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REPORT ON A MISSION TO INDIA DURING JUNE 1985

BY; JURGEN PASCHKE, SIDO, IO.PLAN - UNIDO

IN PREPARATION OF THE PROJECT

India.

ASSESSMENT OF THE INDUSTRIAL DEVELOPMENT IMPACT ON ENVIRONMENT WITH SPECIAL REFERENCE TO THE DOON VALLEY, INDIA

US/UT/GLO/85/039

VIENNA, JUNE, 1985

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INTRODUCTION

UNIDO more recently became involved in technical assistance in the field of environment protection by reducing the negative impact on environment due to industrial activities. The creation of a "Department of Environment" as a co-ordinating body and know-how center on environmental questions in India lead to the decision to design and implement a technical assistance project which deals with environmental problems of industrialization.

The project is composed of two phases. The first phase will cover the analysis of existing data and the collection of new ones; the principal development objectives will be formulated by the Government; a multi-disciplinary core group will be established within the Department of Environment; members of this group will be trained in environmental mathematical modelling.

As a final step, a detailed outline of the subsequent second project phase will be formulated and agreed with UNDP and the Government.

In order to assess the specific conditions for implementing the first project phase and for formulating realistic terms of reference for the sub-contracting, UNIDO fielded a mission consisting of the UNIDO project backstopping officer and a consultant, experienced in environmental mathematical modelling and statistics.

The mission was in India between 9-20 June 1985. The mission wishes to thank UNDP, New Delhi and the Department of Environment for their valuable support.

BACKGROUND

During the UNIDO programming mission to India in February 1984, the Government of India expressed great interest in UNDP/UNIDO assistance for the assessment of the impact on industrial development on the environment of India. The Government of India nominated the Department of Environment as counterpart organization, an entity which was created in 1980 at Indian UNION level for the collection of environmental know-how and for dissemination of such know-how to organizations at state level.

UNIDO agreed to implement such an innovative project in India considering the country's high scientific development level which would later also facilitate the transfer of experience from India to other developing countries. In October 1984, the Secretary of the Department of Environment was invited to UNIDO, and the environmental research activities of the International Institute of Applied Systems Analysis (IIASA) at Laxenburg were shown to him.

As a result of this visit, a technical assistance project was formulated and financially approved by UNIDO. This project contains a major component for sub-contracting.

The preparation of the terms of reference for sub-contracting, (see ANNEX I) however, was only possible after the visit and analysis of the project area (India/New Delhi) and of the Doon Valley, a valley about 200 Km North of New Delhi, which will serve as case study proposed in the project.

SUMMARY OF THE MISSION ACTIVITIES AND FINDINGS

The mission visited five main institutions/regions for the assessment of the existing conditions for project implementation:

1) UNDP offices in New Delhi

2) Department of Environment/New Delhi

3) Pollution Control Research Institute/Hardiwar

4) Meteorological Survey of India/New Delhi

5) The Doon Valley with the two urban centers "Dehra Dun" and "Mussoorie"

The visits to UNDP had the main reason to keep this office informed and to obtain logistic support, in particular for the travel into the Doon Valley. During a de-briefing meeting with Mr.. E.B. Smith, Officer-in-Charge of UNDP, the mission expressed its appreciation for the support and guidance received from UNDP.

The Department of Environment, the future project counterpart organization for this project, was requested to provide as much information as possible to be taken with the mission back to Europe for analysis and evaluation. Moreover, the mission emphasized that the formation of the multi-disciplinary working core group for this project should be started without delay. The necessary qualification and motivation of the members of this working group was emphasized. For the smooth project implementation, the provision of all data by late August 1985 was indicated to be essential. During the last meeting between the Department of Environment and the UNIDO mission, a paper was handed to the Indian Government official, Dr. S. Mandgal, which summarizes the mutual understanding (see Annex 2").

The Pollution Control Research Institute at Hardiwar is in the process of being established, partly with the help of financing facilities and know-how through a large-scale UNDP/UNIDO technical assistance project (DP/IND/83/008/B/01/37). The Institute operating under the Ministry of Industries is already connected with the BHARAT HEAVY ELECTRICALS LTD, a Government enterprise for the integrated production of heavy electric generating and distribution equipment. The management of

this institute was very enthusiastic towards the mission's proposal to co-operate with the new project US/UT/GL0.85/039 by providing data to be collected on (industrial) pollution in the Doon Valley. In fact, the national project director and manager of the Institute contacted the Department of Environment without delay and assured the mission of its willingness to support the work on the Doon Valley case study.

A similar whole-hearted support was given by the Meteorological Survey of India. This organization promised to provide time-series over the last 30-40 years on temperature, relative humidity, wind and rain falls for five meteorological measuring stations within and around the Doon Valley.

The visit to the Doon Valley and to the two urban centres "Dehra Dun" and "Maussouri" made the mission become aware of the impact of industrial development with the direct results of raw material procurement (limestone quarrying) and infrastructure requirements (urbanization, transport facility development). But also the quickly

increasing number of population lead to accelerated deforestation due to enlarged agricultural land use and provision of firewood. Numerous indications by residents of this area made clear that the environmental situation seriously deteriorated in the Doon Valley during the last two decades.

The mission's visit to the Doon Valley also showed a variety of partly contradicting development objectives and economic interests which will have to be adjusted by the Government in a way so that the environmental situation will not further deteriorate and gradually be improved again.

As an example for contradicting objectives, the development of tourisim areas would not be compatible with the development of polluting industrial activities. Moreover, the mission could observe that in addition to the negative environmental impact of industrialization, several other factors must have played an important role in the environmental deterioration. These factors may be the reduction of primary rain forest and its replacement by secondary forests or mono forest cultures or even by agriculturally used areas. Air pollution may also not only originate from industrialization but also from dry areas and road transport vehicle exhaust.

The Terms of Reference for Phase I summarize the necessary project activities which will assist the Government to clearly identify its development priorities. The analysis of the various factors will give guidance for determining which of these factors have major or minor impact on the deteriorating environmental situation in the Doon Valley.

Finally, the mission wishes to express its gratitude to all persons met without whose open exchange of views and information the preparation of realistic Terms of Reference would have been impossible.

A list of people met during the mission is attached as Annex 3.

ANNEX I

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

U N I D O

TERMS OF REFERENCE

FOR

THE ASSESSMENT OF INDUSTRIAL DEVELOPMENT IMPACT ON ENVIRONMENT WITH SPECIAL REFERENCE TO THE DOON VALLEY, INDIA

PHASE I

VIENNA, JUNE 1985

1. BACKGROUND

During the UNIDO programming mission to India in February 1984, the Government expressed great interest in UNDP/UNIDO assistance for the assessment of the impact of industrial development on India's environment.

The industrial activities in several parts of India have reached a level where the Government of India became concerned about the resulting environmental impact. At Central Government level (union level), the Department of Environment has been created to coordinate environmental protection activities including legislation and to disseminate related know-how to specialized entities operating at state-level.

The Government of India is interested to obtain up-dated information about modern methodologies and approaches for evaluation and forecasting. These methodologies and approaches consist of a three stage approach namely (i) identification and formulation of problem(s) by scientists of different disciplines such as biology, chemistry, meteorology, economy, etc., (ii) translation of previous findings under (i) into a set of mathematical models, (iii) computerization of mathematical models including interfacing software systems oriented to final decision makers (to make results easier understandable to people with different educational and professional background).

The above methodologies and approaches belong to applied systems analysis.

The Indian Government more recently became concerned about the environmental problems which may be created by planned industrialization in the Doon Valley, located about 200 Km North of New Delhi.

The Doon Valley is a typical case where industrial development together with other economic and social activities, endangers the environmental stability. It is therefore that the India Government selected the Doon Valley as a case study within the framework of technical assistance in the field of environmental protection.

In order to formulate Terms of Reference (TOR)which reflect the current situation in India under which the project will have to be implemented, a UNIDO mission was fielded in June 1985 whose findings are incorporated in this TOR.

The discussions of the UNIDO mission with various public and private entities revealed that the climatic conditions in the Doon Valley drastically deteriorated during the last 15 years, as a result of the following main developments:

1) limestone mining with subsequent processing into lime, cement and calcium carbide;

2) heavy and metal-mechanical industry;

3) urbanization and other infrastructure;

4) deforestation due to wood processing industry, increased firewood demand, and increased agricultural land use through population and livestock increase;

5) water and severage problems due to increasing numbers of tourists and religious pilgrims;

6) increased transport activities (dust and gas exhausts).

The mission found several economic activities and population groups with different interests, often resulting in contradicting objectives. For example, the environmental impact of industrialization (limestone quarrying and burning, exhausts and waste water of industry in general, increased demand for industrial process water) contradict with the requirements for tourism and for agricultural development in the region.

The project will have to deal with two main problems:

a) measurement, analysis and modelling of different ecological parameters and estimation of industrial impact.

b) identification of a development strategy constituting an acceptable compromise among the variety of objectives.

The mission initiated agreement between the Department of Environment and the Pollution Control Research Institute on a future close cooperation, particularly in the case study of the Doon Valley. This is important, because this institute has at its disposal the necessary facilities for measuring essential physical and chemical pollution parameters. This institute is also counterpart organization for the large-scale UNIDO.UNDP project DP/IND/83/008, assisting in designing and producing hardware for solving industrial pollution problems.

The sub-contract under consideration will have not only the results specifically related to the Doon Valley but also results generally applicable to other regions of India and even in other developing countries.

2. OBJECTIVES

The objectives of this sub-contract are the following:

a) Development of guidelines for a national environmental work supporting structure and facilities (f.e. national scientific team, monitoring systems, etc.)

b) Introduction of systems analysis in the assessment of the industrial impact on environment.

c) Data collection and analysis and formulation of objectives for the Doon Valley case.

d) Contribution to decision making on the environmental aspects of industrial activities in the Doon Valley.

e) Selection of environmental concepts and models available at international level.

f) On-the-job training of suitable national counterparts.

g) Preparation of a comprehensive work programme for the second project phase, as foreseen in the UNIDO project document.

3. SCOPE

The sub-contractor will provide the following assistance for the objectives as mentioned below:

-The multi-disciplinary core group within the Department of Environment will receive support during selection of its permanent and temporary scientific members, and will receive general and specific methodological guidance for its contribution during the technical assistance project.
-The interaction with the working group shall include but not be limited to the environmental impact of industry. related problems such as agricultural, demographic and socio-economic aspects should also be considered, with particular emphasis on the Doon Valley situation.
-Since the collection and compilation of required statistical information will be the responsibility of the Indian Government, the sub-contractor will concentrate on the statistical data analysis (verification, sufficiency, informational significance) and will determine possibly additional data requirements. Both activities, data collection and analysis, will have to be based on a continuous feedback.
-The methodologies and relevant modelling techniques available to the sub-contractor as an international scientific organization will be evaluated and selected with the view of their suitability for their application in cases like the Doon Valley.

-The computing facilities within the sub-contractor's office will be made available for this project.
-The assistance for the formulation of the regional development objectives by the Government of India and their translation into quantitative criteria, with particular reference to the Doon Valley will terminate the first project phase.
-At least two computer models for training purposes for the Working Group will be made compatible with computing facilities available to this group in India.
-The range of applicable computer models depends on available information; it is expected that some models could be introduced during this project phase.

Output of the Sub-contract

The sub-contractor will carry out the following tasks as main outputs of this project:

-initiation of a data bank for the Department of Environment related to the Doon Valley,

-transfer of two computer models for training purposes including manuals,

-one task force meeting,

-results of test-runs of some computer models oriented to analyze environmental development with reference to the Doon Valley conditions,

-operational multi-disciplinary core-group within the Department of Environment,

-detailed outline for the subsequent second project phase including objectives criteria,

-Project terminal, report including results on task-force meeting and outline of second project phase.

Inputs to the Project

The Government of India will play a decisive role in timely providing the required statistical data describing the situation in the Doon Valley. Moreover it will identify and secure the services of permanent and temporary members of their environmental working-core group. Secretarial services, offices, stationary and local transport will be provided by the Government.

The Department of Environment will be the counterpart organization for this project. The sub-contractor will provide the services of two experts in the order of 12 man months in total and over a period of about six months with at least 3 man-months in the project area. Their qualifications should cover:

1) applied systems analysis

2) statistical method of data analysis

3) environmental modelling technique

Moreover, the sub-contractor's international relations will be used to identify and obtain most suitable environmental computer models.

The sub-contractor's computing facilities will be made available for the duration of this project.

The sub-contractor will host one task force meeting with international participation and will provide available residential facilities at cost.

Execution of Work

One representative of the sub-contractor visited India during June 1985 and familiarized with the working conditions and the counterpart organization. During this visit some data were collected. The remaining

data will be provided during the second half of August 1985 on occasion of a one month visit of the team leader to India. These data will be analyzed with participation of the computer specialist of the Indian core-group; this specialist will visit the sub-contractor during September 1985. A second mission by the team leader to India is foreseen during October/November 1985

The task force meeting will take place during the first half of December 1985 with the presence of one representative of the Indian core group and possibly of another representative of the Department of Environment.

The working language will be English.

The Indian Government will provide access to all information including maps and documents relevant to the Doon Valley and required for the execution of this project.

19 June 1985

NOTE FOR THE FILE

ANNEX 2

India, Assessment of the Industrial Development Impact on Environment with Special Reference to the DOON VALLEY
US/UT/GLO/85/039

During June 1985, the undersigned visited New Delhi and the Doon Valley to familiarize with the conditions for implementing the above project. Preliminary information was collected.

We highly appreciated the whole-hearted support and co-operation by the Department of Environment, especially by Mr. J.A. Kalyanakrishnan, Secretary to the Government of India, Department of Environment and by Dr. S. Maudgal, Director, Department of Environment.

Moreover, this mission would have been impossible without the kind support of the UNDP office, in particular by Mr. M.E. Smith, Resident Representative a.i., Mr. P.N. Pathak and Mr. Balwant Singh.

We found full understanding by the Department of Environment for the need of a timely provision of the great variety of information required for the implementation of this project.

We are, therefore, grateful that some of this information could already be made available to the mission and that additional contact for provision of further data could be initiated to government organizations such as the Meteorological Centre, the Ministry of Industry and the Pollution Control Research Institute in Hardwar. The discussions revealed that the timely implementation and success of this project largely depend on the provision of the remaining data until the end of August 1985. This target, however, can only be met if the envisaged core group of Indian scientists will be established without delay.

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J. PASCHKE
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
(SENIOR INDUSTRIAL DEVELOPMENT OFFICER)

cc: Mr. M. E. Smith, UNDP, New Delhi
Mr. Kalyanakrishnan/Dr. Maudgal, Department of Environment
Mr. A. Vassiliev/Mr. Hable-Selassie, UNIDO, Vienna
Mr. R. Munn, IIASA, Laxeumburg

ANNEX 3

PEOPLE MET DURING MISSION

UNDP - New Delhi

Mr. E. B. Smith, Officer-in-Charge

Mr. P. N. Pathak, Programme Officer

Mr. Sat Pal, Assistant Programme Officer

Mr. Bolwant Singh, Assistant Programme Officer

Department of Environment

Mr. J.A. Kalyanakrishnan, Secretary to the Government of India

Mr. S. Mangdal, Director

Mr. R.N. Chopra, Officer-in-Charge (Dehra Dun)

Meteorological Survey

Mr. S. K. Das, Acting Director General

Mr. B. Padmanabhamurty

Ministry of Industry

Mr. S. Talwar, Director

NERU YUVAK KENDRA

Mr. A. Kaushal, Chairman (Dehra Dun)

Hotel Gabriel - Rosalyn Estate

Mr. P. Thadhani, Proprietor (Mussourie)

Pollution Control Research Institute

Mr. B. L. Lal, General Manager and National Project Co-ordinator (Hardiwar).