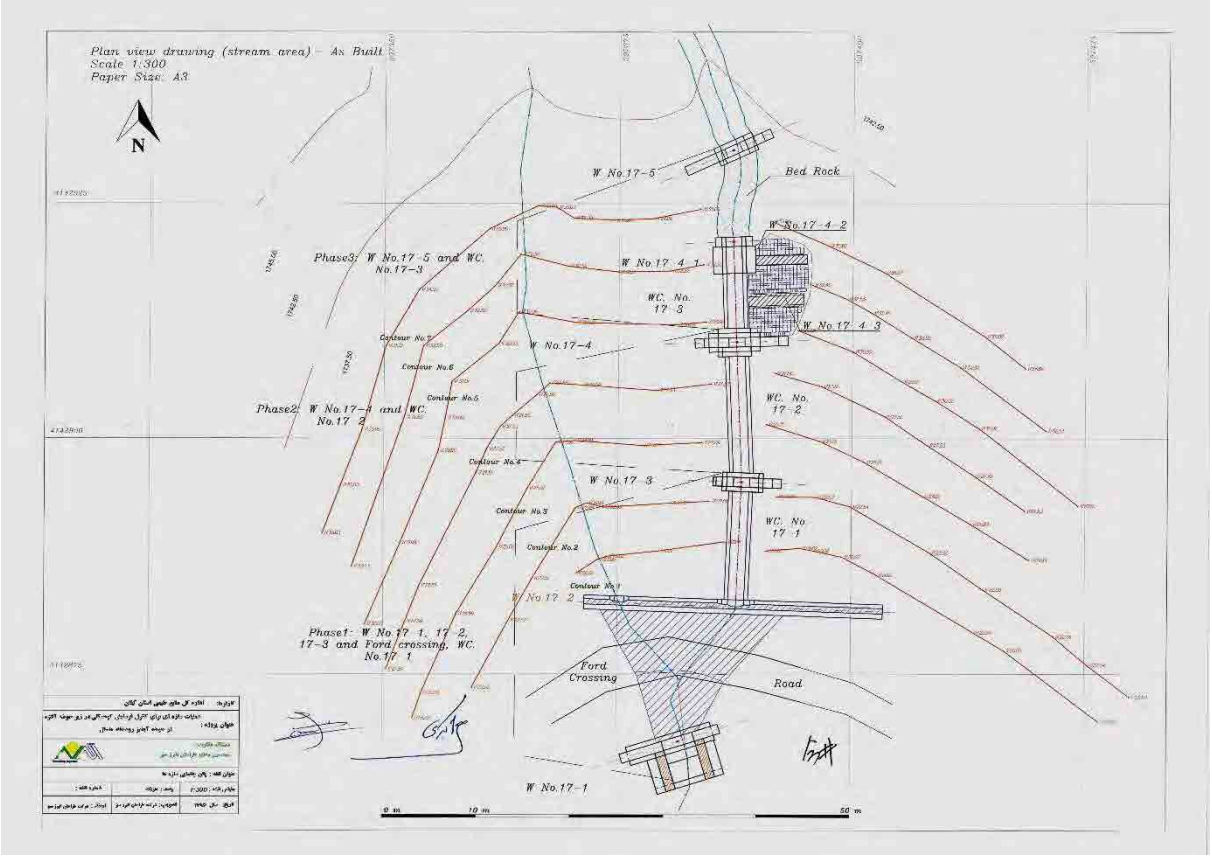
Photos

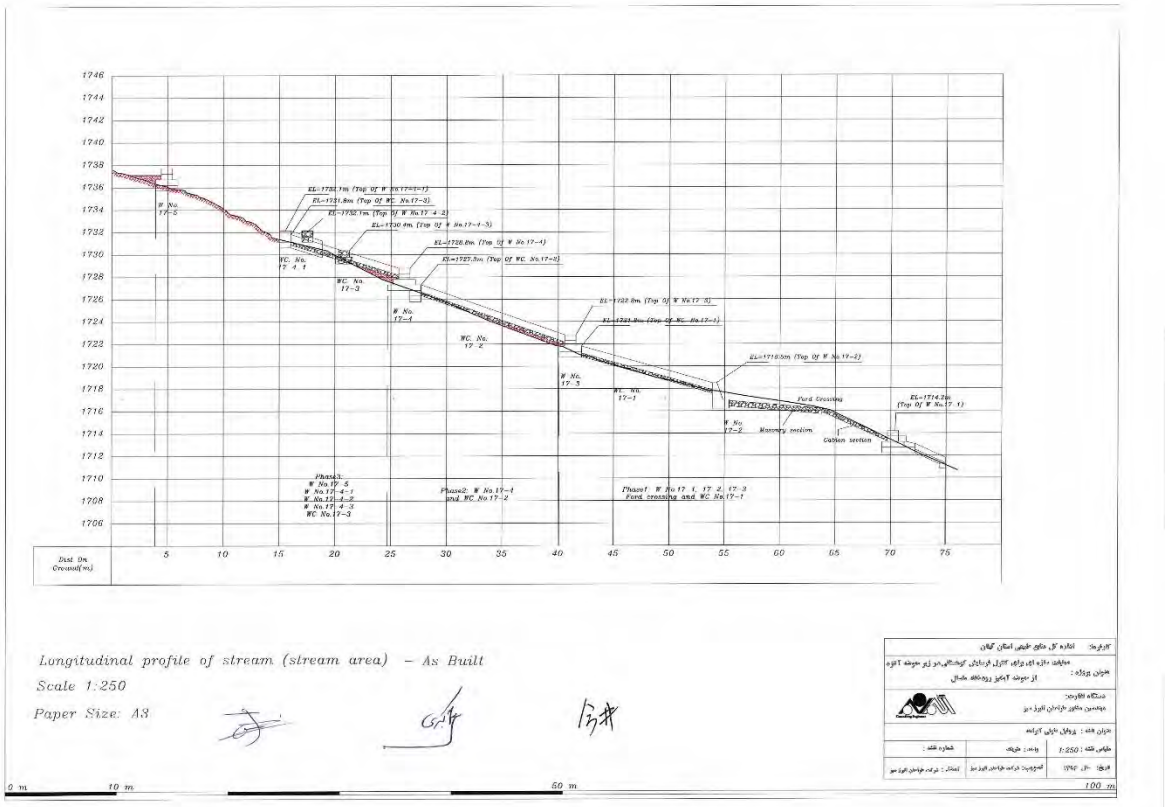
Alenze Construction (Safety control)

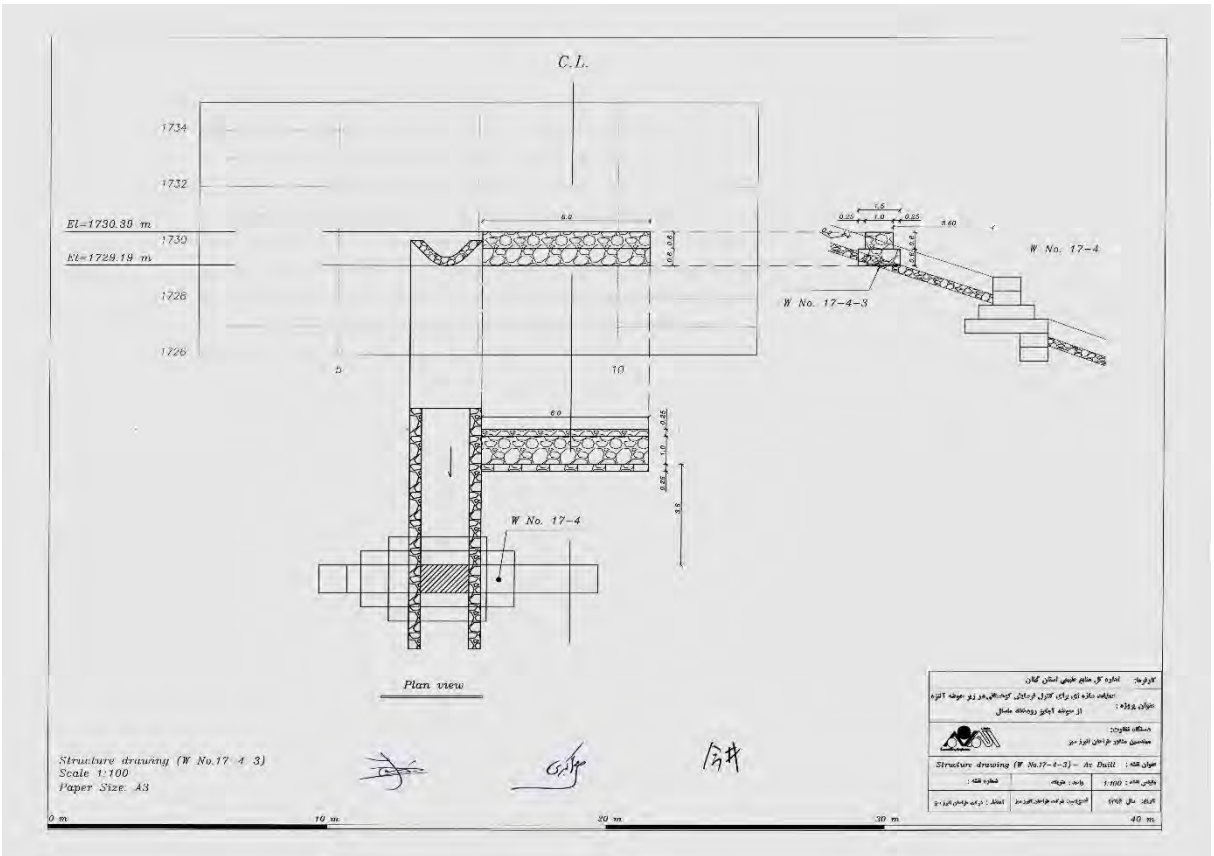
 Protection equipment for workers	 Protection equipment for workers
 Protection equipment for workers	 Board saying “safety first”

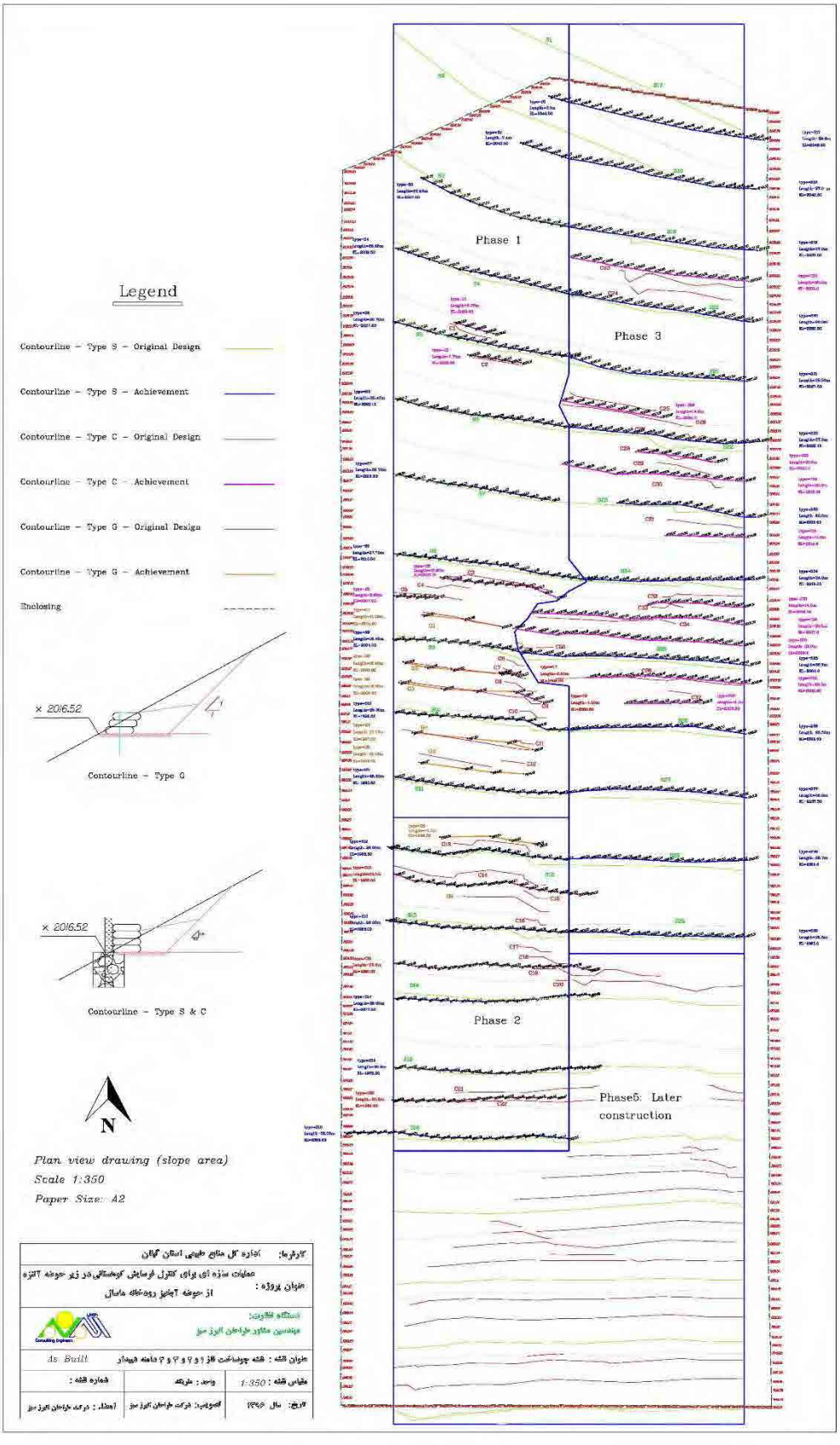
	
Signboard for cautioning construction	Signboard showing the JICA Project
	
Watchman checking unloading material	Watchman to control traffic

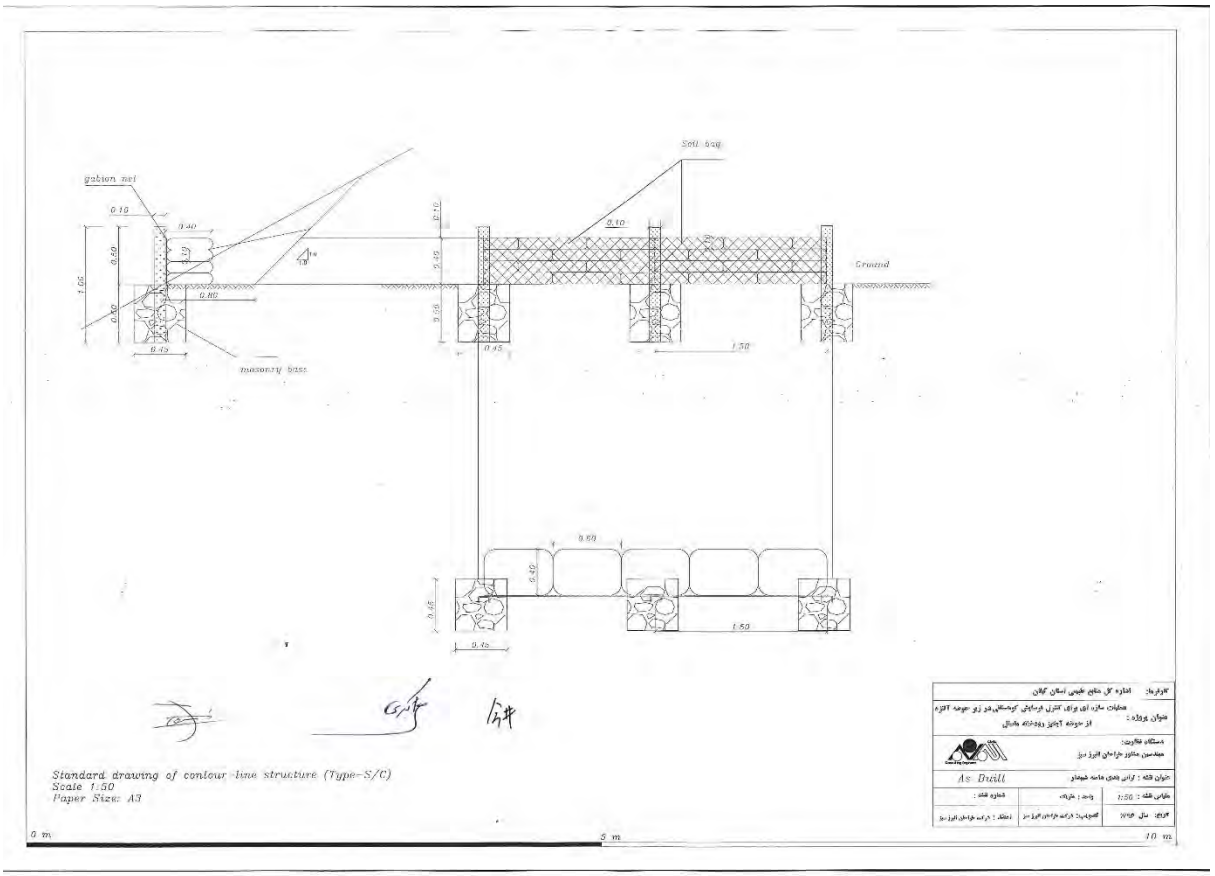
As-built Drawings

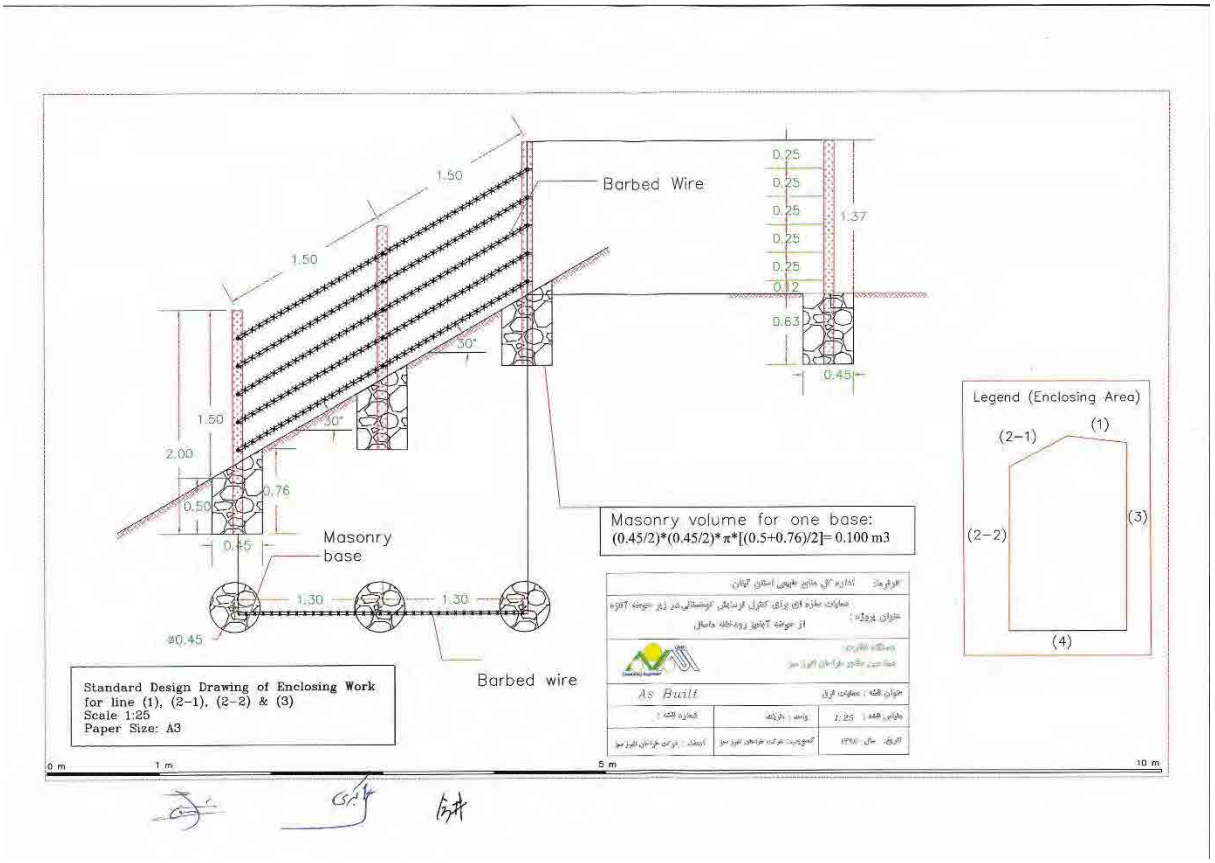



Longitudinal profile of stream (stream area) – As Built
Scale 1:250
Paper Size: A3


C.L.
EL=1730.38 m
EL=1729.19 m
W No. 17-4
W No. 17-4-3
Plan view
Structure drawing (W No.17-4-3)
Scale 1:100
Paper Size: A3


Legend
Contourline – Type S – Original Design
Contourline – Type S – Achievement
Contourline – Type C – Original Design
Contourline – Type C – Achievement
Contourline – Type G – Original Design
Contourline – Type G – Achievement
Enclosing
× 20/6.52
Contourline – Type G
× 20/6.52
Contourline – Type S & C
N
Plan view drawing (slope area)
Scale 1:350
Paper Size: A2
Phase 1
Phase 3
Phase 2
Phase5: Later construction
As Built
1:350


gabion net
masonry base
Ground
Standard drawing of contour-line structure (Type-S/C)
Scale 1:50
Paper Size: A3
As Built
0 m
5 m
10 m


Barbed Wire
Masonry base
Barbed wire
Masonry volume for one base:
(0.45/2)*(0.45/2)*π*[(0.5+0.76)/2]= 0.100 m3
Legend (Enclosing Area)
(1)
(2-1)
(2-2)
(3)
(4)
Standard Design Drawing of Enclosing Work
for line (1), (2-1), (2-2) & (3)
Scale 1:25
Paper Size: A3
As Built
0 m
1 m
5 m
10 m

Summary of the Joint Pilot Activity (9)

(1) Name of the JPA

- Construction Work for Mountainous Erosion Control at Alenze Sub-Basin of Masal River Basin in 2018 (Iranian fund)

(2) Objective(s)

- To learn the method of construction supervision of mountain erosion and sediment flow control work referring to the JPA Alenze construction 2017

(3) Location(s)

- Alenze sub-basin located at upper basin of Morghak River Basin (one of rivers of Masal River Basin)

(4) Implementation period

Item	Period
(1) Procurement of Contractor and Supervision Consultant	April to June 2017
(2) Construction	July to September 2017

(5) Names of the Technical sub-committee and main responsible organization

- Technical Sub-Committee: Watershed Management SC
- Main Responsible Organization: NRWGO

(6) Outline of the activity

- Preparation of construction and tender document of construction work and supervision work
- Tender and selection of contractor and supervision consultant
- Commencement of construction, supervision of the construction using the consultant
- Phased inspections and final inspection

(7) Output of the activity

- Completion of the construction
- Records of construction and supervision work

(8) Effect and impact of the activity

The C/P of NRWGO, who joined to the JPA 2017 with JET carried out the work in 2018 as same as JPA 2017. It means that the person who has knowledge and experience for the systematic work with Japanese technologies for construction supervision work can do the work perfectly. Actually, during the construction, there were some troubles but the NGRWO's project manager (the C./P) handled the problems and solved them very well including design changes and cost re-estimation. All the phased inspection, progress inspections were conducted perfectly too.

(9) Sustainability of the activity

It was proofed that any person who has knowledges and experience can supervise the construction supervision perfectly with the systematic work without defects, delay, accidents. The C/P also managed another work, the detailed design survey at Masule in parallel. It is assumed that if the C/P will become more familiar to the systematic supervision, he can manage more than two projects in parallel. It is very good opportunity for NRWGO Gilan, because one of the reasons of not enough achievement of the construction by NRWGO Gilan is not enough capacity for the supervision.

(10) Secondary effect(s) of the activity

None.

(11) Approximate cost

Item	Cost
Construction work	8,188,430,000 Rials
Supervision work	600,000,000 Rials
Total	8,788,430,000 Rials

(12) Expected future action by Iranian side based on this JPA after completion of the project

Alenze area construction has not been completed yet. 8 years is estimated for completion totally. the remaining works there are all described in the mid-term-plan. The following future actions by Iranian side are expected.

- To continue the work at Alenze and complete necessary construction.
- To extend transferred technologies by the C/P who worked with JET for whole works.
- To implement the following works as scheduled with securement of budget.
- To implement the works with outsourcing.

(13) Recommendations

It is highly recommended for NRWGO Gilan to change their work mind-set from direct supervision to outsourcing work, from typical drawing to detailed drawings, etc. They shall understand the how efficient this JPA construction supervision method is. It is highly expected NRWGO Gilan will follow the results of DD work, construction work including supervision and monitoring maintenance work.

(14) Remarks

For the JPA 2018, when the spring will come, it is highly requested to NRWGO to take monitoring properly to find any damages on the structures.

Photos

Signboard for safety

Construction under JPA 2017

Masonry high wall

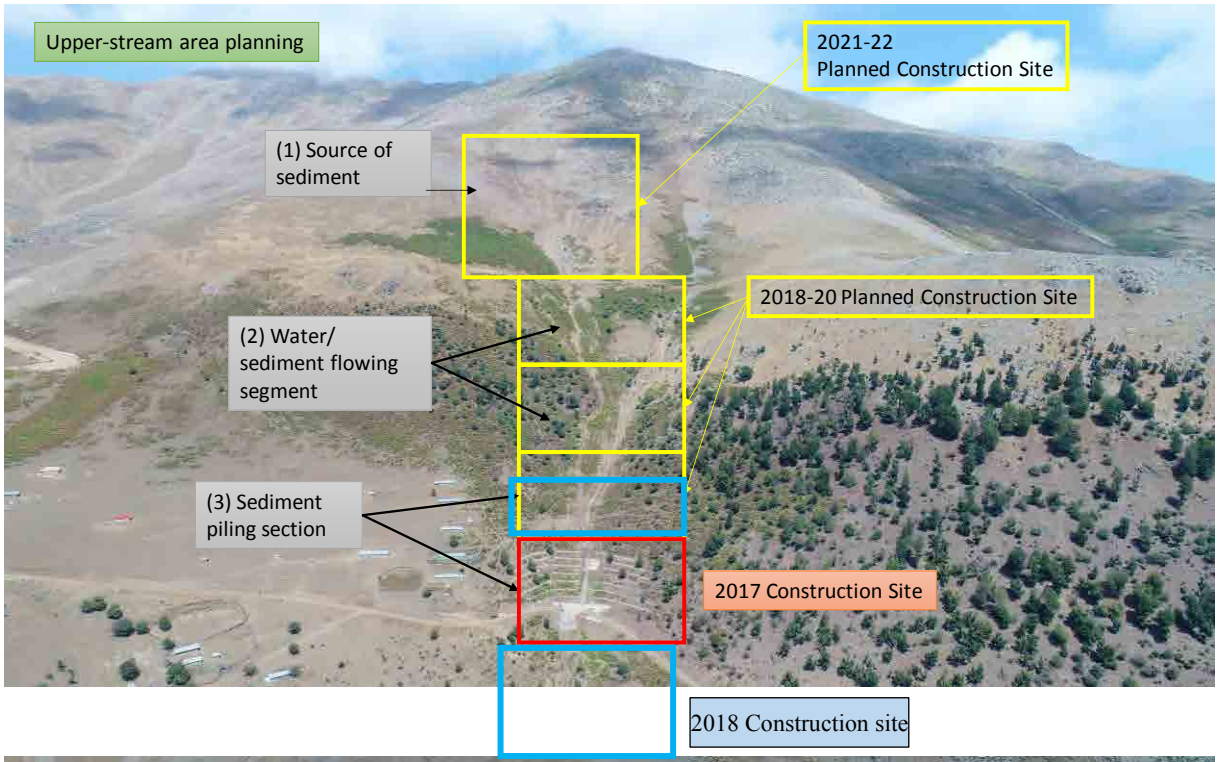
Stream bed protection under the wall of 2017

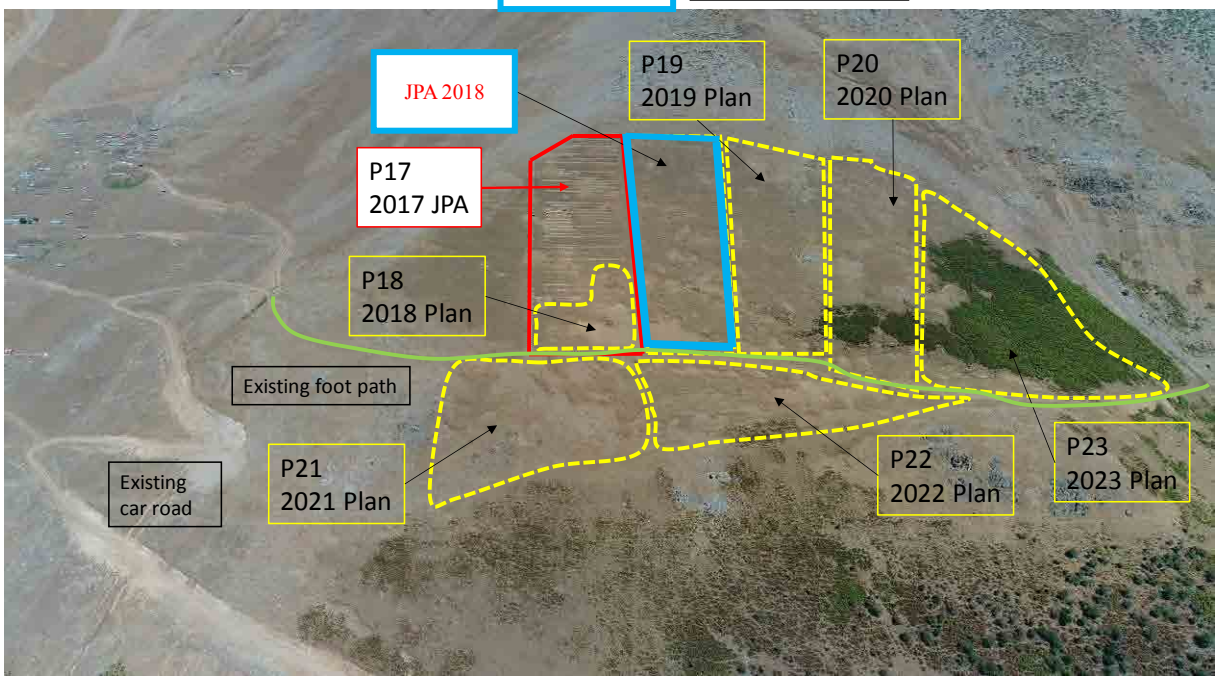
Supervision by DD drawings on the wall of workshop at the site

Progress inspection of excavation work

Progress inspection of the terracing in the slope area

Progress inspection of post of fence


Upper-stream area planning
2021-22
Planned Construction Site
(1) Source of sediment
2018-20 Planned Construction Site
(2) Water/ sediment flowing segment
(3) Sediment piling section
2017 Construction Site
2018 Construction site


JPA 2018
P19
2019 Plan
P20
2020 Plan
P17
2017 JPA
P18
2018 Plan
Existing foot path
Existing
car road
P21
2021 Plan
P22
2022 Plan
P23
2023 Plan

Summary of the Joint Pilot Activity (10)

(1) Name of the JPA

- Detailed design work at Masule

(2) Objective(s)

- To learn how to prepare the detailed design including enough accurate contour-line drawing by ground topographic survey.

(3) Location(s)

- A sub-basin of Masule River Basin

(4) Implementation period

Item	Period
Procurement of the consultant	January 2018 to February 2018
Detailed design work including ground topographic survey	March 2018 to July 2018

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Watershed Management SC
- Main Responsible Organization: NRWGO

(6) Outline of the activity

- Preparation of TOR of the detailed design survey
- Procurement of the consultant who would conduct the survey
- Ground topographic survey
- Design preparation work (not completed)

(7) Output of the activity

- Topographic survey drawings

(8) Effect and impact of the activity

NRWGO failed the procurement of the consultant company. The consultant company has never kept the deadline of outputs, accuracy. At the first, they didn't start the field work with lie of site condition such as snowing, windy, etc. then, when they started the ground topographic survey, their products (contour-line drawings) were completely bad and had no accuracy.

However, the WSM-SC members tacked this issue. GRWC dispatched the survey expert several times to check the consultant works. The experts pointed no-accurate survey and made the consultant carry out many times until he consultant complete the topographic survey. The WSM-SC members learned what accurate topographic survey is.

However, the consultant design work was worse. They didn't take problem analysis, cause analysis, just put typical type of gabion check dan and imitated slope countermeasures of JPA 2017. Furthermore, NRWGO Gilan managers have never shared the results to WSM-SC nor JET and approved the designs. The C/P of NRWGO has known how supervise the work; however, NRWGO's managers have never tried to get it and wanted to keep their old fashion working style.

(9) Sustainability of the activity

The C/P of NRWGO and the WSM-SC members have learned all the necessary works; planning, topographic survey, problem analysis, cause analysis, and consider the countermeasures based on these analyses. JET has given the technical report of JPA 2017 and if they will understand the method and follow the method and procedure which are described in the report, they will success the works.

(10) Secondary effect(s) of the activity

The WSM-SC members tried to contribute to the JPA even the JPA was carried out by NRWGO

Gilan, as the implementation agency. Usually, no-body want to contribute to it, because they don't get any benefit. However, for the JPA, the members tried to let the work in the right way as if they were the implementers. This is the most meaningful and one of the biggest effects by the JICA project.

(11) Approximate cost

Item	Cost
Total	N/A

-The cost was never shared by NRWGO Gilan.

(12) Expected future action by Iranian side based on this JPA after completion of the project

- The most important thing related to detailed design survey is analysis; situation/ problem analysis, cause analysis, and consideration of countermeasures based these. The most appropriate formation, structures, material, and dimension will set based on these.
- It is highly expected Iranian side to understand the point above and follow the method of JAP 2017 at Alenze.

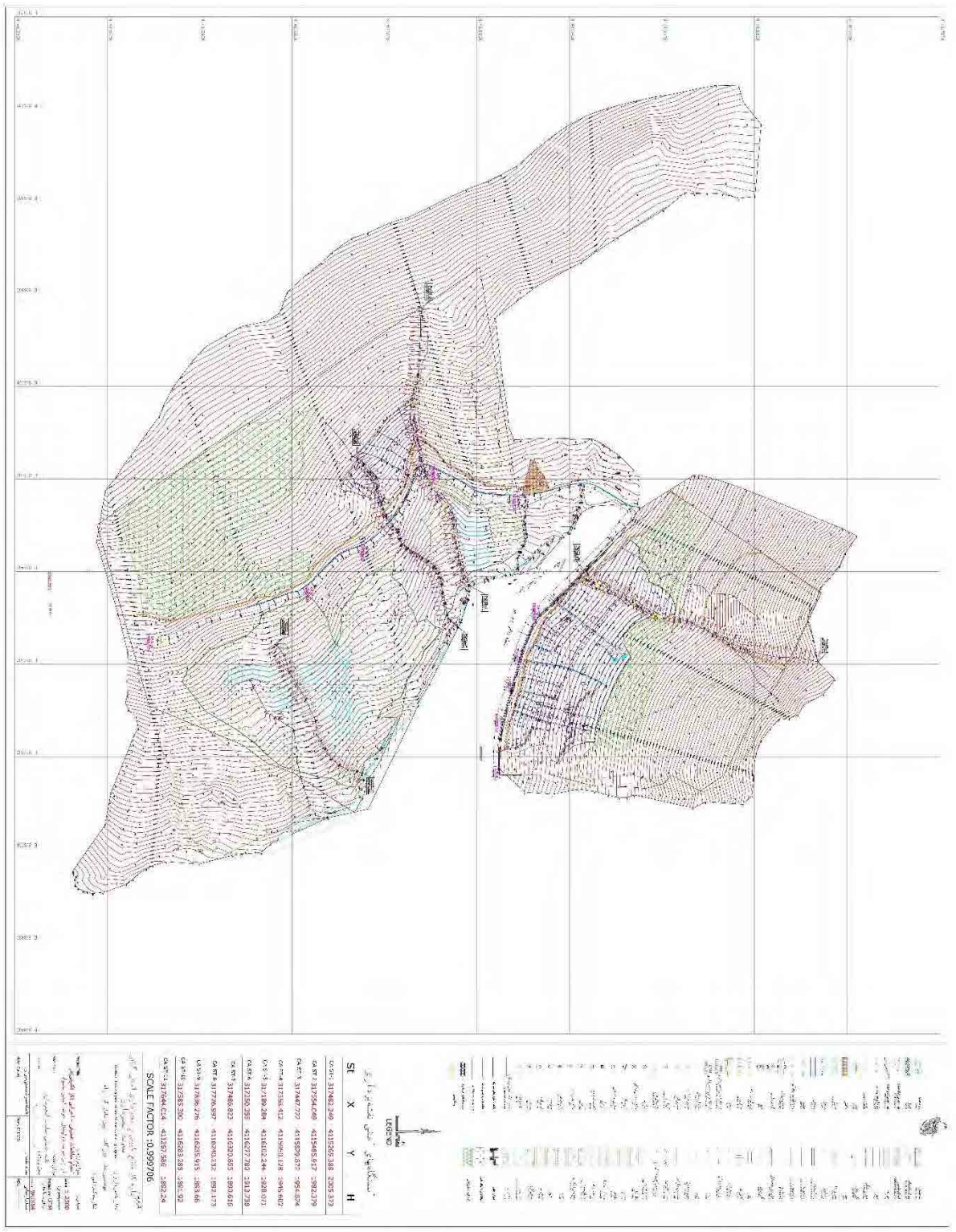
(13) Recommendations

It is recommended to the Iranian side not to keep the previous method/ ways.

(14) Remarks

None.

Plan View Drawing



Summary of the Joint Pilot Activity (11)

(1) Name of the JPA

- Detailed design survey at Morghak River basin

(2) Objective(s)

- The JPA of detailed design survey aims to transfer some technical knowledges for detailed design of river structures such as drop and revetment in main river course.

(3) Location(s)

- Morghak River basin Area in Anzali Wetland Basin (see Figure 1 as attached.)

(4) Implementation period

Item	Period
1) Preparation of an integrated plan in main river course in Morghak River basin	November 2017 to January 2018
2) Preparation of application form for securing budget of detailed design work in Morghak River	February 2018
3) Budget request for the detailed design work in Morghak River	March 2018 to present

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Watershed Management SC
- Main Responsible Organization: GRWC

(6) Outline of the activity

- Integrated watershed plan in Masal River basin prepared on JPA WSM-1 in the second year.
- The structures distribution plan in the main river course for erosion and sediment control in Morghak River basin was a part of the integrated watershed plan above.
- The structures distribution plan above was improved by selection of necessary structures for riverbed stability from listed structures (Figure).
- GRWC requested the implementation of the detailed design work based on the structures distribution plan above as a JPA on February 2018.
- The section of downstream end of the Morghak River with 2.1 km length was selected as target section for detailed design work as shown in the attached Figure 3.
- GRWC requested the budget of the JPA of detailed design work in Morghak River to AWMC.
- Unfortunately, GRWC could not obtain the budget for detailed design work in Morghak River within the period of this project.
- The detailed design work in Morghak River had been incorporated into the Mid-Term Plan for going ahead the sediment management certainly.

(7) Output of the activity

- Integrated plan in the main river course for erosion and sediment control in Morghak River basin
- TOR for a detailed design survey of the target segment of Morghak River
- Application form to request the budget for the detailed design work in Morghak River

(8) Effect and impact of the activity

- After the preparation of the integrated plan for main river course in Morghak River basin, GRWC had started to secure the budget for the detailed design work in Morghak River by themselves. The preparation of integrated plan leaded GRWC's aggressiveness activity of sediment control work in main river course.

(9) Sustainability of the activity

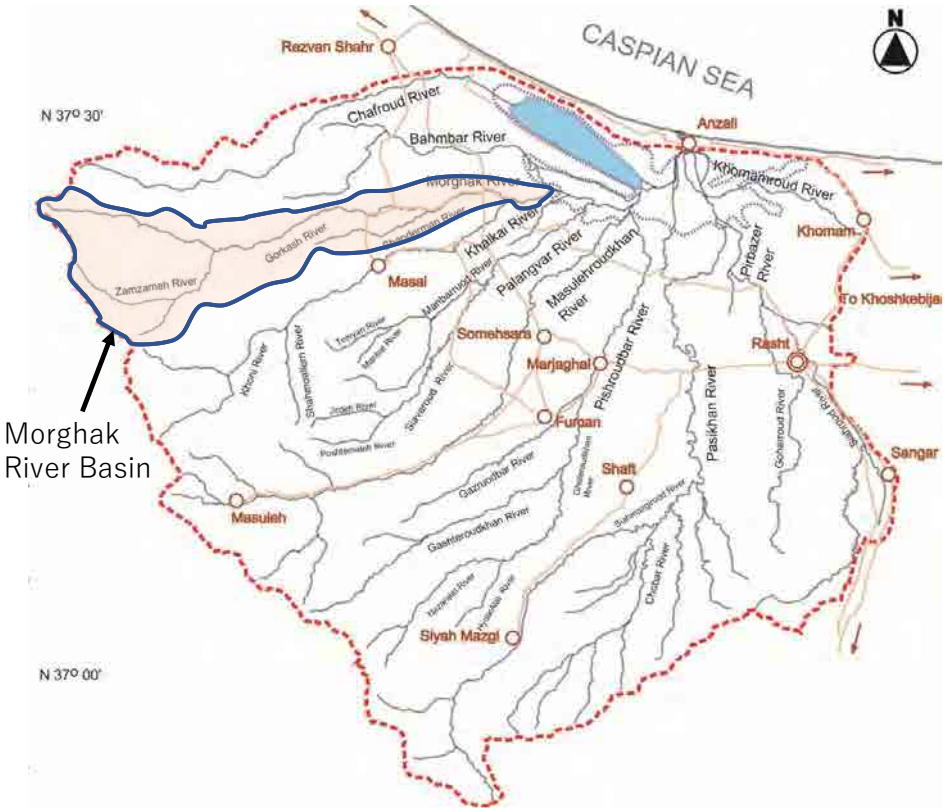
- The detailed design work in Morghak River had been incorporated into the Mid-Term Plan for going ahead the sediment management certainly. It is expected that the detailed design work will be conducted ongoingly by GRWC based on the Mid-Term Plan.

(10) Secondary effect(s) of the activity

➢ None in particular
(11) Approximate cost ➢ No cost since the detailed design work had not been conducted
(12) Expected future action by Iranian side based on this JPA after completion of the project ➢ It is expected that the detailed design work in Morghak River will be conducted ongoingly by GRWC based on the Mid-Term Plan.
(13) Recommendations ➢ An integrated plan likes of the integrated plan for main river course in Morghak River basin which had been prepared on this JPA had never been established by GRWC activities in the past. Therefore, GRWC had constructed the cross-river structures on a random basis, then riverbed degradation and collapse of revetment had been occurred at many places. ➢ The detailed design work in Morghak main river course was incorporated into the Mid-Term plan. It is recommended to go ahead the sediment control project based on the Mid-Term Plan and reduce the sediment production by keeping the main river course stable.
(14) Remarks ➢ None in particular

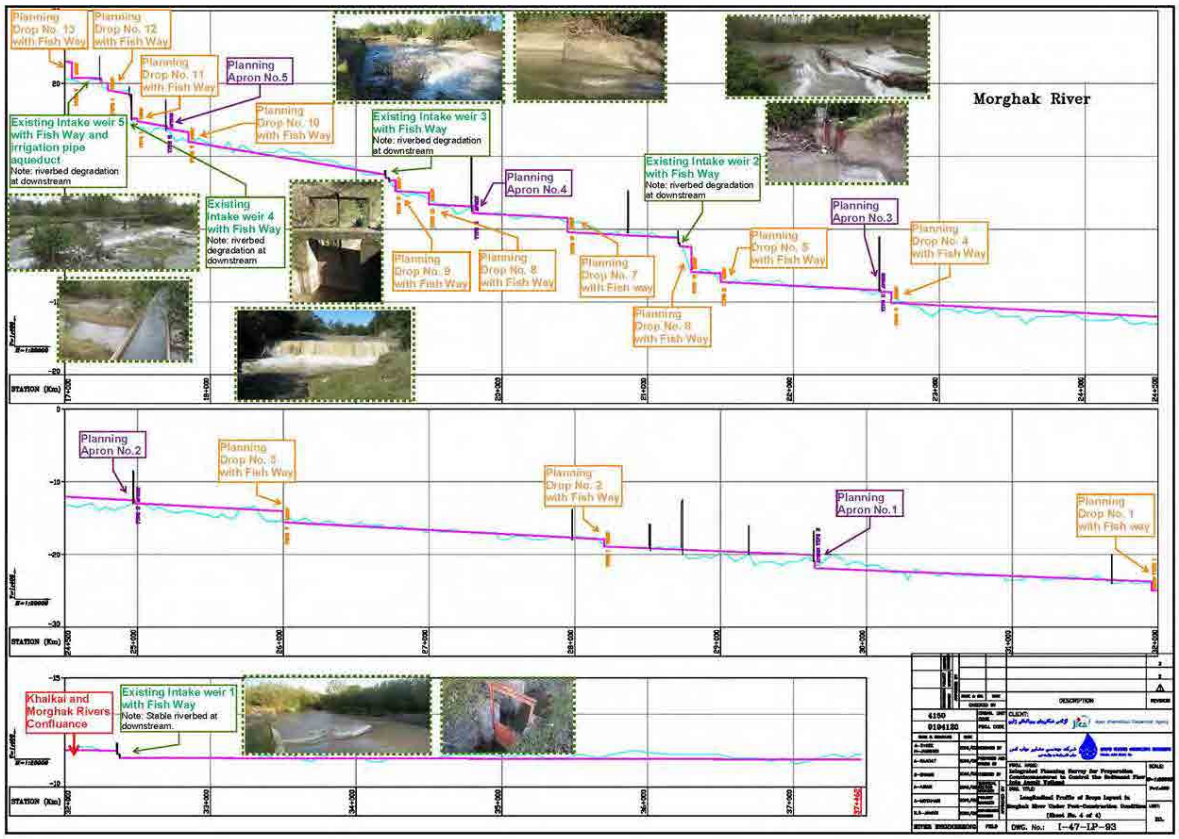
Photos

 Bank Erosion at DD site of Morghak River	 Bank Erosion at DD site of Morghak River
 Bank Erosion at DD site of Morghak River	 Installation Site of New Drop at DD site
 Joint Site Visit at DD Site of Morghak River	 Joint Site Visit at DD Site of Morghak River
 Existing Drop at the end downstream of Morghak River	 WSM Meeting on 15 November 2017



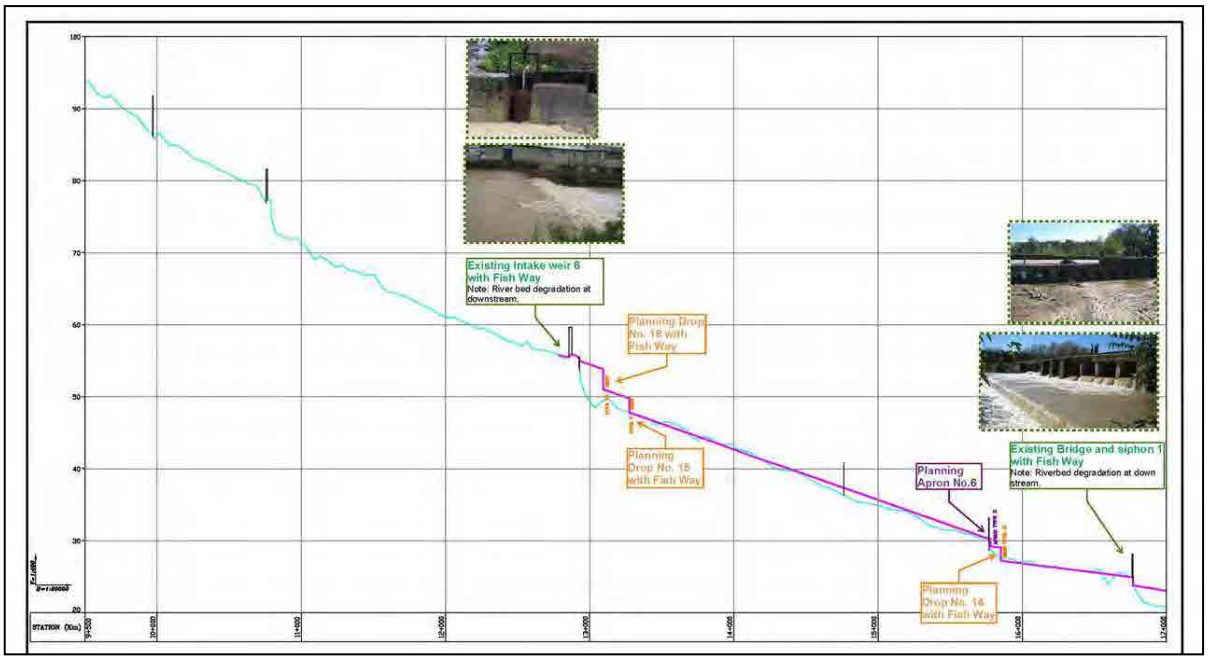
Source: JICA Expert Team

Figure 1　Location Map of Morghak River Basin



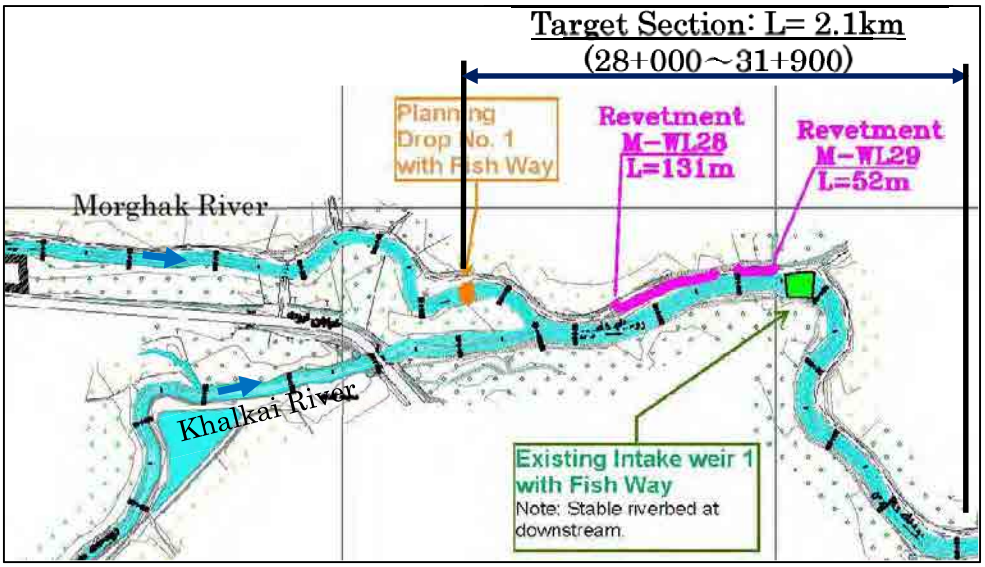
Source: JICA Expert Team

Figure 2-(1)　Longitudinal Profile of Morghak River (1/2)



Source: JICA Expert Team

Figure 2-(2) Longitudinal Profile of Morghak River (2/2)



Source: JICA Expert Team

Figure 3 Target Section of Detailed Design in Morghak River

Summary of the Joint Pilot Activity (12)

(1) Name of the JPA

- Development Project of On-site Sewage Treatment System in the Anzali Wetland Watershed

(2) Objective(s)

- To support RWWC technically and financially to develop the on-site sewage treatment system in rural areas as much as possible.
- To make it an opportunity to expand the development of rural sewage treatment to whole Anzali Wetland watershed.

(3) Location(s)

- Mobarak Abad Village

(4) Implementation period

Item	Period
1) Procurement and installation of 50 on-site sewage treatment packages by RWWC's budget	July – November, 2017
2) Preparation of bidding procedure for procurement of 29 on-site sewage treatment packages by JICA's budget	December, 2017 – May, 2018
3) Selection of supplier of 29 on-site sewage treatment packages	June – September, 2018
4) Test installation and operation of one package	September, 2018 – January, 219

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Sewage Management SC
- Main Responsible Organization: Rural Water and Wastewater Company (RWWC)

(6) Outline of the activity

- One of the largest pollution sources on the Anzali Wetland is domestic sewage from not only urban areas but also rural areas. The development of sewage treatment system has already been started in urban areas such as Rasht City and Anzali City, however, the development of sewage treatment system has not yet been launched in rural areas.
- Therefore, the Sewage SC implemented the joint pilot activity to develop on-site sewage treatment system in a selected village and make it an opportunity to expand the development of rural sewage treatment to whole Anzali Wetland watershed.

(7) Output of the activity

- 50 on-site sewage treatment packages were procured and installed by RWWC

(8) Effect and impact of the activity

- Mitigation of water pollution load on the Anzali Wetland
- RWWC Obtained the know-how of development and O&M of on-site sewage treatment sewerage system.

(9) Sustainability of the activity

RWWC can expand the vacuum sewerage system to other cities and areas if RWWC can obtain necessary budget.

(10) Secondary effect(s) of the activity

None

(11) Approximate cost

Item	Cost
Procurement of 29 on-site sewage treatment packages	IRR 3,804,100,000

(12) Expected future action by Iranian side based on this JPA after completion of the project

- RWWC is expected to implement the appropriate operation and maintenance of the on-site sewage treatment system installed in this JPA.

(13) Recommendations

- RWWC should continue the development of sewage treatment system in rural area of the Anzali Wetland watershed.

(14) Remarks

None

Photos

 Meeting with the council of Mobarak Abad Village	 Site visit together with SC members
 On-site sewage treatment package procured by RWWC	 Installed on-site sewage treatment package with RWWC's budget
 Delivered on-site sewage treatment package to be purchased with JICA's budget	 Installed on-site sewage treatment package with JICA's budget to be operated on trial

Summary of the Joint Pilot Activity (13)

(1) Name of the JPA

- Development Project of Vacuum Sewerage System in Koliver Area of Anzali City

(2) Objective(s)

- To support GWWC technically and financially to progress the development of sewer pipelines in urban areas as much as possible.
- To implement a project whose feature is new to Gilan Province or all over Iran to utilize the result of the activity in the sewerage projects in other areas and provinces.

(3) Location(s)

- Koliver Area of Anzali City

(4) Implementation period

Item	Period
5) Preparation of construction plan	June – September, 2015
6) Selection of contractor for Phase-1 (Development of main sewer network)	October – December, 2015
7) Construction work of Phase-1	December, 2015 – February, 2017
8) Selection of contractor for Phase-2 (House connection)	September, 2017 and July, 2018
9) Implementation of house connection work	August, 2018 – January, 219

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Sewage Management SC
- Main Responsible Organization: Gilan Water and Wastewater Company (GWWC)

(6) Outline of the activity

- This is the development project of vacuum sewerage system in a selected area of Anzali City, which is new to Gilan Province or all over Iran and is expected to utilize the result of the project in other areas and provinces.
- This project consists of the construction of main sewer system and the house connection work.

(7) Output of the activity

- Development of the vacuum sewerage system
- Trained staff for operation and maintenance (O&M) of vacuum sewerage system

(8) Effect and impact of the activity

- Mitigation of water pollution load on the Anzali Wetland

- GWWC Obtained the know-how of development and O&M of vacuum sewerage system.

(9) Sustainability of the activity

GWWC can expand the vacuum sewerage system to other cities and areas if GWWC can obtain necessary budget.

(10) Secondary effect(s) of the activity

No

(11) Approximate cost

Item	Cost
Installation of 170 vacuum valve chambers	IRR 2,500,000,000
168 house connections	IRR 2,520,000,000
Total	5,020,000,000

(12) Expected future action by Iranian side based on this JPA after completion of the project

- GWWC is expected to implement the appropriate operation and maintenance of the vacuum sewerage system installed in this JPA.

(13) Recommendations

- GWWC should continue the development of sewerage system in Rasht City and Anzali City, especially the development of sewer network should be accelerated to complete the sewerage system in urban areas of the Anzali Wetland watershed and mitigate the largest pollution load on the Anzali Wetland.

(14) Remarks

None

Photos

 Installation of equipment in vacuum chamber	 Inside of vacuum chamber
 Interim monitoring of the installation of vacuum chamber with the mission from JICA Iran Office	 Final inspection of the installation of vacuum chamber with the mission from JICA Iran Office
 Procured spare parts	 Procured power generator
 One of the completed house connection work	 One of the completed house connection work

Summary of the Joint Pilot Activity (14)

(1) Name of the JPA

- Valuable recyclables collection activity

(2) Objective(s)

- To reduce amount of waste generation and disposal by recovering recyclable waste
- To raise environmental awareness of villagers and enhance cooperation among villagers

(3) Location(s)

- Dahanesar Sheijan (DSS) village

(4) Implementation period

Item	Period
Preparation of the activity plan	Apr. to Sep. 2015
Construction of facility, procurement of equipment	Oct. 2015 to Feb. 2017
Implementation of the activity in DSS village	Mar. 2017 to Feb. 2019
Dissemination to other villages	Nov. 2017 to Feb. 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Waste Management SC
- Main Responsible Organization: DOE, RAO and DSS village

(6) Outline of the activity

- Recyclable waste discharged by villagers was segregated and collected at the recycling station installed by JICA.
- Segregated waste collection service was provided by the collection truck procured by RAO.
- Various public relation and awareness raising activities were conducted in order to obtain residents' cooperation on segregated waste discharge.

(7) Output of the activity

- For the 14 months operation of the recyclables collection activity from March 2017 to April 2018, the village succeeded to collect 1,284 kg of recyclables in total and its monthly average was 92 kg.
- The total amount of sold recyclables by 3 March 2018 was 1,517 kg and its sales proceed was IRR 7,102,150 (USD 169).
- DSS village covered the operational cost of the activity by minimizing total cost for waste collection service but external financial support was necessary for the initial cost of the activity.

(8) Effect and impact of the activity

- The recyclable waste collection activity recovered about 4.6% of total recyclable waste generated in DSS village.

(9) Sustainability of the activity

- Sustainability of the activity can be assessed to be high as DSS village is continuously operating the activity for more than 2 years up to now.
- Financial support on initial cost required for the activity and sharing experiences and lessons learnt in DSS village will be preconditions to promote and expand the activity in other villages.

(10) Secondary effect(s) of the activity

- The activity got attention in Khomam District and Gilan Province as an advanced effort on solid waste management in the region. Workshops and study tours to disseminate the activity in DSS were held and the activity was taken up by the regional and the national TV programs.

(11) Approximate cost

Item	Cost
Construction of Recycling Station	IRR 612,000,000
Procurement of Collection Truck	IRR 560,000,000
Operational cost (for 2 years)	IRR 55,200,000
Intervention cost (station materials, signboards, plastic bags)	IRR 61,570,000
Total	IRR 1,288,770,000

(12) Expected future action by Iranian side based on this JPA after completion of the project

- To promote and expand the activity as planned and scheduled in the Mid-term Action Plan.

(13) Recommendations

- Waste Management SC shall be responsible for securing budget required for promotion and expansion of the activity in accordance with the Mid-term Action Plan.
- Waste Management SC shall provide lessons learnt from the activity in DSS village to other villages and municipalities/cities which will newly start the activities.

(14) Remarks

None

Photos

Recycling station in DSS village constructed by JICA

Opening ceremony

Waste collection truck procured by RAO

Segregation boxed in the station

Awareness raising workshop

Recyclable waste discharged by villagers

Recyclable waste discharged by villagers

Summary of the Joint Pilot Activity (15)

(1) Name of the JPA

- Organic waste composting & in-house treatment activity

(2) Objective(s)

- To reduce amount of waste generation and disposal by utilizing organic waste
- To raise environmental awareness of villagers and enhance cooperation among villagers

(3) Location(s)

- Dahanesar Sheijan (DSS) village

(4) Implementation period

Item	Period
Preparation of the activity plan	Apr. to Sep. 2015
Procurement of equipment and material	Oct. 2015 to Jan. 2016
Implementation of the activity in DSS village	Feb. 2016 to Feb. 2019
Dissemination to other villages	Mar. 2018 to Feb. 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Waste Management SC
- Main Responsible Organization: DOE and DSS village

(6) Outline of the activity

- Trial on home composting and in-house treatment was conducted by recruiting the volunteer households in DSS.
- Technical instruction on composting procedure and financial support on materials required for the activity were provided by JICA expert team.
- Various public relation and awareness raising activities were conducted in order to obtain residents' cooperation on home composting.

(7) Output of the activity

- The number of volunteer households participated in the home composting activity was 13 households.
- Besides, there were considerable number of households who were trying in-house treatment of kitchen waste or utilizing kitchen waste to feed livestock and pets.

(8) Effect and impact of the activity

- The activity could only be performed with 3.6% of the population in the village. However, home composting and in-house treatment of organic waste contribute to about 70% reduction of solid waste in each household.
- The activity also contributed to raising awareness of the villagers on solid waste management issue.

(9) Sustainability of the activity

- Sustainability of the activity can be assessed to be high as long as villages can provide technical instruction and small financial support for households who are willing to start home composting.

(10) Secondary effect(s) of the activity

- The activity got attention in Khomam District and Gilan Province as an advanced effort on solid waste management in the region. Workshops and study tours to disseminate the activity in DSS were held and the activity was taken up by the regional and the national TV programs.

(11) Approximate cost

Item	Cost (per household)
Compost container (Styrofoam box)	IRR 150,000
Compost bed (Vermi compost)	IRR 60,000
Other materials (thermometer, shovel, gloves)	IRR 80,000
Total	IRR 290,000

(12) Expected future action by Iranian side based on this JPA after completion of the project

- To promote and expand the activity as planned and scheduled in the Mid-term Action Plan.

(13) Recommendations

- Waste Management SC shall be responsible for securing budget required for promotion and expansion of the activity in accordance with the Mid-term Action Plan.
- Waste Management SC shall provide lessons learnt from the activity in DSS village to other villages and municipalities/cities which will newly start the activities.

(14) Remarks

None

Photos

 Home composting practice by villagers	 Home composting practice by villagers
 Technical instruction by JICA expert team	 Dissemination to other villages

Summary of the Joint Pilot Activity (16)

(1) Name of the JPA

- Waste bring-back awareness raising campaign activity

(2) Objective(s)

- To raise awareness of visitors and villagers on waste littering issue.

(3) Location(s)

- Major boat stations in Anzali and Somehsara
- Khendekhaleh and Jirsar Bagherkhaleh Villages

(4) Implementation period

Item	Period
Preparation of the activity plan	Jan. to Aug. 2017
Procurement of equipment and material	Feb. 2017 to Feb. 2018
Implementation of the activity at boat stations	Mar. 2017 and Nov. 2017
Installation of the signboards in villages	Feb. 2018

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Waste Management SC
- Main Responsible Organization: DOE

(6) Outline of the activity

- Waste bring-back campaigns for tourists and fishermen were conducted at the major 7 boat stations in Anzali and Somehsara.
- Awareness raising signboards on prevention of waste littering were installed at 27 locations in Khendekhaleh and Jirsar Bagherkhaleh Villages.

(7) Output of the activity

- Waste bring-back campaign were successfully implemented with cooperation from tourists and fishermen.
- Awareness raising signboards were designed in collaboration with Eco-tourism SC and successfully installed.

(8) Effect and impact of the activity

- The activity contributed to raising awareness of the tourists, fishermen and villagers on solid waste management issue.

(9) Sustainability of the activity

- The concerned boat station and villages, as well as tourists, fishermen and villagers welcomed the awareness raising campaigns and signboards. Sustainability of the activity can be assessed to be high as long as DOE can provide financial support for promotion and expansion of the activity.

(10) Secondary effect(s) of the activity

(11) Approximate cost

Item	Cost
Procurement of campaign goods and materials	IRR 20,000,000
Staff for implementing campaigns	IRR 10,000,000
Procurement and installation of signboards	IRR 200,000,000
Total	IRR 230,000,000

(12) Expected future action by Iranian side based on this JPA after completion of the project

- To promote and expand the activity as planned and scheduled in the Mid-term Action Plan.

(13) Recommendations
➢ Waste Management SC shall be responsible for securing budget required for promotion and expansion of the activity in accordance with the Mid-term Action Plan. ➢ Waste Management SC shall provide lessons learnt from the activity as well as designed materials to concerned organizations which will newly start the activities.
(14) Remarks
None

Photos

Scenery of campaign for tourists

Scenery of campaign for fishermen

Signboard in Khendekhaleh Village

Signboard in Jirsar Bagherkhaleh Village

Example of designed signboard

Example of designed signboard

Summary of the Joint Pilot Activity (17)

(1) Name of the JPA
- River waste collection activity

(2) Objective(s)
- To prevent waste inflowing to Anzali Wetland through rivers.

(3) Location(s)
- Dahanesar Sheijan (DSS) and Jirsar Bagherkhaleh (JBK) Villages

(4) Implementation period

Item	Period
Preparation of the activity plan	Apr. to Oct. 2015
Design and procurement of River waste net	Oct. to Nov. 2018
Installation of river waste nets	Nov. 2018
Operation and monitoring of river waste net	Nov. 2018 to Feb. 2019

(5) Names of the technical sub-committee and main responsible organization
- Technical Sub-Committee: Waste Management SC
- Main Responsible Organization: DOE, DSS and JBK villages

(6) Outline of the activity
- River net to prevent waste inflow through rivers was designed by referring to Japanese practice and experience.
- The river waste nets were produced at the local fishing equipment store in Anzali City.
- The 2 nets were installed at downstream of the rivers in DSS and JBK villages.
- Operation and maintenance of the river waste nets were conducted by DSS and JBK villages.

(7) Output of the activity
- The river waste nets were appropriately operated by the villages.
- The river waste nets captured huge amount of waste inflowing through the rivers.

(8) Effect and impact of the activity
- Installation of river waste nets at downstream of rivers was very effective to capture floating waste and it will have significant impact to prevent waste inflowing to Anzali Wetland.
- The activity also contributed to raising awareness of the villagers on solid waste management issue.

(9) Sustainability of the activity
- Sustainability of the activity can be assessed to be high as long as DOE can provide financial support for promotion and expansion of the activity.

(10) Secondary effect(s) of the activity

None

(11) Approximate cost

Item	Cost
Procurement of river waste nets	IRR 40,000,000
Total	IRR 40,000,000

(12) Expected future action by Iranian side based on this JPA after completion of the project
- To promote and expand the activity as planned and scheduled in the Mid-term Action Plan.

(13) Recommendations
- Waste Management SC shall be responsible for securing budget required for promotion and expansion of the activity in accordance with the Mid-term Action Plan.
- Waste Management SC shall provide lessons learnt from the activity as well as specification of the river waste net to concerned organizations which will newly start the activities.

(14) Remarks

None

Photos

 River waste net	 River waste net
 Operation of river waste net in DSS village	 Captured floating waste in DSS village
 Captured floating waste in JBK village	

Summary of the Joint Pilot Activity (18)

(1) Name of the JPA

- Community-based Ecotourism Development

(2) Objective(s)

- Develop Community-based Ecotourism (CBET) model and an Ecotourism Center in the village area as the hub of CBET activities managed by community members for protecting nature and preserving traditional culture of the wetland.
- Give necessary technical supports to the Iranian counterparts in CBET.
- Make the Anzali Wetland as one of the successful CBET model area in Iran

(3) Location(s)

- At the pasture of Jirsar Bagherkhaleh Village (JBK)

(4) Implementation period

Item	Period
1) CBET product development (JBK)	July 2015 to Jan. 2018
2) Conduct trainings for CBET group (JBK)	Nov. 2015 to Jan 2018
3) Ecotourism Center Development (JBK)	Aug. 2015 to April 2017
4) Conduct management workshops (JBK)	Aug. 2016 to Dec. 2018
5) Prepare CBET guideline (JBK)	July 2018 to Dec. 2018

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Ecotourism SC
- Main Responsible Organization: DOE, GCHHTO, NRWGO, Gilan Rural Affairs Office, Khomam District Office, Village Council, and Jirsar Bagherkhaleh Village Ecotourism Group

(6) Outline of the activity

- Train local villagers to become CBET guides and members for the activities of kayaking, traditional crafting, serving and selling traditional foods and bird watching, trained by JET and local experts.
- Construct JBK Ecotourism Center and related facilities by Japan and Iranian side together.
- Support to establish JBK CBET group coordinated by the CBET leaders.
- Support CBET group to develop JBK CBET management guideline for sustainability.

(7) Output of the activity

- All CBET activities and the Ecotourism Center in JBK are managed well by CBET group following the guideline and it becomes one of the successful CBET models in Iran.

(8) Effect and impact of the activity

- Sixteen (16) villagers received economic benefits from CBET activities directly and about thirty (30) villagers get indirectly.
- The maximum number of visitors was over 2,000 during Nature Day on 2 April 2018.
- The total income for all activities is about 207,820,000 Rials from June 2017 to April 2018.
- The total income for all activities is about 243,100,000 Rials from June 2018 to April 2019.
- CBET group become more aware of the nature conservation around the Anzali Wetland through kayaking and bird watching activities and preservation of traditional culture through cooking and crafting activities.
- More and more villagers and visitors learn by seeing and experiencing the CBET activities and support nature conservation.
- Seems less hunters coming to JBK because of the bird watching trainings and CBET activities act as a deterrent.

(9) Sustainability of the activity

- Collect 10% of all income through CBET activities as a management fee for hiring guards and purchasing equipment for the sustainable management.
- CBET members will continue the activities for receiving incomes adding to farming activities still living in the village.
- More young people are joining CBET activities.

(10) Secondary effect(s) of the activity

- Local villagers become prouder being Jirsar Bagherkhaleh villagers than before.
- The villagers learn how to think and work together, not individually, under CBET activities.
- The price of land become higher and more shops open along the road in the village toward the Ecotourism Center.
- Local villagers become "Friends of Japan." (Many villagers had not trusted us for two years and believed that Japanese company came to take over their pasture land.)

(11) Approximate Cost

Item	Cost
Hard (Ecotourism Center, etc.)	3.0 billion IRR
Soft (Trainings, equipment, etc.)	3.9 billion IRR
Total	6.9 billion IRR

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Assist CBET activities for conservation and promotion.
- Promote and expand the activity at different areas as planned and scheduled in the Mid-term Action Plan.

(13) Recommendations

- Learn from the experience of JBK CBET development.
- Collaborate SCs under Gilan Ecotourism Committee.
- Make JBK as a model Ecotourism site in Iran.

(14) Remarks

None

Photos

Ecotourism Center (JBK)

JBK CBET Group

CBET Site

Uniform (Traditional Clothes)

Selling Local Foods

Serving Local Meals in Gazebo

Local Meals

Kayaking Tour by Local Guides

Craft Shop in Ecotourism Center

Bird Watching Training for Locals

Promotion (Tourism EXPO)

Summary of the Joint Pilot Activity (19)

(1) Name of the JPA

- Development of Anzali Wetland Visitor Center

(2) Objective(s)

- To provide environmental and cultural interpretation to both tourists and locals about the safe and enjoyable usage of the Anzali Wetland areas and information of how to protect the environment and the culture of surrounding areas.

(3) Location(s)

- South-western area of the Valayat Bridge in Anzali City (see location map as attached.)

(4) Implementation period

Item	Period
1) Planning and preparation	March 2016 to September 2018
2) Construction, development of displays, and training for operational staff	October 2018 to mid-March 2019
3) Opening ceremony and commencement of operation	mid-March 2019
4) OJT for the operational staff	mid-March to end of April 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Ecotourism SC
- Main Responsible Organization: Anzali Municipality

(6) Outline of the activity

- It contains a variety of attractive interpretive media, including educational exhibits with panels with pictures and didactic text, enjoyable hands-on displays, audiovisual programs, observation areas, kid educational play area, etc. In addition, the basic information includes the ecotourism attractions or places of interest, providing maps, staff contact, restrooms, etc. will be also installed. The building of the center is planned to be one floor building and the total floor area is 500 m^2 approximately.

(7) Output of the activity

- Construction of the visitor center building
- Development of the internal exhibition displays
- Trained staff for operating and maintain the visitor center

(8) Effect and impact of the activity

- Information center on the Anzali Wetland to disseminate various information on the Anzali Wetland and relevant activities such as conservation activities, ecotourism, and environmental education.

(9) Sustainability of the activity

- Capacity development for the operational staff
- Involvement of environmental NGOs for guide
- Securing annual budget for operation and maintenance cost

(10) Secondary effect(s) of the activity

- It is not observed yet.

(11) Approximate cost

Item	Cost
1) Construction of the visitor center building	USD 200,000
2) Development of the exhibition displays	USD 200,000
3) Training for operational staff	N/A
Total	USD 400,000

(12) Expected future action by Iranian side based on this JPA after completion of the project

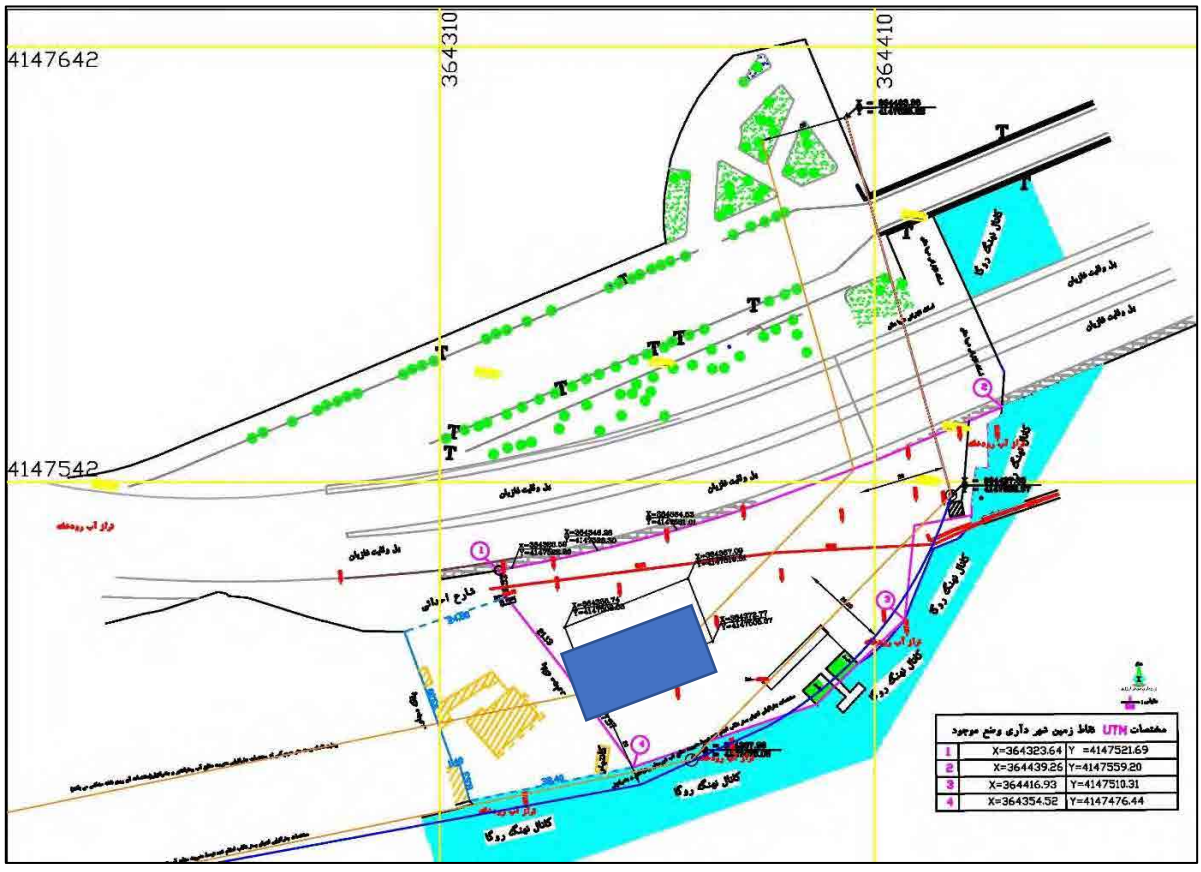
- Operational staff from Anzali Municipality will continue to operate and maintain the center, including the internal displays. In addition, it is expected that the operational staff will revise, update, and re-new the internal display by themselves and/or with support of environmental NGOs, knowledge person on environment of the Anzali Wetland, and/or others, if any as well as developing and providing environmental education and ecotourism programs for visitors in the center and in the wetland.

(13) Recommendations

- Networking and implementing collaborative activities of ecotourism and environmental education program with other facilities such as the Anzali Wetland Environmental Education Center in Selkeh Wildlife Refuge, Anzali Wetland Nature School in Beheshti Island of Anzali City, and Ecotourism Center in Jirsar Bagherkhaleh Village

(14) Remarks

- Anzali Wetland Visitor Center is the first visitor center among the Ramsar Convention wetland in Iran.



Source: Anzali Municipal office, November 2018

Location of the Anzali Wetland Visitor Center

Photos

Exterior of the building (front side)

Entrance of the center

Exterior of the building (back side)

Reception

Front wall of W.C.

Internal displays

Internal displays and interior

Exhibition panel

Interior (from back entrance side view)

Internal displays and interior

Kids' corner

Free working space

Internal displays

Internal displays

Internal displays

Observatory deck at 2nd floor

Summary of the Joint Pilot Activity (20)

(1) Name of the JPA

- Implementation of the EE Program by using the Anzali Wetland Environmental Education Center (AWEEC)

(2) Objective(s)

- The facilities, equipment and programs of the AWEEC are strengthened, and experience-based EE programs are regularly implemented at the center.

(3) Location(s)

- Anzali Wetland Environmental Education Center in Selkeh Wildlife Refuge

(4) Implementation period

Item	Period
1) Improvement/Maintenance of EE Facilities in AWEEC	Jan. 2016 to Dec. 2018
2) Preparation of new EE materials/Development of EE programs	Jul. 2015 to Dec.2018
3) Implementation of Regular EE program Especially for School Student by DOE Gilan, EO, and Kanoon	Oct. 2015 to Mar.2019
4) Public Open of AWEEC for Visitors	Feb.2018 to Mar. 2019
5) Inter-Provincial Seminar for DOE EE Officers in AWEEC	Feb. 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Environmental Education SC
- Main Responsible Organization: DOE Gilan Environmental Education Section, DOE Gilan Somesara branch, EO, Kanoon, and NGOs

(6) Outline of the activity

- The AWEEC were repaired and installed by Japanese budget as following table

No	
EE Center Building	
1	Renovation of the Center (Repainting, Repair f Ceiling, Electric Wiring, Smoothing Wall, etc.)
2	Renovation of Bird Watching Tower (repainting and renewal of timbers)
3	Renovation of Bridge (repainting and renewal of timbers)
4	Renovation of Toilet
5	Renovation of Map Signboards
6	Construction of New Side Gate beside the Center
7	Installation of Septic Tank for Toilet
8	4 Guide Signboards Installation along the Road to the Center
9	Renovation of the Center (Repainting, Repair f Ceiling, Electric Wiring, Smoothing Wall, etc.)
Wetland	
1	Renovation the Bird Hide (renewal of roof, painting the floor)
2	Renovation the Boardwalk to the Bird Hide (repainting and renewal of timbers)
3	Construction of Small Island as Biotope
4	Construction of New Boardwalk to the Biotope
5	Construction of Observation Deck including Floating Deck
6	Signboards Installation on the Handrail of Boardwalk
7	Installation of Piles for Birds
8	Installation of Floating Wood Island for Birds
9	Construction of New Boardwalk (DOE Portion)

- Environmental education equipment such as 40 binoculars, 5 microscopes, and 3 telescopes, 3 bird crafts, etc. was installed in the AWEEC for experience-based EE program in 2017-2018. The equipment, facilities, and fixtures were handed over from JET to DOE Gilan. (List of EE Equipment for AWEEC is shown in Remarks)
- Education materials prepared based on CEPA philosophy for each level student (Primary and lower/higher secondary level), teachers and local people.
- DOE, EO and Kanoon implemented the experience-based EE program regularly for students

from Rasht City, Anzari City, and Somesara Disctict during both of summer and winter long holiday seasons. As the regular EE program in the AWEEC, participants took a lecture of the importance of the Anzali Wetland and its ecosystem.

- The public open of AWEEC have been started For public open of AWEEC, JET implemented training course for management of the AWEEC to members of Kanoon/ three selected NGOs and environmental experts of DOE Gilan. The trainees have been supported public open of AWEEC from February 2018.
- JET supported to prepare "The guideline of public open for nature guide" and Rules for the AWEEC usage.
- A field program was held for sharing the experiences of EE activities under the Project for 35 DOE EE officers from DOE HQ and the other provinces including Director General of the office for public participation and deputy head of educational and research centre of the DOE HQ on 17th Feb, 2019

(7) Output of the activity

- Renovated AWEEC facilities and newly installed EE facilities and materials
- Equipment were handed over
- Environmental Education materials as EE booklet, posters, signboards, and guidebooks
- Experienced based EE program using AWEEC facilities and material based on CEPA philosophy
- Regularly EE program for each level in AWEEC
- Public open program cooperation with NGOs
- The guideline of public open for nature guide and Rules for the AWEEC

(8) Effect and impact of the activity

- DOE Gilan assigned EE expert as a first manager of AWEEC for management and regular implementation of the experience-based education program.
- More than 3,000 participants including students of primary, secondary school and university, teachers, principals, Kanoon, NGO members participated in the regular experience-based education program to feel the real wetland at AWEEC.
- More than 2,000 visitors visited to the public open activity of AWEEC on every Friday.
- The total package of AWEEC has prepared as an extremely advanced experience-based education system.
- 35 DOE EE officers from DOE HQ and the other provinces learned experienced based EE program of AWEEC through Inter-Provincial Seminar.

(9) Sustainability of the activity

- Regular experienced based EE program in AWEEC will be implemented for students in Gilan province continually.
- Public open of AWEEC will continue on every Friday with the cooperation of NGOs.
- The EE facilities of AWEEC should be renovated and managed by DOE Somesara regularly.

(10) Secondary effect(s) of the activity

- Student and public people will consider importance of the Anzali Wetland through the experience of EE activity of AWEEC.
- EE activity will expand to different provinces based on experience of AWEEC
- DOE Gilan opened similar facilities such as bird hide, boardwalk, and tower in Amirkelayeh Lake in World Wetland Day, 2019. These facilities in Amirkelayeh Lake are based on the know-how of AWEEC. In addition, similar facilities were/will be constructed in the Bouja National Park, the Estil Wetland in Astara and so on.

(11) Approximate cost

Item	Cost
Renovation Work of the AWEEC (Center, tower, bird hide etc.)	USD 20,500
Equipment (Binoculars, Telescope, Microscope, Monitor etc.)	USD 15,000
Construction Work (New boardwalk, floating deck,	USD 34,000
Transportation for EE Program	USD 5,000
Printing Materials（Booklets）	USD 7,000
Total	**USD 81,500**

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Decision makers of Gilan province who has responsibility of the Anzali Wetland conservation need to change their mind to that CEPA including EE for the next generation is one of the most important activity for the wetland conservation.
- AWMC and other related authorities should discuss and continue budget allocation for appropriate management of AWEEC.
- DOE EE experts should be dispatched as an instructor for EE program for students and teachers in AWEEC.
- All EE experts in the EE section of DOE Gilan should learn how to facilitate the experience-based EE program in AWEEC in order to support to implement the programs for increased students.
- AWEEC should have a good relationship with these villages to promote community-based EE activity.
- Regarding all of the cooperation with NGOs, DOE and EO should make clear the responsibility and demarcation of activities and make

(13) Recommendations

- Appropriate management of AWEEC including budget allocation by DOE Gilan and Somesara
- Further Cooperation between DOE and EO
- Cooperation with the three NGOs for public open of AWEEC
- Cooperation with the other NGOs to expand EE activities
- Capacity development of environmental education Experts
- Focusing on local student and people around AWEEC
- Development of experience education program for the other Facilities in Wetland in Gilan Province

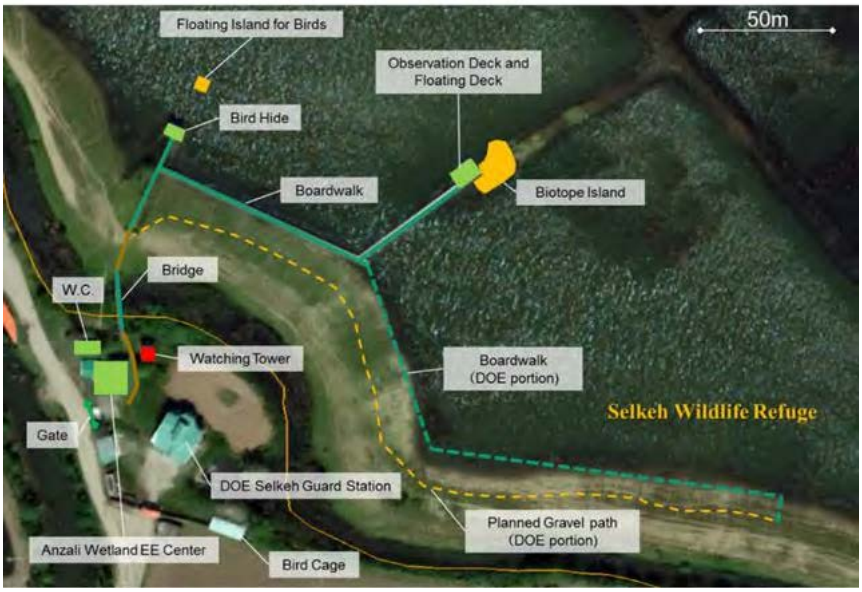
(14) Remarks

List of Environmental Education Equipment for AWEEC provided by JET

No.	Name of Equipment	Number of Equipment
1	Binocular (KOWA YF30-6)	38*
2	Telescope (KOWA TSN601) with tripod	3
3	Microscope (NIKON Nature Scope “Fabre-mini”)	5
4	TV monitor (Sony Bravia 55X8500E)	1
5	Laptop PC (ASUS X450L)	1
6	Hydro Glass	2
7	Air Conditioner	1
8	Fun	2
9	Chair	30
10	Cabinet	2
11	Laminator	1
12	Refrigerator	1
13	Kitchen Stove	1
14	Fire extinguisher	1
15	Rescue ring	2

*: Though JET prepared 40 binoculars in 2016, two of them have been lost in activities until 22nd Feb, 2019 during the EE Activities.

Photos



Facility Map of AWEEC

Current Situation of AWEEC and its Facilities as of Feb, 2018

		
Center building of AWEEC	Inside the center building	Inside the center building
		
Pelican craft in the center	New gate of AWEEC (outside)	Bird watching tower
		
Bird watching Tower and signboard	Bridge from Wetland side	Bird Hide
		
Boardwalk to biotope	Floating and observation deck	Floating wooden island and piles
		
Signboard at entrance from main road	Signboard along roadside	Memorial plate in the center

EE Facilities in AWEEC






Regular EE program in AWEEC



Training Course of Nature Guide






Public Open

EE activities in AWEEC

Summary of the Joint Pilot Activity (21)

(1) Name of the JPA

- Preparation and Implementation of EE Curriculum for School Class and Implementation with Teachers' Training Program

(2) Objective(s)

- EE for conservation of the Anzali Wetland is introduced to the curriculum of school education at primary and secondly schools around the wetland. Materials for the curriculum are developed and EE programs are implemented regularly and continuously.

(3) Location(s)

- Anzali City, Gilan Province

(4) Implementation period

Item	Period
1) Environmental Education Program for Wetland Conservation at 'Human and Environment' Curriculum	July 2015 to Jun 2018
2) Renovation of Anzali Wetland Naturel School (AWNS)	Apr.2018 to Mar.2019
3) Internet Conference between Students of Anzali Wetland and Kushiro Wetland	Feb.2017 to Feb. 2019
4) Preparation and Distribution of Booklet of Messenger to Nowruz Holiday for Primary and Secondary Students	Mar. 2016 to Mar. 2018
5) WWD Festival for Students by EO	Apr.2018 to Apr.2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Environmental Education SC
- Main Responsible Organization: EO, Student Association, DOE Gilan Environmental Education Section, NGOs, and Schools in around the Anzali Wetland

(6) Outline of the activity

- 'Human and Environment' curriculum was started as an official curriculum in Gilan Province for 9th-grade student. As a part of this curriculum, EO in cooperation with JET and DOE prepared a learning course for student about the history and relationship between the Anzali wetland and local people around the wetland.
- "Environmental Education for the Anzali Wetland Conservation" booklet for a teacher in 2017 and "Lotus booklet" for students in 2018 were prepared by EO and JET.
- EO and SA started renovation works from July 2018 for development of the Anzali Wetland Nature School (AWNS) for learning of importance of the wetland conservation through the experience-based program. EE experts of JET supported to plan, procure and construct for the renovation.
- In commemoration of the World Wetland Day, in February of 2017 and 2018, DOE Gilan, EO, and JET conducted internet student conference between Anzali City and Kushiro City.
- JET contributed an article about the Anzali Wetland conservation, the introduction of the EE center and EE activities in the AWEEC to the Nowruz booklet for each level during 2016-2018.
- EO implemented World Wetland Day Festival in Dehkadeh Seheli Anzali Conference Hall in Anzali City from 3rd to 9th Feb. 2018.

(7) Output of the activity

- 'Human and Environment' curriculum for Secondary School
- Lotus booklet for 'Human and Environment' curriculum
- Renovated Anzali Wetland Naturel School (AWNS)
- Nowruz Holiday Booklet for Primary and Secondary Student in 2016-2018

(8) Effect and impact of the activity

- EO established a continual EE activity system for students in the AWEEC together with DOE.

- EO introduced the 'Human and Environment' curriculum for secondary school student. Booklet "lotus" about the Anzali Wetland conservation was developed and printed 25,000 copies for the curriculum 'Human and Environment. In addition, "Life in Anzali Wetland" including 5 educative videos which prepared in the phase I project is still available to use the curriculum. This booklet has been distributed to students and used for the class.
- Around 70 teachers participated from whole Gilan Province in teacher training course of "Human and Environment", however, the number was very limited.
- AWEEC, EO and SA established the AWNS as second experience-based EE facility in Anzali City along the wetland in cooperation with JET in February 2019. JET and Student Association signed MM for continually management and operation of AWNS at the ceremony and equipment (Shown in Remarks) for experience-based EE program have been handed-over from JET to student association on the opening ceremony of AWEEC, on 24th Feb 2019.
- The first conference was held between Mirzakoochak Khan secondary school (Rasht, Iran) and Shibecha secondary school (Shibecha, Japan) on 2nd February 2017, the second conference was held between Sharaf secondary school (Anzali, Iran) and Koryo secondary school (Kushiro, Japan) on 6th February 2018 as well.
- The materials such as self-study booklet for Nowruz holidays including message of Anzali Wetland conservation were distributed to about 400,000 students of all pre-primary, primary and secondary students around in Gilan province.
- Around 500 students who lived in Anzali City and Rasht City attended the festival and learned the meaning of WWD and importance of the Anzali Wetland through Video program and a short play by students.
- EO understood the effectiveness experience-based EE program in AWEEC. EO became to send students to AWEEC regularly in cooperation with DOE under JPA1.

(9) Sustainability of the activity

- EO will continue the teacher training of 'Human and Environment'.
- 'Human and Environment' curriculum will continue the program of the Anzali Wetland conservation as part of the curriculum in Gilan Province for 9th-grade student.
- EO will prepare and start the experienced based EE program for student in AWNS.
- EO is responsible for properly maintaining of AWNS including budget arrangement.

(10) Secondary effect(s) of the activity

- Student and their parents will consider importance of the Anzali Wetland through the experience of EE activity of AWNS.
- EE activity will expand to different provinces based on experience of AWNS using EO branch network

(11) Approximate cost

Item	Cost
Printing New Year Booklet	USD 5,500
Printing Teacher Booklet	USD 5,000
Printing Lotus Booklet	USD 20,000
Transportation Cost for the program in AWEEC	USD 8,000
Implementation the event for WWD	USD 5,000
Renovation Work for AWNS	USD 45,000
Equipment for AWNS	USD 10,000
Total	**USD 98,500**

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Decision makers of Gilan province who has the responsibility of the Anzali Wetland conservation need to change their mind to that CEPA including EE for the next generation is one of the most important activity for the wetland conservation.
- EO and SA should discuss and continue budget allocation for appropriate management of AWNS.

- DOE EE experts should be dispatched as an instructor for EE program for students and teachers in AWNS. In addition, EO should train a suitable person as experienced-based EE expert.
- MM or agreement about the cooperation between DOE Gilan and EO for EE program should be signed as soon as possible.

(13) Recommendations

- Good relationship with local villagers in Behshte Island for AWNS
- Collaborate EE SCs member, especially EO and DOE environmental education section,
- Appropriate management of AWNS including budget allocation by EO and SA
- Further Cooperation between DOE and EO
- Capacity development of environmental education Experts
- Development of experience education program for the other facilities in Wetland in Gilan Province

(14) Remarks

List of Environmental Education Equipment for AWNS

No.	Name of Equipment	Number of Equipment
1	Binocular (KOWA YF30-6)	50
2	Telescope (NIKON PROSTAFF3)	5
3	Microscope (NIKON Nature Scope "Fabre")	10
4	TV monitor (Sony Bravia 55X8500E)	1
5	Chair	70
6	Cabinet	1
7	Other material (Books, Poster, Bird craft and etc)	-

Photos

Current Situation of AWNS and its Facilities as of Feb, 2019

		
Wood Deck and Hall	Inside Hall	Observation Tower
		
Workshop Deck	Stage for Practice Field	Observation Tower
		
Quiz Board	Map Signboard	Forest Walk
		
EE activity	Ceremony on 24 Feb 2019	Ceremony on 25 Feb 2019

Photos of AWNS and its Facilities

The Lotus Booklet

Teacher training program for Human and Environment

'Human and Environment' curriculum for Secondary School

First Conference on 2nd February 2017

Second Conference on 6th February 2018

Summary of the Joint Pilot Activity (22)

(1) Name of the JPA

- Implementation of Broader EE Program

(2) Objective(s)

- Various EE programs for children, young adults, local residents and other people are regularly implemented by different organizations, such as DOE Gilan, EO, Kanoon, and NGOs.

(3) Location(s)

- Anzali Wetland Environmental Education Center in Selkeh Wildlife Refuge
- The other cities, towns and villages in the watershed of the Anzali Wetland

(4) Implementation period

Item	Period
1) EE Activities Organized by Kanoon (World Wetland Day Event, Photo and drawing contest about the Wetland)	Jan. 2016 to Feb 2019.
2) EE Activities with NGOs (Workshop for local people, Removal activity of Water Hyacinth	Jul. 2015 to Feb 2019
3) Public Open of AWEEC for Visitors (as JPA-1)	Feb 2018 to Mar.2019
4) An internet NGO conference was held between the peoples from NGOs working in Anzali Wetland and Kushiro Wetland	Feb.2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Environmental Education SC
- Main Responsible Organization: Kanoon, NGOs, DOE Gilan and EO

(6) Outline of the activity

- Kanoon held World Wetland Day's Event in the project to promote educational activities to understand importance of the wetland conservation for students in February 2016-2019 continually and photo and painting contest related to the Anzali Wetland in 2017.
- Three NGOs have been selected as EE SC member through proposal selection in 2014. The three NGOs were; Gilan Women against Environmental Pollution Society (GWEPS), Gilan Women and Youths Environmentalist Society (GWYES), and Sarzamin-e-ideal ma Environmental Institute (SEI).
- GWEPS and GWYES educated local farmers and students about the importance of wetlands through games and lectures in the AWEEC.
- SEI worked on the challenge of Water Hyacinth as alien species and carried out removal work and public awareness program for local communities
- Public open of Anzali Wetland Environmental Education Center by NGO was mentioned as JPA-1.

(7) Output of the activity

- WWD event program by Kanoon
- EE program in AWEEC by NGOs
- Public open program of AWEEC by NGOs (JPA-1)

(8) Effect and impact of the activity

- Broader EE program became diverse and could cover a wide range of the EE activities for Anzali Wetland conservation.
- More than 5,000 students participated in the EE events organized by Kanoon during the project.
- About 100 participants including student experienced the EE program by NGOs in AWEEC
- Over 10,000 participants came to public open of AWEEC (as JPA-1)
- NGO network between Iran and Japan was connected by internet conference.

(9) Sustainability of the activity

- Kanoon will continue WWD event year by year.
- NGOs will continue to support Public open of AWEEC and implement their WS in AWEEC.
- The NGO network between Kushiro and Anzali will continue.

(10) Secondary effect(s) of the activity

- Student and local villagers will consider importance of Anzali Wetland through the experience of EE activity.
- EE activity will expand to different provinces through Kanoon and NGOs network

(11) Approximate cost

Item	Cost
Event for Kanoon (WWD events)	USD 5,000
Transportation Cost to AWEEC (Kanoon, NGOs)	USD 3,500
The other EE activities	USD 1,000
Total	**USD 9,500**

-

(12) Expected future action by Iranian side based on this JPA after completion of the project

- Assist Kanoon and NGOs activity by AWMC
- Promote and expand the EE activity at different province through Kanoon and NGOs network

(13) Recommendations

- Change Mind of People Including Decision Makers related to Anzali Wetland conservation in local area
- Cooperation with the other NGOs to Expand EE Activities

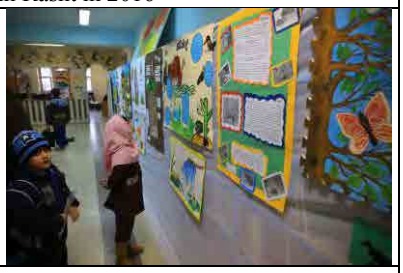
(14) Remarks

Photos



Exhibition of World Wetland Day in Kanoon Center No.3 in Rasht in 2016





Exhibition of World Wetland Day in Kanoon Center No.3 in Rasht in 2017



Exhibition of World Wetland Day in Center in Anzali City in 2018



Exhibition of World Wetland Day in Kanoon Center No.3 in Rasht in 2019

Photos of WWD (2016-2019)

EE Program by GWEPS and GWYES

EE Program by GWEPS and GWYES

Public awareness program for Water Hyacinth removal by SEI in Chekovar Village on 22th Aug, 2016

Photos of NGOs Activity

Photos of Internet NGO Conference between Iran and Japan on WWD 2019

Summary of the Joint Pilot Activity (23)

(1) Name of the JPA

- Public Relations Activities

(2) Objective(s)

- Various public relations activities are regularly implemented using mass media and other means. In addition, local people around the Anzali Wetland and many people in Gilan Province come to understand the importance of wetland conservation.

(3) Location(s)

- Gilan Province

(4) Implementation period

Item	Period
1) Competition of Logo for the Anzali Wetland Conservation	Oct 2015 to Sep. 2018
2) Preparation and Distribution of Calendars	Jan-Apr, 2015-2019
3) Preparation and Distribution of Guidebook	Mar 2017 to Mar. 2019
4) Preparation and Distribution of Posters	Jul.2015 to Mar. 2019
5) Public Relation by Using Mass Media	Jul.2015 to Mar. 2019

(5) Names of the technical sub-committee and main responsible organization

- Technical Sub-Committee: Environmental Education SC
- Main Responsible Organization: DOE Gilan Environmental Education Section, DOE Gilan Public relation section, EO, Kanoon, NGOs

(6) Outline of the activity

- Various public relations activities were regularly implemented using mass media and other methodologies as environmental education for the public.
- Logo for Anzali Wetland conservation was prepared and utilized very much for many items about the project activities and various product of PR materials.
- Many PR materials such as calendars, posters, and guidebooks were prepared and distributed.
- The commercial films of public open of AWEEC were broadcasted in Baran TV.

(7) Output of the activity

- Logo for the Anzali Wetland Conservation
- Anzali Wetland Calendars for 5 years
- Guidebooks "Amphibians and Reptiles": 500sets
- Guidebook "Anzali Wetland Basin Fishes":500sets,
- Guidebook "Vascular Plants of Selkeh Wildlife Refuge": 100 sets
- Anzali Wetland Complex Flora Checklist of Vascular Plants :100 sets
- Posters to Introduce Fauna and Flora in Anzali Wetland : Total 5,100 sets

(8) Effect and impact of the activity

- It was very difficult to measure how much is this achievement through these many PR activities. However, it is obvious that the number of opportunities to see the information about the Anzali Wetland was significantly increased by JPA-5.

(9) Sustainability of the activity

- The Anzali Wetland logo can be used for all activity related to the Anzali Wetland conservation and EE activity continually
- The education program using the booklets and posters can be continued in the AWEEC and AWNS.

(10) Secondary effect(s) of the activity

- Students and local villagers become learn the Anzali Wetland ecosystem through the booklets and posters

(11) Approximate cost

Item	Cost
Printing Calendars	USD 9,000
Broadcasting a Commercial Film of Public Open	USD 1,000
Publishing the Booklet and Posters	USD 9,000
The other PR activities	USD 5,000
Total	**USD 19,500**

-

(12) Expected future action by Iranian side based on this JPA after completion of the project

- DOE Gilan Environmental Education Section and DOE Gilan public relation section will continue public awareness activity about EE activities regularly.
- DOE Gilan Environmental Education Section will update the guidebooks based on new information adequately.
- DOE Gilan should promote an experience of EE activities by the Project and expand the activity at different provinces which have Ramsar wetlands.

(13) Recommendations

- Budget allocation for public Relation activity for EE activity
- Collaborate members of Environmental Education SCs
- Share of Project activity results to other provinces with Ramsar wetland

(14) Remarks

Posters to Introduce Fauna and Flora in Anzali Wetland

 Mammals in Anzali Wetland	 Amphibians and Reptiles in AW	 Life cycle and Color Variation in Marsh Frog
500 copies	500 copies	500 copies
 Resident Birds in Anzali Wetland	 Winter Birds in Anzali Wetland	 Summer Birds and Passage Migrant in AW
500 copies	500 copies	500 copies
 Fishes in AW and Its Basin	 Anadromous Fishs/ Important Commercial Fishs in AW and Its Basin	 Aquatic Plant in Selkeh Wildlife Refuge
1,000 copies	1,000 copies	100 copies

Source: JICA Expert Team