

ENVIRONMENTAL AND SOCIAL REVIEW SUMMARY

Disclaimer

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Project Identification:

<i>Country:</i> Pakistan	<i>Project Name:</i> Engro Asahi Polymer and Chemicals Limited	<i>Project No.:</i> 25582
<i>Region:</i> MENA		<i>Environment Category:</i> B - Limited
<i>Dept./Div.:</i> COCD2 - Oil, Gas, Mining And Chemicals/IFC Chemicals Division	<i>Company Name:</i> Engro Asahi (51087)	
<i>Project Business Sector:</i> G-CA - Plastics Material and Resin		<i>Project Status:</i> Active

Parent Project Identification:

Parent ID:	
Parent Short Name:	
Parent Relationship:	No Relationship

IFC's Disclosure Requirements:

Date ESRS sent to InfoShop & posted on IFC Web site:	
Date of revision (if appropriate):	
Date of clearance by client for factual accuracy	
Local Disclosure Date	
Local Disclosure Date of revised ESRS	

Overview of IFC's scope of review:

The review of this project consisted of appraising technical, environmental, health, safety and social information submitted by the project sponsor, and a field visit in November, 2006. The environmental and social (E&S) appraisal team visited the manufacturing plants of Engro Asahi Polymer & Chemicals Limited (EAPCL) in Karachi, Pakistan. The E&S team also visited

the proposed expansion site, the associated marine terminal, and the Port Qasim Association (PQA) industry park, in which both the EAPCL site and the associated terminal are located. E&S team held meetings with the management staffs at different departments of EAPCL and the associated terminal to discuss various E&S issues.

Project Description:

Engro Asahi Polymer & Chemicals Limited (“EAPCL” or “the Company”) is a joint venture between Engro Chemical Pakistan Ltd. (ECPL), an IFC client company who is Pakistan’s second largest fertilizer company and Mitsubishi Corporation (Japan), each with an 80% and 20% shareholding, respectively. EAPCL is the only PVC manufacturer in Pakistan with a capacity of 100,000 tons per annum (tpa) and its operations are located at Port Qasim in Karachi. Its plant was commissioned in November 14, 1999 and IFC assisted in the financing of this plant.

The Project consists of a production capacity increase and backward integration for EAPCL, Specifically, this entails (i) construction of a new, second plant to produce an additional 50,000 tons per annum (tpa) of PVC, increasing EAPCL’S capacity to 150,000 tpa; (ii) the dismantling, shipping and re-construction of a second-hand plant from the US to produce ethylene dichloride (EDC) (capacity of 230,000 tpa) and vinyl chloride monomer (VCM) (capacity of 204,000 tpa), the primary raw materials for the PVC plants, (iii) the construction of a new chlor-alkali plant which will produce caustic soda (capacity of 106,000 tpa) and chlorine (capacity of 94,200 tpa), the latter being a primary raw material for the VCM production; and (iv) utilities infrastructure. This facility’s primary role will be to provide the chlorine necessary for EAPCL’s VCM production, a primary raw material for PVC; caustic soda will also be produced as a saleable product as part of the manufacturing process. The Project, is estimated to cost US\$221 million.

Identified Applicable Performance Standards:

- PS1: Social and Environmental Assessment and Management Systems
- PS2: Labor and Working Conditions
- PS3: Pollution Prevention and Abatement
- PS4: Community Health, Safety and Security
- PS6: Biodiversity Conservation and Sustainable Natural Resource Management

All the installations are located in a massive industry park, established in 1970s, near Karachi. The neighboring facilities are a steel mill and a power plant. Indigenous peoples were not identified in the project area. The nearest residential area is approximately six km away. Cultural Heritage was not identified in the project area.

E & S Categorization Rationale:

This is a Category B project according to IFC’s Environmental and Social Review procedures because a limited number of specific environmental and social impacts may result which can be avoided or mitigated by adhering to generally recognized performance standards, guidelines or design criteria.

The investment mainly involves the backward integration of an existing PVC plant. There are three projects: a new PVC production line, the purchase and transportation of a second-hand VCM plant, and a new chlor-alkali plant and a power plant. The new PVC production line is located inside the existing PVC plant, and the other plants will be built on the adjacent land, purchased from EAPCL’s parent company, EPCL. All the installations are located in a massive industry park, established in 1970s, near Karachi. The nearby community is approximately six km away. There is mangrove around one km away from the project location. However, the project does not have direct impacts to the mangrove. With the help of World Wildlife Fund Pakistan (WWF-Pakistan), EAPCL has planted a mangrove reserve close to its plant site which is developing very fast. Mitigation measures for the potential environmental and social impacts are identified and incorporated into the attached Environmental and Social Action Plan (ESAP).

Description of key Environmental and Social Issues and Mitigation:

EAPCL has presented plans to address these impacts to ensure that the proposed Project will, upon implementation of the specific agreed measures, comply with the environmental and social requirements - the host country laws and regulations, the IFC Environment and Social Performance Standards, and the World Bank Group (WBG) environmental, health and safety (EHS) guidelines. The information about how these potential impacts will be addressed by EAPCL is summarized in the paragraphs that follow. Further information is provided in the attached ESAP, which is agreed upon by IFC and EAPCL and will address the compliance gaps with IFC's requirements.

1. Social and Environmental Assessment and Management Systems

Land and natural environment: EAPCL is located inside the 4,500 ha industry park, managed by PQA, which is approximately 30 km east of Karachi, Pakistan. EAPCL owns 30 acres land for its existing operations. The new PVC plant will be set up inside the existing fence. EAPCL will receive 38 acres land adjacent to its existing site from its parent company, Engro Chemicals Pakistan Ltd, for the backward integration components of the project scope. The PQA industry park was set up in early 1970s and there is no residential community inside the industry park. The nearest community to EAPCL is approximately six km away. There are mangroves and mud flats to the south of the PQA industry park. According to the Environmental Impact Assessment, there are abundant flora/fauna communities associated with the mangrove forest.

Environmental and Social Assessment: EAPCL hired external experts to conduct a comprehensive environmental impact assessment (EIA), which also included the social impact assessment. The EIA was conducted according to the Pakistan regulatory requirements, IFC Performance Standards, and WBG/IFC EHS guidelines. Qualitative analysis and quantitative modeling calculation in the EIA for PVC plant, VCM plant, and the associated chlor-alkali plant conclude that the Project will meet related requirements from local regulatory agency and World Bank/IFC and the anticipated impact of the Project on the area's natural and socioeconomic environment will be well within acceptable limits upon the implementation of all the mitigation methods. A separate EIA was also prepared by external experts for the associated ethylene storage tank belonging to Engro Vopak Terminal Limited (EVTL), which also concludes that the impacts are limited and the most serious damage range, under the most extreme scenario, is within the terminal fence.

EHS management and organization: EAPCL has a fully established EHS management system, which is ISO 14001 certified. EAPCL also contracts external experts to conduct annual EHS management and performance auditing. The Safety, Environment & Training (SET) department leads the onsite EHS works and reports directly to the general manager. The SET department also involve in the decision-making on new projects to ensure that the new projects meet both local regulatory and World Bank/IFC requirements.

Training, monitoring, and reporting: EAPCL has an established program to provide the necessary EHS training for all its employees, including the initial orientation and annual refresher training. EAPCL conducts routine EHS monitoring for its operations. EAPCL requires the contractors to meet all its EHS requirements during the construction phase and will provide appropriate training for the contractors. EAPCL also has an appropriate monitoring and reporting procedures to track human resources issues. It keeps its E&S performance records through its internal reporting structure. To demonstrate its social responsibility, EAPCL also publishes its annual environmental report to the government agencies, nearby communities, and identified non-government organizations.

2. Labor and Working Conditions

Human Resources Policy and Management: The Company has a Human Resources policy which specifies the terms of employment and working conditions at EAPCL. These include procedures for hiring and recruiting, probation, training, performance review, promotion, insurance, salary and compensation, resignation, lay-off and firing, leave and vacation, and retiring, which follow Pakistan labor law. All the employees have access to the human resources policy and procedures. Labor inspections are done annually by the relevant government agency, which reviews wages, working hours, benefits, etc. EAPCL's human resources work in the manufacturing plant was certified in 2005 by Investors In People (IIP-UK) for meeting the international standards of effective human resources management.

Workers Organizations: EAPCL currently has 124 employees and 181 contracted labors. It is expected that the company will hire approximately 200 more employees and 35 contracted labors after the project is implemented. All the company's employees are management hire and there is no association or labor unions for its employees and contracted labors. EAPCL allows collectively bargaining for both employees and contracted labors. The company management engages with the employees and contracted labors through formal quarterly open-house and informal direct complaints by the employees and

contracted labors, which are used by the human resources as the grievance mechanism.

Non-Discrimination and Equal Opportunity: EAPCL provides equal opportunities for its employees. All the hiring and promotion are merit-based. The additional labors for the expansion will be primarily hired from local area if the qualifications can be met. EAPCL will plan to hire more female employees for suitable positions during the expansions.

Retrenchment: It is not anticipated that there will be any retrenchment. As a result of IFC's financing or the expansion, more jobs will be created.

Protecting the Workforce: There is no child or forced labor in EAPCL. The company also checks the contractors to make sure that all the contracted labors are at least 18 years old and are protected by contractors through payments to the government approved institutions for health such as Employee Old Age Benefit Institute (EOBI).

Occupational health and safety: The SET department leads the occupational health and safety (OHS) works. There are effective OHS procedures such as safe operational procedures and personal protection equipment requirements for each position, which are implemented strictly during operations. There is routine OHS training including annual refresher courses for its employees and contracted laborers. The workplace air quality and noise levels meet both local regulatory requirements and the WBG/IFC guideline limits. The EIA indicates that the work place air quality and noise levels for the new projects will also meet the WBG/IFC guideline limits. IFC will require EAPCL to monitor chlorine, VCM, ethylene dichloride (EDC) for the workplace air quality at the appropriate sections of the new installation. The drinking water onsite meets both local regulatory requirements and WHO guideline limits.

3. Pollution Prevention and Abatement

Raw materials and resource consumption: The major raw material consumption in EAPCL is 100,000 ton/y of VCM, imported from the Middle East. After the EDC/VCM plant is put into operation, the company will require 72,000 ton/y ethylene, which will also be imported from the Middle East. The water is supplied by PQA. Water consumption is approximately 70 m³/hr and 683 m³/hr for the present operations and operations with the new installations, respectively. The capacity of the current power plant is 5.2 MW, and the capacity of the proposed power plant is 59 MW. The fuel source for both power plants is natural gas. EAPCL has energy efficiency and water saving programs, which consists of reduction targets for each year and is monitored closely by management.

Liquid Effluents, Air Emissions, and Ambient Conditions: EAPCL generates 40 m³/hr and 120 m³/hr wastewater for present operations and operations with the new installations, respectively, which is discharged into the sea after onsite treatment. EAPCL monitors and reports the liquid effluent quality to the local authorities regularly. Its effluent is being used for irrigation of mangroves plantation along the shoreline in front of the plant. The monitored parameters in the wastewater effluents meet all the local regulatory requirements and the WBG/IFC guideline limits, with the exception of total suspended solids (TSS), which slightly exceed WBG/IFC guideline limits. In accordance with ESAP, EAPCL will monitor absorbable organic halides (AOX), total nitrogen, and coliform bacteria in the wastewater effluents and increase wastewater treatment efficiency to ensure effluents meet all the WBG/IFC guideline limits. EAPCL will ensure that its effluent will not pose direct threat to the marine life.

Air emissions from the power plant and various processes meet all the local regulatory requirements and the WBG/IFC guideline limits, with the exception of VCM, which exceeds WBG/IFC guideline limit. According to ESAP, the company will transfer the VCM and Chlorinated Hydrocarbons (CHCs) in the flue gases to the proposed incinerator, which converts these gases to HCl, followed by an HCl scrubber. ESAP will also start monitoring SO_x emission and ambient noise/air quality.

Solid and hazardous wastes: The solid wastes generated onsite, including the household wastes and industry wastes, are collected by the PQA contractors for recycle or disposal. The hazardous wastes are sent to government licensed hazardous waste facility for recycle, treatment, or disposal. An onsite incinerator is proposed for the expansion Project to dispose of the waste gases and organic liquid wastes, which include significant amount of the chlorinated organic wastes. As required in the ESAP, EAPCL commits to use the latest technology for incineration to ensure all the emission parameters to meet local regulatory agency requirements, WBG/IFC guideline limits, and the good international industry practice.

Hazardous materials and operation hazard: EAPCL's raw materials and intermediate products comprise significant amounts of hazardous materials. The manufacturing, storage, handling, and transportation of these materials pose serious dangers to

the employees. The company has management programs and a detailed procedure for operation safety and hazardous material handling. Hazard operability (HAZOP) studies will be conducted for the expansion projects and EAPCL is committed to implement its recommendations. EAPCL conducts annual review/update of the existing HAZOP. EAPCL also contracts external experts to help implement operation safety methods. EAPCL conducts routine internal safety inspection and routinely hires external experts to conduct safety auditing.

Fire prevention and emergency response: There is adequate fire fighting equipment and hazardous gas monitoring system onsite with proper maintenance. The Company has a management program and formal procedures for fire prevention and emergency response (ER). Fire prevention and ER are included in new employee/contractor training and annual refreshers. There is a 24-hr onsite clinic for both routine first aid and emergency care. EAPCL has arrangements with other chemical companies inside PQA industry park, which have their own fire brigades, to provide ER services. EAPCL conducts routine drills for fire fighting and potential chemical explosion/releases, including weekly ER drills within each operation unit and quarterly corporate ER drills. The company also holds joint ER drills with other companies in the PQA industry park.

VCM is imported through the jetty and stored at the tanks of EVTL before transferred to EAPCL through pipeline. The ethylene for the proposed project will be imported likewise upon construction of the necessary storage facilities. The EVTL facility is also located inside the PQA industry park. The facility is certified by ISO 14001 and OHSAS 18001. The fire prevention and ER program at EVTL is similar to the ones in EAPCL. The EVTL facilities are routinely audited by Vopak, Engro Chemical, and external safety consulting firm.

Greenhouse gases (GHG): The major GHG source is the onsite power plant. EAPCL generates approximately 20,000 and 320,000 tons carbon dioxide (CO₂) equivalence GHG per year for present operation and operation after the expansion, respectively. EAPCL has an energy saving program to reduce electricity consumption and is committed to monitor annual GHG emissions.

4. Community Health, Safety and Security

The Project site is located in the 4,500 ha PQA industry park. The nearby community is approximately six km away. The hazardous raw material, VCM and ethylene, are transferred to the site through pipeline from the EVTL facility. Both the EVTL facility and the entire pipelines are located in the PQA industry park, which are far away from any residential communities. The non-hazardous raw materials and majority product of PVC are shipped in and out by contracted trucking companies. Both EAPCL and EVTL have procedures to contract transportation to qualified companies and provide defense driving trainings for its contracted drivers. Therefore, the Project has limited impacts to the community.

5. Biodiversity Conservation and Sustainable Natural Resource Management

The PQA industry park is located along the east costal area of Karachi. There are widespread mangrove marshes to the south of the industry park, which is affected by the operations of the industry park. There are no mangroves in the immediate vicinity of EAPCL. Nearest mangrove forests are about 1km from where EAPCL effluent is discharged. EAPCL, in collaboration with WWF-Pakistan, planted several thousand mangrove plants along the shoreline at the south of the plant site over an area of 15 acres. WWF reviewed the quality of liquid effluents and suggested that the effluents be used in the mangrove plantation. At present time, the mangroves are flourishing and have produced seeds. Looking at the good success rate, EAPCL and WWF Pakistan plan to extend the mangrove plantation to nearby salt water marshes.

Client's Community Engagement:

EAPCL is located in the massive PQA industry park. The nearest residential community is approximately six km away. EAPCL's operation does not impact communities directly. However, as part of its corporate social responsibility program, EAPCL set up a community grievance mechanism with implementation procedures. EAPCL keeps regular contacts with the communities outside the industrial park to find out their needs and donates funds toward community development, including education funds, disaster relieves, and training of local workforce.

Approval Status:

