

Country Name	<b>Project for Strengthening Environmental Management in Petroleum Industry in Persian Gulf and its Coastal Area</b>
The Islamic Republic of Iran	

**I. Project Outline**

Background	<p>In Iran, most natural resources are available in the Persian Gulf where is abundant in oil and gas deposits, and have been actively developed in this area. However, environmental protection measures have not necessarily been sufficiently taken, and various environmental problems, such as oil spill from oil wells, sea pollution by oil-containing wastewater from oil production facilities, and air pollution by sulfur oxide, nitrogen oxide and soot dust associated with gas flaring process<sup>1</sup>, have occurred. There have been concerns that not only the affluent biological diversity but also the fishery resources of the Persian Gulf might be irredeemably damaged in case of no measure to be taken. In particular, oil spill caused by an accident, which could be a serious cause of environmental pollution, was deeply concerned. While preventive measures and accident response frameworks were required to be developed in order to cope with this situation, they had not been well prepared. Under these circumstances, there was a need for formulating a contingency plan for oil and gas disasters and an environmental management plan.</p>				
Objectives of the Project	<ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>2</sup>: (1) Emergency response system for accidents relating to petroleum in the pilot areas is developed for the Ministry of Petroleum (MOP). (2) MOP's environmental management activities are implemented in the pilot areas. (3) Development of contingency plan and system is diffused in other areas of Iran.</li> <li>Expected utilization of the proposed plan: The formulated Master Plan is adopted and used effectively by MOP and related national oil companies.</li> </ol>				
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Tehran and the three pilot areas (Assaluyeh, Mahshahr, Khark Island)</li> <li>Main Activities: (1) confirmation of the current situation of disasters relating to oil and gas and environmental pollution in the Persian Gulf and the three pilot areas, (2) formulation of emergency response master plans for disasters relating to oil and gas and environmental management in the pilot areas, (3) formulation of an emergency response master plan of MOP for disasters relating to oil and gas and environmental management, (4) conducting master plan dissemination seminars</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>Japanese Side</b>  (1) Mission members: 11 persons  (2) Trainees received: 8 persons  (3) Equipment: PCs for computer simulations, etc. </td> <td style="width: 50%; vertical-align: top;"> <b>Iranian Side</b>  (1) Staff allocated: 16 persons  (2) Land and facilities: Japanese experts' office in the Health, Safety and Environment (HSE) Department, MOP  (3) Operation cost: cost for workshops and seminars, travelling cost for Iranian counterparts' surveys in pilot areas, etc. </td> </tr> </table> </li> </ol>			<b>Japanese Side</b> (1) Mission members: 11 persons (2) Trainees received: 8 persons (3) Equipment: PCs for computer simulations, etc.	<b>Iranian Side</b> (1) Staff allocated: 16 persons (2) Land and facilities: Japanese experts' office in the Health, Safety and Environment (HSE) Department, MOP (3) Operation cost: cost for workshops and seminars, travelling cost for Iranian counterparts' surveys in pilot areas, etc.
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Project Period	Oct. 2011 - Mar. 2014 (28 months)	Project Cost	(ex-ante) 280 million yen, (actual) 278 million yen		
Implementing Agency	HSE Department of MOP and national oil companies in pilot areas				
Cooperation Agency in Japan	Japan Oil Engineering Co., Ltd., Yachiyo Engineering Co., Ltd.				

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Iran at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>At the time of ex-ante evaluation and project completion, the project was consistent with the Iran's development policies, such as the "Fifth Five-Year National Development Plan" (2010-2015), which called for; the enhancement of supervision from the viewpoints of HSE; the establishment of environmental standards; the construction of environmental information systems at the national and provincial levels; and the promotion of private sector's environment considerations. Also, as a member country of the "International Convention for the Prevention of Pollution from Ships (MARPOL)" and the "International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)," in line with these conventions, the Port and Maritime Organization (PMO) of Iran has formulated a master plan or the "Iranian OPRC National Plan," and defined mandates and responsibilities of related organizations in it. The plan was approved by the cabinet in June 2012.</p> <p>&lt;Consistency with the Development Needs of Iran at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>At the time of ex-ante evaluation, technical and institutional preventive measures and emergency response plans for oil-related disasters such as oil spill accidents was insufficient in Iran. Therefore, sea pollution in the Persian Gulf was serious, and a huge damage on biodiversity and fishery resources was concerned. However, environment considerations were relied on individual company, and MOP did not have an overall plan for environmental management. At the time of project completion, some new system such as modeling software for sea pollution distribution has been introduced, and training for oil pollution control including the operation of those software and</p>

<sup>1</sup> Burning off process of natural gas released by pressure relief valves in oil fields and gas fields.

<sup>2</sup> The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

implementation of environ management activities by MOP has been required.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy for Iran, since the local ODA taskforce adopted environmental conservation including environmental pollution control as one of the five priority areas of cooperation based on the Economic Cooperation Policy Dialogue in July 1999<sup>3</sup>.

<Evaluation Result>

In light of the above, the relevance of the project is high.

## 2 Effectiveness/Impact

<Status of Achievement for the Objectives at the time of Project Completion>

The objectives of the project were mostly achieved by the time of project completion. Review and analysis were conducted on the development plans of oil industries, institutional and managerial situations of HSE, conditions and issues of three pilot areas, and emergency response system and procedures against oil spill disasters (Output 1). Based on the results of review and analysis, the Master Plans for emergency response system and procedures against oil spill disasters and environment management for MOP and three pilot areas have been compiled respectively (Output 2 and 3). However, according to the interview with the Director of the Environment Department of MOP, formulation of the Master Plan in other areas other than pilot areas was not progressing, because the situations of other areas are different from the three pilot areas<sup>4</sup>. Therefore, it could not be verified whether MOP became able to formulate plans alike for other areas based on the experience of the pilot areas or not (Output 4).

<Utilization Status of the Proposed Plan at the time of Ex-post Evaluation>

After the project completion, based on the Master Plans prepared by the project, the action plan of the Environmental Management in Petroleum Industry (EMPI)<sup>5</sup> was formulated in July 2014 under the initiative of the Minister of Petroleum. The action plan was circulated in MOP and in other related Ministries, and requested to be implemented. In national oil companies (NIPC, NIOC, NIGC, NIOPDC<sup>6</sup>) in the pilot areas, departments in charge of integrated environmental management were established in 2015 in accordance with the concept of "One Zone One Management Principle"<sup>7</sup> proposed by the project. Regarding institutional strengthening, due to the limit of the number of public employees stipulated by the President's Office, it has been hard to secure the sufficient number of staff. Out of basic policies and strategies recommended by the Mater Plan, some of them have been carried out such as activation of the monitoring system in each zone, investigations of waste water treatment plants, preparation of emission inventories, improvement of solid waste management, enhancement of reporting system, and so on. Regarding the action plans prioritized in the Master Plan, a number of actions have been executed such as the sharing of the existing guidelines and procedures of oil industries among organizations concerned, constructions of industrial wastewater treatment facilities and gas treatment plants, preparation of oil recovery equipment, strengthening of supervision system, compilation of hazardous waste inventories, and so on. According to the Director of the Environment Department of MOP, other action plans have been underway by priorities.

<Status of Achievement for Expected Goals through the Proposed Plan at the time of Ex-post Evaluation>

Based on the basic policies, strategies and action plans proposed by the Master Plan, regarding the improvement of the emergency response for oil-related disasters in the pilot areas (Indicator 1), PMO and local governments in collaboration have formulated an environmental accident reporting system and emergency response plans, and those were approved by the Minister of Petroleum and have been currently under implementation. In order to fully enforce "One Zone One Management Principle," zone managers in the three pilot areas were appointed by the Minister of Petroleum. Regarding the environmental management operations of national oil companies and national oil operation companies in the pilot areas (Indicator 2), a letter notifying EMPI was sent from the Minister of Petroleum to the Vice-ministers, the Director Generals of related departments, and the Executive Managers of national oil companies, and the letter requested prompt implementation of plans introducing specific execution methods for environment improvement, contaminated soil washing, improvement of environment monitoring system, oil spill prevention, and so on. After that, in 2015, MOP prepared the budget for EMPI, and EMPI has been put in execution. Regarding the dissemination of the Master Plan to other areas (Indicator 3), accident response plans alike have not been drafted in other areas since there are no similar area to the pilot areas. Only in the oil fields in west bank of the Kārun River, the basic policies and strategies proposed by the Master Plan were adopted for formulation of the environment management plans.

<Other Impacts at the time of Ex-post Evaluation>

In accordance with EMPI, local programs for improving the local environment have been prepared, and targets and operating procedures for zone managers have been defined. No resettlement and land acquisition, and no negative impact on natural environment has been caused by the implementation of the Master Plans.

<Evaluation Result>

In light of the above, through the project, the objectives of the project were achieved at the time of project completion; and adoption of proposed plans and implementation of prioritized plans of the project have partially been done. Some positive impacts by the project such as formulation of local programs could be observed. Therefore, the effectiveness/impact of the project is high.

<sup>3</sup> Source: ODA Data Book 2012.

<sup>4</sup> While there are a variety of oil related facilities in the three pilot areas and emergency response systems for oil related accidents are highly required, other areas are not necessary so.

<sup>5</sup> The action plan is also called as "Environment Management of Oil Establishments in Persian Gulf and its Coastal Areas" in English.

<sup>6</sup> The National Iranian Petrochemical Company (NIPC), the National Iranian Oil Company (NIOC), the National Iranian Gas Company (NIGC) and the National Iranian Oil Products Distribution Company (NIOPDC) are sector-wide national oil companies under MOP, which supervise national oil operation companies. There are departments and officers in charge of HSE and emergency response in MOP, national oil companies and national oil operation companies.

<sup>7</sup> Iran is divided into several petrochemical production zones, and the production of petrochemicals and its HSE of each zone is supervised by a zone company. The Master Plan drafted by the project suggested the concept of "One Zone One Management Principle" and recommended to strengthen the authority of zone companies in order to realize an integrated environment management of a zone by a zone company. (Source: Final Report, 2014, p.7-26)

Table 1: Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

Aim	Indicators	Results
Utilization Status of the Proposed Plan	Indicator: Implementation status of the proposals and recommendations made in the Master Plans.	(Ex-post Evaluation) Achieved. After the project completion, under the initiative of the Minister of Petroleum, the action plan of EMPI was formulated based on the Master Plans, and circulated in MOP and in other Ministries concerned requesting them to implement.
Expected Goals through the Proposed Plan	Indicator 1: Preparation status of the emergency response for oil-related disasters in pilot areas (institutions, contact and reporting system, emergency response procedures, equipment, post-emergency monitoring, etc.).	(Ex-post Evaluation) Achieved. PMO and local governments in collaboration have formulated an environmental accident reporting system and emergency response plans. In Assaluyeh, short-term programs for promoting HSE were commenced, in which environment management system was studied based on the action plans prepared by the Master Plan. These systems and plans were approved by the Minister of Petroleum and have been currently under implementation.
	Indicator 2: Status of environmental management operations of national oil companies and national oil operation companies in pilot areas.	(Ex-post Evaluation) Achieved. A letter notifying EMPI was sent from the Minister of Petroleum to the high-level officials of MOP and the Executive Managers of NIOC, NIGC, NPC, NIOPDC. The letter requested them to take prompt actions for plans for environment improvement, contaminated soil washing, improvement of environment monitoring system, oil spill prevention, and so on. The budget for EMPI was prepared by MOP, and those plans have been implemented.
	Indicator 3: Status of dissemination of the Mater Plans to other areas such as the drafting of accident response plans.	(Ex-post Evaluation) Partially achieved. Because there are no other areas similar to the pilot areas in the country, there are few movements of drafting master plans alike in other areas. But the basic policies and strategies proposed by the Master Plan were referred to for formulation of the environment management plans in west bank of the Karun River.

Source: Final Report (2014), questionnaire survey to and interviews with the Director General of Environment Department of MOP in the ex-post evaluation (2017)

### 3 Efficiency

Although the project cost was within the plan (the ratio against the plan: 99%), the project period slightly exceeded the plan (the ratio against the plan: 104%). Therefore, efficiency of the project was fair.

### 4 Sustainability

#### <Policy Aspect>

Aiming at an expansion of the national production of petrochemical products to be 100 million tons, the “Sixth Five-Year National Development Plan” (2016-2021) places emphasis on the coordination of the Ministry of Industries and Business, the Ministry of Industry, Mine and Trade, and MOP, especially on the coordination with MOP for environmental problem prevention. It also requests governmental and non-governmental organizations to properly treat solid waste, sewage and waste water, and to prepare environment management plans. Policy environment, therefore, keeps encouraging the adoption of the Master Plans and the action plans proposed by the project.

#### <Institutional Aspect>

The institutional structure for environment conservation consisting of MOP, national oil companies, zone companies and national oil operation companies has been unchanged since the time before the project. The letter of EMPI was issued by the Minister of Petroleum in July 2014 as stated above, requesting institutions concerned to formulate and implement a range of environment conservation plans. At that time, a steering committee was created in MOP with the membership of the Directors of related Departments of MOP and four national oil companies. The committee regularly monitors the progress of formulation and implementation of environment conservation plans, and report it to the Minister of Petroleum. Besides, the sub-committees have been set up in the three pilot areas for promoting execution of decisions of the committee. Regarding the staffing, MOP has newly assigned officials in charge of HSE in the three pilot areas based on the “One Zone One Management Principle” suggested by the project (Table 2). However, according to the Director General of the Environment Department of MOP, the number of staff is insufficient, especially the officials with specialist’s knowledge and experience is in short. Due partly to the regulations for public employees stipulated by the President Office, the shortage of staff has been a persistent problem.

#### <Technical Aspect>

According to the questionnaire to and the interview with the Director General of the Environment Department of MOP, the technologies for air pollution control, solid waste management and environment assessment have been learned and made contributions for the improvement of a variety of operations. However, eyeing the rapid progress of technologies, the improvement of expertise is still in need, and more training and capacity building is required for further technical capability upgrading.

#### <Financial Aspect>

While the specific figures of the budget for implementing the Master Plans and action plans prepared by the project were not obtained in the ex-post evaluation, according to the Director General of the Environment Department of MOP, institutions concerned formulated plans and implemented them in compliance with the letter from the Minister of Petroleum, and MOP and institutions have prepared the budget for them. And, as far as the questionnaire and interviews conducted in this ex-post evaluation concerns, no issues relating to the financial aspect have been observed in any organization.

#### <Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional and technical aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

Table 2: The number of staff in charge of HSE

(unit: persons)

year	2011	2014	2017*
Assaluyeh	0	6	6
Mahshahr	0	12	12
Khark Island	0	6	6
PSEEZ**	0	0	3

\* as of August 2017

\*\* Pars Special Economic/Energy Zone  
(a zone management company in Khark Island)

## 5 Summary of the Evaluation

The objectives of the project were achieved by the time of project completion, and it was confirmed that the Master Plans have been referred to and the prioritized action plans have been partially implemented after the project completion. As for sustainability, based on the Master Plan prepared by the project, some system improvements such as the preparation of oil accident response procedures have been authorized by the Minister of Petroleum and in progress. However, personnel shortage and insufficient technical expertise have been persistent problems. Thus, slight problems there are in terms of the institutional and technical aspects of sustainability. Regarding efficiency, the project period slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

## III. Recommendations & Lessons Learned

### Recommendations for Implementing Agency:

- The persistent problem of personnel shortage was reported from MOP, national oil companies and national oil operation companies. Since it is difficult to employ staff over the limitation of public official's regulations stipulated by the President Office, it would be necessary to mobilize and outsource to private sectors for sustainable implementation of the Master Plans and action plans prepared by the project. Besides, because further improvement of technical competencies of staff is required, training on HSE for MOP, national oil companies and national oil operation companies is expected to be realized by making use of education facilities such as colleges, universities and private institutions.

### Lessons Learned for JICA:

- The project was executed in some different areas with different institutions of MOP in central, national oil companies and oil operation companies in the three different pilot areas. And the trial conducted in one area with one institution was thought to be applicable to other areas and other institutions. However, in reality, different areas and different institutions had different rules, regulations, organizations and systems. Therefore, it was not realistic to apply one method to all other areas and institutions, and that resulted in non-achievements of some objectives and low utilization of the proposed plans of the project. When a project is implemented in some areas and/or with some organizations, it is recommended to conduct sufficient survey before the commencement of the project, and to accurately understand rules, regulations, organizations and systems in different areas, thus eventually to plan and execute a project considering those differences.