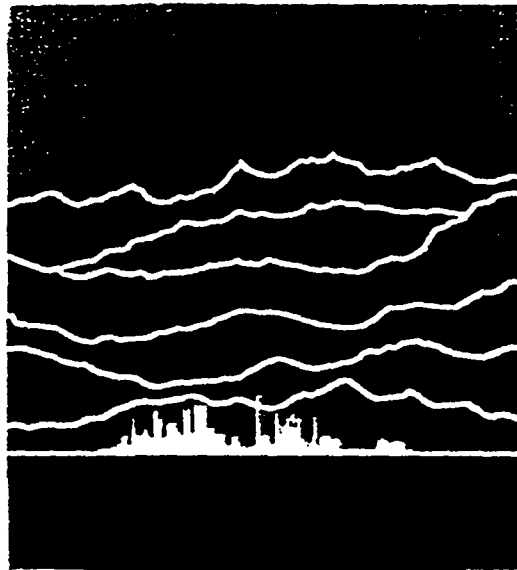




R 821 R093

**NATIONAL INTEGRATED
PROGRAMME
ON
ENVIRONMENT AND HEALTH
IN
ROMANIA

(1993-1996)**



WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR EUROPE
EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH
BILTHOVEN DIVISION

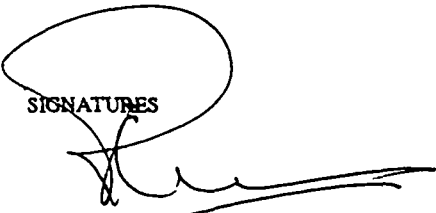
R821-1151

7 June 1993


INTEGRATED PROGRAMME ON ENVIRONMENT AND HEALTH IN ROMANIA

1993-1996

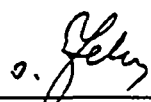
SIGNATURES


For the Government of the Netherlands
Prof. Dr R. Kroes, Deputy Director-General, RIVM

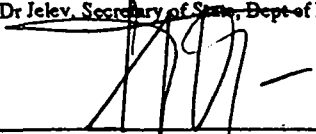
19930714
date


For the Ministry of Health of Romania
Prof. Dr Oproiu, Secretary of State, Dept of Medical Care

05.07.1993
date


For the Ministry of Water, Forestry and
Environmental Protection of Romania
Dr Ielev, Secretary of State, Dept of Environmental Protection

5.07.1993.
date


For the World Health Organization /
Regional Office for Europe
Dr S. Tarkowski, Director, Environment and Health

8.06.1993
date

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PROJECT IDENTIFICATION

1.1. Title of project: Integrated Programme on Environment and Health

1.2. Subject area: Environment and Health

1.3. Geographical scope: Romania

1.4. Implementation: WHO-EURO in cooperation with the Ministry of Health of Romania and the Ministry of Water, Forestry and Environmental Protection of Romania and with the assistance of the Institute of Public Health and Environmental Protection of the Netherlands (RIVM)

1.5. Duration of project: 42 months
Commencing: July 1993
Completion: December 1996

1.6. Cost of project: expressed in Dutch Florins

	CC *	NCC **	total	%
Cost to WHO-EURO	1.370.600	-	1.370.600	66
Cost to the Government of Romania (in kind)	-	420.000	420.000	34
Total cost of project	1.370.600	420.000	1.790.600	100

* NFL

** NFL equivalent of Lei

I BACKGROUND

1. This project document outlines a programme for environmental health activities to be implemented in Romania under the responsibility of the World Health Organization Regional Office for Europe through its European Centre for Environment and Health (WHO-ECEH). The main aim of the programme is to foster the dialogue between the Romanian Ministry of Health and the Ministry of Water, Forestry and Environmental Protection. The Integrated Programme on Environment and Health in Romania (RIPEH) is being implemented within the framework of multilateral assistance of the Government of the Netherlands towards environmental health activities in Central - and Eastern European Countries (CCEE). Funds for the programme were made available by the Government of the Netherlands through an agreement between WHO-EURO and the Ministry of Welfare, Health and Cultural Affairs.

This document is concerned with a project proposal for environmental health activities to be implemented in Romania.

The programme will consist of the following sub-activities, which address those issues which have been jointly defined between the Romanian authorities and a WHO-ECEH fact finding mission:

- **Assessment of air pollution and the effects on the health status of the population in selected areas of Romania**
- **Capacity building in environmental health impact assessment in Romania**
- **Transfer of water and sanitation technology**
- **Upgrading of waste management technology**

Romania has a limited organizational infrastructure that is presently inadequate to deal with environmental health problems. Possibilities for quantification and qualification of the pollution of air, water and soil are very limited.

Emphasis has therefore been given to the aspect of training in order to create a core of national experts capable of fostering the ultimate objective of integrating environment and health issues in assessment, monitoring and decision-making in Romania. The reduction of health risks as well as a contribution to the improvement of environmental quality and health status will be anticipated through training, consultancy and provision of equipment, all aiming at improving methodologies of epidemiological investigations, environmental health monitoring, analytical techniques, and information system methodology.

The environmental health situation in Romania gives reason for major concern due to the widespread pollution of air, water and soil by chemical and biological pollutants. Priority areas for intervention are the quality of air, the quality of drinking water and the disposal of solid waste. In particular, the exposure to air pollution of an estimated 4 million people (of the total population of 23 million) gives reason for concern. The main pollutants are NO_x , SO_2 , heavy metals, and suspended particles. Pollution by lead and asbestos are also reported to be a major health problem.

Priority should be given to the improvement of the quality of air. Quantification and qualification of air pollution is urgently required. Detailed requirements regarding technical assistance, training, and procurement of equipment will need to be identified. Implementation of these activities should be a main priority.

An air quality monitoring system has been in place in Romania since 1973. The responsibility for this system lies with the Ministry of Health. Data are not collected automatically but by means of manual sampling. The Institute of Hygiene and Public Health is one of the places where the samples are analysed. This Institute collects the data and compiles annual reports. Characteristics of each major city are prepared in this way.

There are presently 96 monitoring stations monitoring the quality of air. Furthermore, it was reported that 500 stations monitor the quality of air through deposition.

2. An overview of **air pollution** at national level exists. It was reported that the exposure to air pollution of an estimated 4 million (of the total of 23 million inhabitants of Romania) gives reason for concern. It is found that the main pollutants are NO_x , SO_2 , particulate matter and heavy metals. This is, amongst others, caused by the fact that most heating systems in Romania are fuelled by coal containing a lot of sulphur.

It has been established through the monitoring systems that the air is heavily polluted in 17 areas in Romania. Four areas have been defined as being catastrophic. It is apparent that of all the environmental health problems, the quality of air and its influence on the health of the population is a major and first priority problem.

In order to illustrate these views, it was reported that in areas of metallurgical industries, children between 7-10 years of age had a considerably increased rate of pulmonary disease. In particular, a high prevalence of respiratory ailments such as bronchitis and pneumonia was established.

It was reported that the United Nations Development Program supported the Ministry of Environment in executing air pollution control projects. This support is provided to the areas of Biomare, Media, Bakan and Ploesti. Studies regarding the environmental impact on air, water and soil have been done at Cluj. However, no cohort studies have been executed in areas of metallurgical industry.

One hour data, peak values and daily averages need to be registered in order to obtain a well balanced picture of the present status of air pollution. Other requirements are the possibility to analyse the impact of the exposure on the population by means of epidemiological studies. Other studies which are anticipated are special studies regarding NO_x in the summer period and SO_2 in the winter period.

As in other Eastern European countries, air pollution is highly localised and severe. The principal pollutants are sulphur dioxide SO_2 particulates (TSP), oxides of nitrogen (NO_x), carbon monoxide (CO), with unacceptable emissions of such toxins

as chlorine, lead, phenols, ammonia and benzene. The emissions of particulates seems to be a particular problem with levels in certain areas being several times higher than acceptable. The principal emitters are energy sources, industry (particularly metallurgical and petrochemical complexes), road vehicles and district and home heating. While energy production facilities produce large quantities of SO₂ and TSP, the larger plants are some distance from urban areas and the pollutants are emitted from high stacks allowing for wide dispersion. This is not so in industry, where the stacks tend to be lower and the industry is usually sited near or even in the middle of and urban area. Also in industry, a large proportion of the emissions are "fugitive" emissions (i.e. leaks). There is no emission reduction policy for vehicles and vehicles are poorly maintained. The lead level in gasoline is high and, as with other refined fuels, the sulphur content of diesel is also high. While some district heating schemes burn gas, others burn high sulphur fuel oil. Many homes, particularly in the outlying areas, are heated with low quality coal.

3. Furthermore, the low quality of drinking water is an important health problem in Romania. The main reason for health problems caused by drinking water are microbiological pollutants. Pollution of the main drinking water sources (i.e. the rivers and ground water) by pesticides is also an important environmental health problem.

It is recommended to facilitate the improvement of the quality of drinking water. The first priority in this field is the implementation of studies to assess the present situation. On the basis of such identification, technical assistance and training programs will need to be formulated and implemented.

Romania has a total of 237 towns. The respective water treatment plants are under the responsibility of the municipality. Previously these plants were financed from municipal taxes. Presently, consumers are charged a price per cubic meter water used. Around 90 percent of the urban population has a central supply of water.

In the rural areas, around 10 percent of the population has a central water supply. The remaining 90 percent has no central water supply and obtains its water from wells or surface water. Drinking water originates for 70 percent from surface water and for 30 percent from ground water. The main problem is the biological contamination of surface water. However, little is presently known about chemical

pollution as no sufficient and adequate chemical analysing equipment is available for identification and determination of chemical substances.

In some areas of Transsylvania, cases of chromium and lead intoxication have been identified. Furthermore, the river near a fertiliser plant in Bacau is heavily polluted due to chemical contamination of the reservoir. Pollution of aquifers with pesticides is widespread. This is caused by rivers being polluted by these pesticides. Another cause for environmental health problems is the use of irrigation water directly from the River Danube. Cases of cholera originated from imported cases and the lack of drinking water and sanitation in the Danube Delta.

Bucharest, a city with 2 million inhabitants, has no waste water treatment plant. Its waste water is dumped into tributaries of the Danube, namely the Dimbovita and Arges rivers.

Important topics to be taken into consideration for possible future projects are:

- improvement of waste water treatment
- monitoring of surface water quality
- upgrading of water treatment and analysis technology
- improvement of management
- implementation of an organizational framework for identification of sources of pollution
- improvement and implementation of (new) legislation

Most of the dwellers in peri-urban and rural areas (about 46.8% of population) depend on ground water for their drinking water source. In some areas ground water is heavily polluted with nitrates, pesticides, heavy metals, and other non-evident toxic substances. In 1988 the Institute of Hygiene and Public Health conducted a nationwide survey of nitrate pollution of shallow wells. Out of a total of 12,554 wells surveyed, 4,558 wells (36%) showed nitrate concentrations exceeding the minimum acceptable standard of 45 mg/l. The total number of people relying on these polluted wells for their water supply was estimated at about 4 million.

High nitrate concentrations were found in shallow wells in the irrigated agricultural areas along the River Danube (Mehendinti, Dolj, Calarasi, Constanta,

Tulcea) and in Botosani Judet, where more than 66% of samples exceeded 45 mg/l (MAP). Extreme nitrate concentrations reaching 1,500 mg/l were detected from a sample in Cernica, the rural area surrounding Bucharest. Although the exact cause of this pollution remains to be confirmed through further investigation, it appears that the main sources of nitrate pollution are agricultural runoff and live stock waste.

Water quality is under pressure from pollution by industry, agriculture, live stock, domestic waste water inflow. The eutrophication of water resources is a consequence of the waste water inflow. The ageing of network systems also contributes to the deterioration in the quality of drinking water. In Bucharest the municipal water supply system is mainly affected by industrial waste water discharges at Pitesti, located about 80km upstream of the city's water intake, and autrophication at the source. Mercury was detected at a concentration of 2.7 ppb in 1990, exceeding the Maximum Admissible Concentration (M.A.C.) of 1 ppb. Herbicides were detected as 16.7 ppb in 1991, 30 times higher than M.A.C. of 0.5 ppb. During summer algae bloom in the source water creates taste and odour problems.

There is no doubt that water pollution in Romania is a serious issue, which if not addressed quickly and effectively will have growing serious consequences for on the country's public health, aquatic ecology, and the economy in general. The protection of the population from ground water pollution and toxic industrial water pollution not only affects water bodies in Romania's interior, but causes trans-boundary concerns, as it contributes to the already heavy pollution load on the Danube River and the Black Sea. Apart from direct environmental and public health problems, water pollution has led to significant increases in the cost of supplying water for domestic and industrial use. Treatment costs increase according to the degree of pollution of the raw water. In some cases, large investments have been required to develop alternative, more costly water sources. Urgent action is necessary to confront Romania's water pollution problems.

4. The **disposal of solid waste** is causing increasing problems. It is not only the quantity of the disposed waste that is reaching the limits of what can be dealt with, but also the pollution of waste by chemical substances.

A priority regarding the disposal of solid waste is the provision of technical assistance and training programmes. The appropriate implementation of these activities will require external expertise.

The disposal of solid waste is the responsibility of the municipalities. No central authority is involved. Most solid waste is dumped at municipal landfills.

There are no appropriate means of identifying the quality and quantity of solid waste. Little information is available regarding hazardous waste. There are very limited possibilities for identifying chemical pollutants in solid waste. Consequently, there is also no possibility for risk assessment. Authorization for dumping hazardous waste is the responsibility of the municipalities and the Centres for preventative medicine. However, it is also apparent that municipalities' refusals of dumping requests are not adhered to.

It is recommended to provide support to the Government of Romania by means of technical assistance, training, and procurement of equipment in order to contribute to alleviating the environmental health situation.

The state of the environment in Romania can be best characterized in the light of the general state of public health. The present picture is disadvantageous in both cases. The state of public health is precarious: the average life expectancy is decreasing, and there is widespread concern that children's illnesses, such as asthma, might be associated with the polluted environment.

Severe environmental degradation can be found in largely populated areas where heavy industry is located. The industry includes major polluting sources such as ferrous and non-ferrous smelters and petrochemical complexes. The areas have been declared environmental disaster zones (Priority Areas) by the government which wishes to develop accelerated remediation measures for them.

Pollution in Romania is generated mainly by industrial energy and urban resources and is severe but localised. Concentrations of toxic air pollution are particularly high near ferrous and non-ferrous smelters and petrochemical complexes. For example, in Copsa Mica, each year up to 280 tons of lead is discharged into the atmosphere resulting in lead levels in children being seven times higher than normal.

Over long distances, rivers are severely polluted and lifeless, carrying much of their industrial pollution to the Danube (and to the Black Sea). Emissions of oxides of sulphur, nitrogen and lead, and toxic particulates from energy producing sources are high and severe. Sanitary disposal of solid waste is minimal and the management of hazardous waste is unsatisfactory. Ground water is reported polluted in at least two areas and non point source run-off from agricultural chemicals is contributing to river pollution and autrophication.

The polluted environment in many parts of Romania is widely perceived to be a very significant factor in reducing the quality of life, and it is often mentioned as the most important issue, warranting immediate attention by decision-makers.

The development of awareness on the issue of protection of environment and health in Romania is connected with the participation of the public in the decision-making process. Environmental non-governmental movements play a key role in involving the public in environmental decision-making. It is anticipated that the programme be developed in full dialogue with relevant interested non-governmental organizations.

In September 1991 a joint mission of WHO-EURO and the Ministry of Welfare, Health and Cultural Affairs of the Netherlands identified a first set of suitable issues for the programme, which were further refined by the Romanian authorities during a follow-up mission in April 1993 of the Bilthoven Division of the WHO European Centre for Environment and Health (WHO-ECEH) project manager in charge of Technical Cooperation with the countries of Central- and Eastern Europe.

The mission was fielded within the framework of multi-lateral assistance of the Netherlands Government to Central and Eastern-European countries (Programma Samenwerking Oost-Europa - the "PSO" programme). Earlier missions with similar objectives were fielded to Poland, Czechoslovakia and Hungary. The Netherlands Government agreed to finance environmental health projects in these countries.

5. The Integrated Programme on Environment and Health in Romania (RIPEH) anticipates fostering the dialogue between the Romanian Ministry of Health and the Ministry of Water, Forestry and Environmental Protection, including the respective

national, regional and local authorities within their responsibility. The Integrated Programme on Environment and Health will further assist in providing additional experiences to the Ministry of Health in implementing multilateral projects.

The programme will catalyse, in a decentralized manner, environmental health management at the county level and will assist in implementing both immediate supportive actions as well as assist in securing additional funding from third sources for long-term investments.

The activities identified in Chapter VI are all within the technical capability of the various institutions associated with the Ministry of Health and the Institute of Hygiene and Public Health in Romania.

II OBJECTIVES

1. The Integrated Programme on Environment and Health in Romania has been designed in order to strengthen the intersectoral cooperation between environment and health authorities. It will have four key objectives:

- the availability of instruments/tools for decision-makers regarding required actions to be implemented to reduce air pollution and to improve the health status;
- improved Romanian capacity in environmental health impact assessment procedures as a tool for analysis, trend assessment, priority setting and decision-making pertaining to the impact of industries, agricultural practices, etc. on the environment and on the health of the population;
- improved standards of services of water supply and sanitation systems in Romania, with special emphasis on small and medium-sized human settlements, through application of improved engineering technology;
- availability of training facilities for national staff involved in the collection, transport, treatment and disposal of waste including an integrated resource recovery strategy for municipal, agricultural and industrial waste for Romania.

2. The programme will assist in the preparation of updated policies on the integration of environment and health and provide for local and foreign training of Romanian specialists in administrative, scientific, technical, and economic aspects of environmental health management. In support of the above, the programme will provide, through pilot demonstrations in selected regions, the basis for accelerated preparation of programmes throughout Romania addressing some of the most severe environmental health problems.

3. It is anticipated that the results of the programme in Romania will contribute to the formulation and implementation of a future National Environmental Health Strategy.

III OUTPUTS

The following overall outputs are foreseen:

Improved environmental and health management structures at the national, regional, and local level through:

- an established process in which decision-makers can obtain advice and guidance regarding public health data and environment data pertaining to air pollution in selected regions of Romania;
- provision of advice and guidance to decision-makers regarding required actions to be implemented to reduce air pollution and to improve the health status;
- training in fields related to environmental health impact assessment procedures in Romania as a tool for analysis, trend assessment, priority setting and decision-making pertaining to the impact of industries, agricultural practices, etc. on the environment and on the health of the population;
- trained national specialists and model solutions on modern water supply and sanitation ensuring improved standards of services of water supply and sanitation systems in Romania, with special emphasis on small and medium-sized human settlements, through application of improved engineering technology;
- established facilities to train national staff involved in the collection, transport, treatment and disposal of waste including an integrated resource recovery strategy for municipal, agricultural and industrial waste for Romania.

IV PROJECT MANAGEMENT STRUCTURE

The Integrated Programme on Environment and Health in Romania will be carried out within the framework of the WHO Europe programmes for Central and Eastern European Countries (EUROHEALTH). The project implementation will be the responsibility of WHO European Centre for Environment and Health / Bilthoven Division, The Netherlands. WHO-EURO Programme Manager Bilthoven (PMB) will be in charge of the development and implementation of the Romanian Integrated Programme on Environment and Health to be supported through the coordination costs included in the budget of the four sub-projects.

The programme activities will be implemented through the relevant Romanian authorities, coordinated by the Institute of Hygiene and Public Health (IHPH). Counterpart Romanian program coordinators, one each from the National Public Health Service and the Romanian National Institute of Environmental Engineering, will need to be nominated by the Government of Romania.

A Board of Supervisors (BOS) will be established to meet annually to monitor the progress of the programme, further direct the programme, and oversee the allocation of funds. The BOS will consist of representatives of the Romanian Ministry of Health (MOH), the Romanian Ministry of Water, Forestry and Environmental Protection (MOWFEP), the Institute of Hygiene and Public Health, RIVM and WHO-ECEH. The Ministry of Health will be in charge of organizing and administering the meetings.

The activities reflect the priorities as perceived by the Government of Romania (Ministry of Health) during a WHO/RIVM project identification in September 1991, and following discussions between the WHO Programme Manager for Technical Cooperation with countries of Central and Eastern Europe with the Romanian Ministry of Health and the Romanian Ministry of Water, Forestry and Environmental Protection in June 1993.

Since the programme is a joint activity between WHO-EURO and Romania, Romania will participate actively in the project by providing manpower and operating expenses through the various cooperating local, provincial, and national

institutes. It will be the responsibility of the Government of Romania to assign appropriate individuals to the identified activities.

At the coordinating level the **Ministry of Health** and the **Ministry of Water, Forestry and Environmental Protection (Project Implementation Unit)** of the **Department of Internal Inspection**, the **Institute of Hygiene and Public Health**, and the **Institute of Environmental Engineering** will be in support of the activities.

The **Ministry of Health** and the **Ministry of Water, Forestry and Environmental Protection (Project Implementation Unit)** of the **Department of Internal Inspection** will oversee the implementation of the Programme Activities 3 and 4.

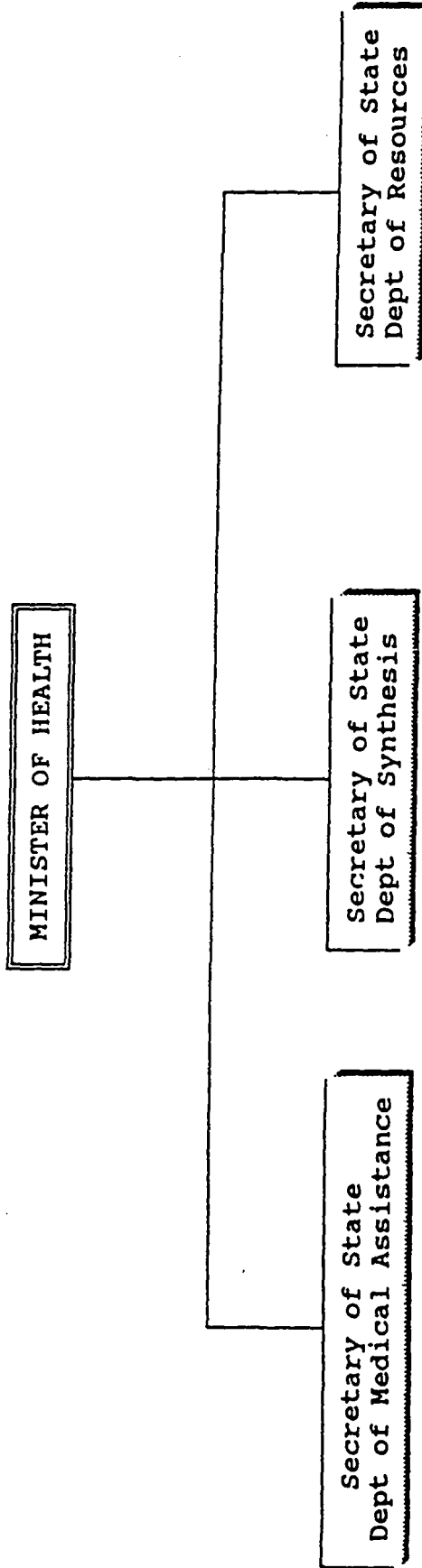
The Institute of Hygiene and Public Health in Bucharest is an independent Institution financed by the Ministry of Health. The Institute is closely linked to similar institutes in three other cities: Timisoara, Cluj-Napoca and Iasi.

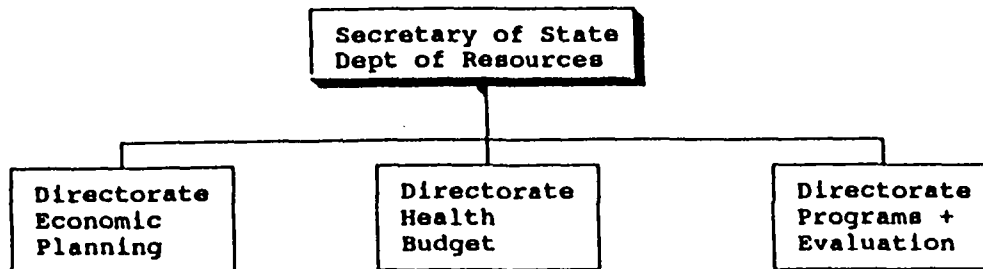
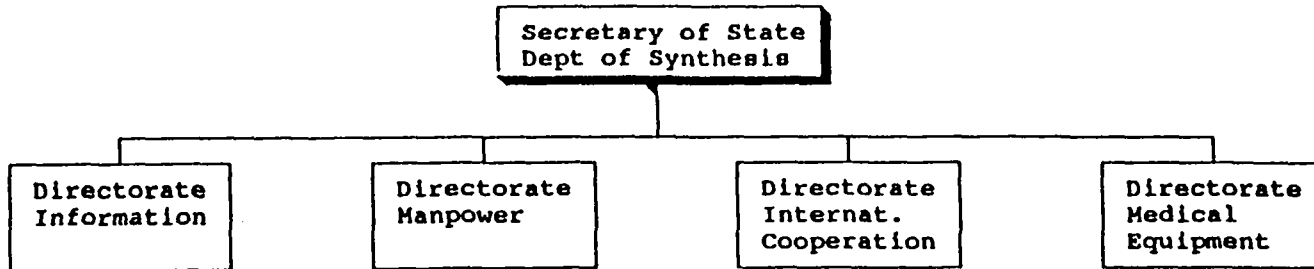
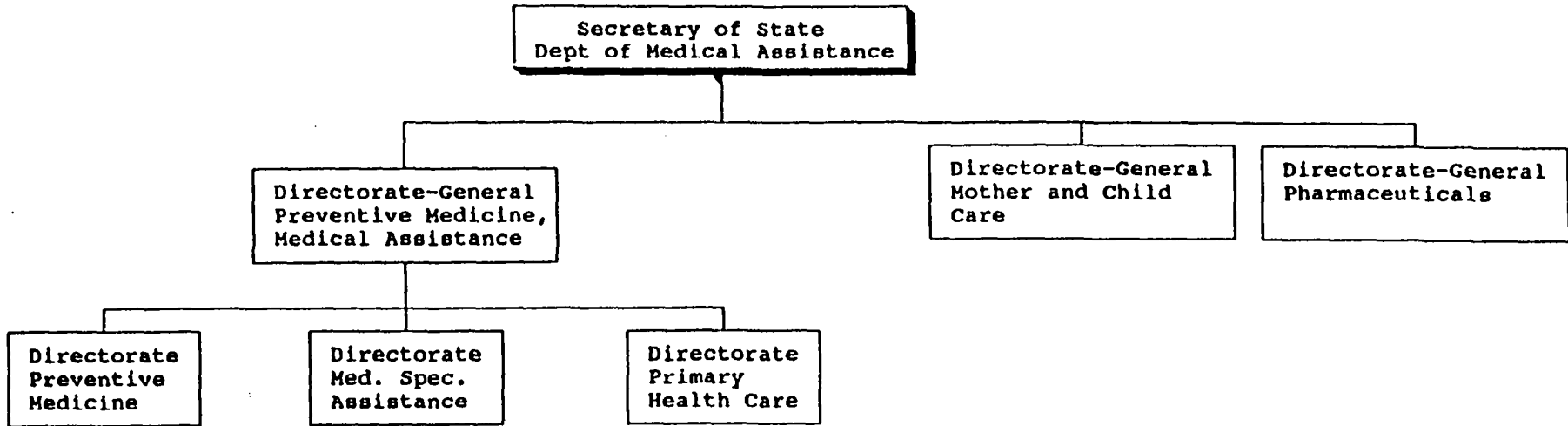
Activities at the Institute are concerned with environmental hygiene, occupational hygiene, food hygiene, hygiene of children and adults, social medicine, health education, and epidemiology. The Environment Hygiene Department concerns itself with water hygiene, air hygiene, radiation hygiene, hygiene of human settlements, and vector control.

The Institutes located at Timisoara, Cluj-Napoca and Iasi are integrated into the Institute of Hygiene and Public Health located in Bucharest. These Institutes carry out similar activities as those of the Institute of Hygiene and Public Health in Bucharest, mentioned previously. However, activities are executed on a smaller and more limited scale.

The assistance by the WHO European Centre for Environment and Health should include training and transfer of know-how in these areas as well as the provision of equipment (computers and analytical equipment) and the provision of programme management, if necessary.

MINISTRY OF HEALTH





MINISTRY OF HEALTH

ACADEMY OF MEDICAL SCIENCES

SCIENTIFIC COUNCIL

INSTITUTE OF HYGIENE
AND PUBLIC HEALTH

Bucharest

DIRECTOR

DEPUTY DIRECTOR

CHIEF ACCOUNTANT

environmental
hygiene
department

occupational
hygiene
department

food
hygiene
lab.

hygiene of
children
and
adolescents
lab.

social
medicine
lab.

lab. of
health
education
and history
of medicine

lab. of
epidemiology
of communi-
cable diseases
and hospital
hygiene

library

water hygiene

air hygiene

radiations hygiene

human settlements hygiene

vectors control

bioergonomics

toxicodynamics

pneumoconioses

analysis of health status
(occupational pathology)

plan-work organization staff

financial accountability office

supply administration

workshop

V FINANCIAL ARRANGEMENTS

The Board of Supervisors with representatives of WHO, the Government of the Netherlands, the Ministry of Health (MOH), the MOWFEP and the Institute of Hygiene and Public Health will be established to oversee proper allocation of funds and to monitor the progress of the programme and its activities.

1. Schedule of payments

WHO-EURO will provide the funding on an "activity"-basis through Technical Service Agreements with the participating national institute (Institute of Hygiene and Public Health) from the donations received by the Government of The Netherlands.

The annual contribution will be:

NFL 370,600.- (three hundred and seventy thousand six hundred Dutch Guilders) in the year 1993,

NFL 400,000.- (four hundred thousand Dutch Guilders) in the year 1994,

NFL 400,000.- (four hundred thousand Dutch Guilders) in the year 1995,

NFL 200,000.- (two hundred thousand Dutch Guilders) in the year 1996.

The Government of Romania will allocate additional resources in kind for the National Integrated Programme on Environment and Health estimated to total the equivalent of Nfl. 420,000.

2. Payment of contribution

The funds shall be deposited by the Ministry of Welfare, Health and Cultural Affairs of The Netherlands according to the schedule of payment as per the agreement between WHO-EURO and the Ministry of Welfare, Health and Cultural Affairs of the Netherlands in WHO's Bank account No. 430099738, ABN AMRO Bank N.V., Kneuterdijk 8, 's-Gravenhage, with the indication that the funds are for the "Integrated Programme on Environment and Health in Romania". The contribution from the Donor to the project includes costs proper and programme support costs calculated at the rate of 13 % of the project costs, in accordance with the World Health Assembly Resolution No. 34.17.

3. Utilization of funds and accounting

The contribution shall be used for the activities indicated in the following Chapter VI - Activities. All activities, such as hiring of consultants, fellowships and acquisition of equipment should be done by WHO-EURO in accordance with WHO regulations.

Income and expenditure recorded in respect of the contribution shall be identified and kept separately by WHO in the relevant account of its Voluntary Fund for Health Promotion. Any balance of the contribution that is outstanding at the time of completion of the activity or on the termination of this Agreement shall be held by WHO-ECEH at the disposal of the Government of The Netherlands, after all obligations incurred by WHO-ECEH prior to completion have been settled.

The project costs proper reflect cost estimates expressed in Nfl, including Programme support costs.

Any interest accrued from temporary credit balances of project funds will be used to supplement funds available to the project, in consultation with the Government of The Netherlands or held at his disposal.

4. Reporting

4.1. Technical

Within 30 days of the end of the reporting period, the Ministry of Health shall submit to WHO-EURO, with a copy to the Project Manager Bilthoven, a yearly progress report as of 31 March.

4.2. Financial

Project expenditure accounts

Details of project expenditures will be reported on an activity-by-activity basis as of 31 March, 30 June, 30 September and 31 December by participating Romanian Institutions. All expenditure accounts will be despatched to WHO-EURO, with a copy to the Project Manager Bilthoven, WHO-ECEH, within 30 days of the end of the quarter to which they refer.

In order to facilitate the preparation of the final financial statement of WHO-EURO by 1 September 1996, in line with the requirements of the Programma Samenwerking Oost-Europa of The Netherlands, all funds within the project should be financially obligated by not later than 1 May 1996.

Non-expendable equipment

The Institute of Hygiene and Public Health will maintain records of non-expendable equipment (items costing \$500 or more) purchased with WHO funds and will submit an inventory of all such equipment to WHO-ECEH once a year, indicating description, cost, date of purchase, cost and present condition of each item attached to the progress report submitted on 31 March. Non-expendable equipment purchased with funds administered by WHO remains the property of WHO until its disposal is authorized by WHO, in consultation with the Institute of Hygiene and Public Health.

Responsibility for cost overruns

Any cost overrun (expenditure in excess of the amount budgeted in each budget subline) shall be met by the organization responsible for authorizing the expenditure, unless written agreement has been received by letter or cable, in advance, from WHO-EURO. In cases where WHO-EURO has indicated its agreement to a cost overrun in a budget subline, either to transfer funds from one subline to another, or to increase the total cost to WHO-EURO, a revision to the project document amending the budget will be issued by WHO-EURO.

The expenditure recorded in respect of the contribution shall be indicated in the WHO Financial Reports submitted to the World Health Assembly on an annual and biennial basis.

4.3. Substantive reports

4.3.1. The project document provides for the preparation of various reports as outputs of the programme. By including provision for publication in the WHO-EURO component of the appropriate budget line, WHO-EURO thereby affirms itself as copyright holder of the said text, and equally expresses its intention to consider the text for inclusion in its publications programme.

Upon completion of the manuscript, the Ministry of Health will surrender the text to WHO for publication. Should WHO not consider publishing the text, the Ministry of Health may request WHO-EURO's authorization to publish the text itself or through its agent. Such authorization will not be unreasonably withheld by WHO-EURO and will consist of a cession of copyright to the Ministry of Welfare or of a licence to publish under contractual arrangements, at WHO-EURO's discretion.

Authorization will be accompanied by editorial clearance from WHO-EURO and may include a request to change certain passages of the text and insert certain wordings (*recognition, disclaimers, etc.*) in the preliminary or introductory texts. In view of the public interest in environment and health related information, every effort will be done to review emerging information quickly and to release it at short notice.

Both the cover and the title page of all WHO-EURO substantive reports will carry the logo of WHO (if they are issued as publications) and the title "World Health Organization, European Centre for Environment and Health", together with that of the supporting organization publishing the report.

WHO-EURO will receive 20 free copies of the published work in each of the agreed languages for its own distribution.

4.3.2. WHO-EURO shall submit to the Government of The Netherlands before 1 September of every year a technical report on the progress in the activities financed by the contribution. A final report on completion of the project activities has to be submitted not later than 31 December 1996.

The Government of The Netherlands may request WHO-EURO to provide complementary information that is reasonably available.

5. Acknowledgement of the contribution

The Government of The Netherlands may request WHO-EURO to make an appropriate acknowledgement of the contribution. In the absence of the consent of the other party, neither party may refer to the contribution or to the relationship between the parties in any material of a promotional nature.

6. Termination

Either party may give the other notice of termination of this Agreement. Such termination shall enter into effect six months after notice has been received. Termination by WHO of this agreement before the completion of the project activity without consulting the donor and agreement about the termination by both parties, will result in refunding of the contribution by WHO.

7. Settlement of disputes

Any dispute relating to the interpretation or application of this Agreement shall, unless amicably settled, be subject to conciliation. In the event of failure of the latter, the dispute shall be settled by arbitration. The arbitration shall be conducted in accordance with the modalities to be agreed upon by the parties, or in the absence of agreement, with the rules of arbitration of the International Chamber of Commerce. The parties shall accept the arbitrated award as final.

VI ACTIVITIES

The umbrella program will consist of the following four sub-projects, of which the activities are within the technical capability of the Institutes associated with the Institute of Hygiene and Public Health:

- 1. ASSESSMENT OF AIR POLLUTION AND THE EFFECTS ON THE HEALTH STATUS OF THE POPULATION IN SELECTED AREAS OF ROMANIA**
- 2. CAPACITY BUILDING IN ENVIRONMENTAL HEALTH IMPACT ASSESSMENT IN ROMANIA**
- 3. TRANSFER OF WATER AND SANITATION TECHNOLOGY**
- 4. UPGRADING OF WASTE MANAGEMENT TECHNOLOGY**

The project will focus on the provision of training and the procurement of equipment:

Training:

Experts in epidemiology will organize short courses at appropriate institutions in Romania with a focus on georeferenced data management and application of small scale statistics. (It is proposed to involve the Institute of Hygiene and Public Health in Bucharest and the Institute of Environmental Engineering in Bucharest.)

A number of Romanian counterparts will be selected to receive a more extensive training in water and sanitary techniques at centres of excellence in Europe. On completion of their training these counterparts will transfer their newly gained knowledge to staff at their respective Institutes.

It is further anticipated that courses for existing personnel engaged in studies of health status and statistical analysis be organized. Such courses would involve bringing experts into Romania to upgrade existing skills. Furthermore, a strategically chosen group of individuals could be sent to study at schools of epidemiology and public health abroad.

Equipment:

Procurement of equipment will mainly concern procurement of laboratory equipment, (personal) computers and statistical software. However, other items of equipment, reagents, and computer software are needed to improve the measurement of environmental contaminants, human health outcomes, and statistical phenomena.

It is envisaged to further elaborate the feasibility of the equipment needs of the Institute of Hygiene and Public Health/National Institute of Environmental Engineering through the transfer of depreciated equipment from the RIVM.

1. ASSESSMENT OF AIR POLLUTION AND THE EFFECTS ON THE HEALTH STATUS OF THE POPULATION IN SELECTED AREAS OF ROMANIA

DEVELOPMENT OBJECTIVES

- a) To set up a database containing information on quantitative and qualitative data pertaining to air pollution in selected areas of Romania;
- b) To set up a database containing information on quantitative and qualitative data of the health status of the population in selected areas of Romania;
- c) To assess and, where applicable, establish correlation between quantitative and qualitative data of air pollution and the health status of the population in selected areas of Romania;
- d) To provide advice and guidance to decision-makers regarding required actions to be implemented to reduce air pollution and improve the health status.

SPECIFIC OBJECTIVES

- a) To assist in improving and, if required, establishing air quality guidelines in accordance with European standards;

Responsibility: Institute of Hygiene and Public Health

- b) To establish a monitoring network for air quality in selected areas of Romania;

Responsibility: Institute of Hygiene and Public Health

- c) To test concentrations of various substances in the air and to assess these data in relation to air quality guidelines;

Responsibility: Institute of Hygiene and Public Health

- d) To determine level, course (also in a time frame) of the various air polluting substances;

Responsibility: Institute of Hygiene and Public Health

- e) To determine the origin of the observed pollutants;
Responsibility: Institute of Hygiene and Public Health
- f) To collect information on health status parameters in selected areas of Romania;
Responsibility: Institute of Hygiene and Public Health
- g) To assess epidemiological aspects of the health status of the population on the basis of above indicated health status parameters;
Responsibility: Institute of Hygiene and Public Health
- h) To provide training facilities for national staff involved in activities regarding assessment of air pollution and its effects on the health status of the population;
Responsibility: Institute of Hygiene and Public Health

SPECIAL REMARKS

The following assumptions have been made:

- a) The Institute of Hygiene and Public Health has an acute need of laboratory equipment, particularly with respect to the assessment of epidemiological aspects of the health status of the population and the assessment of human exposure by means of biological monitoring and bio-markers. Furthermore, the Institute of Hygiene and Public Health needs equipment support for ventilatory function investigation in assessing the exposure to irritant pollutants and their effects on health status.
- b) National staff travelling abroad to participate in study tours, meetings/conferences, etc., will travel using Romanian Airlines, at Government cost. Per diem will be covered by external sources of funds.
- c) Travel within country by national staff participating in courses or workshops, together with their daily subsistence allowance will be the responsibility of their own national institutions.

2. CAPACITY BUILDING IN ENVIRONMENTAL HEALTH IMPACT ASSESSMENT IN ROMANIA

DEVELOPMENT OBJECTIVES

- a) To facilitate the management of the environment as a positive resource for human health and well-being;
- b) To reduce the risks from environmental factors to the health of the population;
- c) To determine the impact of various industries, energy production units, means of transport, agricultural practices, etc. on the environment and the health status of the population;

SPECIFIC OBJECTIVES

- a) To provide training facilities to national staff (to be) involved in:
 - environmental epidemiology
 - environmental toxicology and genotoxicology
 - risk assessment and risk management practices

Responsibility: Institute of Hygiene and Public Health

- b) To develop a programme for quality control/quality assurance including training for biological chemical and microbiological analysis.

Responsibility: Institute of Hygiene and Public Health

- c) To provide a tool for analysis, trend assessment, priority setting and decision-making pertaining to the impact of industries, agricultural practices, etc. on the environment and on the health of the population;

Responsibility: Institute of Hygiene and Public Health

- d) To strengthen and where necessary establish information systems to support monitoring of the environment and the health status of the population;

Responsibility: Institute of Hygiene and Public Health

- e) To strengthen and where necessary establish information systems to monitor the impact and effectiveness of actions taken;

Responsibility: Institute of Hygiene and Public Health
- f) To determine health statistics in small areas as an important tool in investigating clusters of disease and possible links with environmental conditions;

Responsibility: Institute of Hygiene and Public Health
- g) To facilitate that regulations regarding environment and health are being adhered to;

Responsibility: Institute of Hygiene and Public Health
- h) To consult and involve individuals and communities in managing the quality of the environment, taking into account health aspects;

Responsibility: Institute of Hygiene and Public Health
- i) To facilitate the identification of responsibilities for implementing appropriate actions;

Responsibility: Institute of Hygiene and Public Health
- j) To strengthen and where necessary facilitate the development of environmental epidemiology and environmental health research;

Responsibility: Institute of Hygiene and Public Health
- k) To stimulate the development of epidemiological surveillance through data collection, compilation, and risk assessment of environmental factors;

Responsibility: Institute of Hygiene and Public Health
- l) To facilitate that appropriate environmental technology is applied;

Responsibility: Institute of Hygiene and Public Health
- m) To clarify through interdisciplinary studies links between the environment and health;

Responsibility: Institute of Hygiene and Public Health

NATIONAL INSTITUTIONAL SUPPORT

- | | | |
|----|---------------------------------|--------------------------|
| a) | The Ministry of Health | Executive Institution |
| b) | The Ministry of the Environment | Co-executive Institution |

SPECIAL REMARKS

The following assumptions have been made:

- a) The Environmental Health Service has an acute need for laboratory equipment. It is suggested to evaluate the procurement of equipment in cooperation with the RIVM, using depreciated RIVM equipment.
- b) National staff travelling abroad to participate in study tours, meetings/conferences, etc., will travel using Romanian Airlines, at Government cost. Per diem will be covered by external sources of funds.
- c) Travel within country of national staff participating in courses or workshops, together with their daily subsistence allowance will be the responsibility of their own national institutions.

3. TRANSFER OF WATER AND SANITATION TECHNOLOGY

DEVELOPMENT OBJECTIVES

- a) The project is aimed at reaching improved standards of services of water supply and sanitation systems in Romania, with special emphasis on small and medium-sized human settlements, through improved engineering technology applied to water and sanitation activities in the country.
- b) The project will be instrumental in providing training facilities to senior and intermediate level technicians responsible for water and sanitation developments.
- c) The project will study and propose national strategies aiming at the reliable utilization and protection of drinking water resources.
- d) The project will also aim at upgrading the techniques for the collection, treatment and disposal of domestic and industrial waste water.

SPECIFIC OBJECTIVES

- a) Preparation of assessment of the present problems related to the provision and quality of water and sanitation services in priority rural areas selected for the project activities.

Responsibility: Institute of Hygiene and Public Health and Public Health

- b) A study on the present managerial procedures for the construction and operation of water and sanitation services, including policies for the recovery of investments and for compensation in case of environmental industrial pollution.

Responsibility: Institute of Environmental Engineering

- c) Update on existing analytical capabilities for the adequate monitoring of drinking water quality, at the source and at consumer level.

Responsibility: MOE/PHARE/Institute of Environmental Engineering

- d) Epidemiological study to investigate the health effects caused by the presence of organic and inorganic pollutants in drinking water, in particular studies related to THM, nitrate and pesticides.

Responsibility: Institute of Hygiene and Public Health

- e) Study of the present human infrastructure available (in quantity and in quality), for the implementation of water and sanitation activities in the country.

Responsibility: Institute of Environmental Engineering

- f) To provide re-orientation and training of the national staff involved in the activities of the project. (Professional and intermediate level staff of the executive institutions and municipalities to be served).

Responsibility: Institute of Environmental Engineering in cooperation with the Institute of Hygiene and Public Health and with designated municipalities

- g) Training of two staff members, one from the Institute of Hygiene and Public Health and one from the Institute of Environmental Engineering, each for a period of 6 months at (Nancy or Delft) with the aim to train the trainers for courses for the staff members from the 41 county EPAs.

Responsibility: Institute of Environmental Engineering in cooperation with the municipalities

NATIONAL INSTITUTIONAL SUPPORT:

- | | |
|--|--------------------------|
| a) Ministry of the Environment | Executive Institution |
| b) Ministry of Health | Co-Executive Institution |
| c) Designated Pilot Municipalities | Associated Institution |
| d) Designated Scientific Research Bodies | Associated Institution |

SPECIAL REMARKS

The following assumptions have been made:

- a) National staff travelling abroad to participate in study tours, meetings/conferences, etc., will travel using Romanian Airlines, at Government cost. Per diem will be covered with external sources of funds.
- b) Travel within country of national staff participating in courses or workshops, together with their daily subsistence allowance will be the responsibility of their own national institutions.

4. UPGRADING OF WASTE MANAGEMENT TECHNOLOGY

DEVELOPMENT OBJECTIVES

- a) To reduce the environment and health risks resulting from inadequate management of waste.
- b) To promote the introduction of an integrated resource recovery strategy for municipal, agricultural and industrial waste..
- c) To develop technology for the appropriate management of "hazardous waste".
- d) To provide training facilities to the national staff involved in the collection, transport, treatment and disposal of waste.

SPECIFIC OBJECTIVES

- a) Study in selected urban agglomerations of the country to determine the quantity of waste produced, its characteristics, the methods of collection, treatment and disposal.

Responsibility: Institute of Hygiene and Public Health/Institute of Environmental Engineering

- b) Assessment of the present environmental and health problems related to the management of waste in selected urban agglomerations.

Responsibility: Institute of Hygiene and Public Health/Institute of Environmental Engineering

- c) Assessment in selected urban agglomerations of the present status of the equipment used for the collection and disposal of municipal waste.

Responsibility: Institute of Environmental Engineering

- d) Plan for the upgrading of waste management in the selected urban agglomerations.

Responsibility: Institute of Environmental Engineering

- e) Study of the existing methods for the recovery, recycling and re-utilization of waste in the country.

Responsibility: Insitute of Environmental Engineering

- f) Assessment of the legal aspects connected with the management of waste, with special emphasis on "hazardous waste".

Responsibility: Institute of Environmental Engineering/Institute of Hygiene and Public Health

- g) Assessment of the health hazards related to the agricultural re-utilization of waste.

Responsibility: Institute of Hygiene and Public Health/Institute of Environmental Engineering

- h) Study of the human infrastructure available (in quantity and in quality), for all aspects of waste management in the country.

Responsibility: Institute of Environmental Engineering

- i) To provide re-orientation and intensive training of the national staff involved in the activities of the project. Professional and intermediate level staff of the executive institutions and municipalities will be selected for a training of the trainers in municipal licensing of waste collection and waste disposal sites, in order to enable them to more efficiently enforce the Code of Public Health.

Responsibility: Institute of Environmental Engineering in cooperation with the municipalities

NATIONAL INSTITUTIONAL SUPPORT

a) The Ministry of the Environment	Executive Institution
b) The Ministry of Health	Co-Executive Institution
c) Selected Municipalities	Co-executive Institutions
d) The Ministry of Industrial Development	Associate Institution
e) The Ministry of Agriculture	Associated Institution

SPECIAL REMARKS

The following assumptions have been made:

- a) National staff travelling abroad to participate in study tours, meetings/conferences, etc., will travel using Romanian Airlines, at Government cost. Per diem will be covered with external sources of funds.

- b) Travel within country of national staff participating in courses or workshops, together with their daily subsistence allowance will be the responsibility of their own national institutions.

VII WORKPLAN

1. ASSESSMENT OF AIR POLLUTION AND THE EFFECTS ON THE HEALTH STATUS OF THE POPULATION IN SELECTED AREAS OF ROMANIA

EXPECTED DATES OF	START	COMPLETION
a) Preparation initial project proposal	22.10.91	
b) Initial assessment of project proposal:		
- at national level	01.04.93	01.04.93
c) Final formulation of project proposal		01.05.93
d) Approval negotiations	01.05.93	01.06.93
e) Starting date of Project	05.07.93	
f) Critical reevaluation of existing data on the impact of air pollution on human health at the national level		01.03.96
g) Update of environmental epidemiological studies on the aspect of air pollution on human health in selected regions of Romania according to WHO-ECEH protocol:		
- Navodari-midia area		01.03.94
- Slatina area		01.04.94
- Valea Calugareasei area		01.06.94
- Tulcea area		01.01.95
h) Procurement of equipment, i.e.	01.07.93	01.12.95
- 2 PC 486 120 MB + printer		
- 1 PC 486 8 RAM 500 MB		
- SAS software + Ingres (Idrissi)		
- copying machine		
- blackboard (in white)		
i) Expected date of completion		31.12.95

2. CAPACITY BUILDING IN ENVIRONMENTAL HEALTH IMPACT
ASSESSMENT IN ROMANIA

EXPECTED DATES OF	START	COMPLETION
a) Preparation initial project proposal		15.12.91
b) Initial assessment of project proposal: - at national level	1.04.93	01.04.93
c) Final formulation of project proposal		01.05.93
d) Approval negotiations	01.05.93	01.06.93
e) Starting date of Project	01.06.93	
f) Workshop on Quality Control/Quality Assurance (20 participants/one week duration/IHPH) in environmental and biological monitoring		01.10.93
g) Workshop on management and implementation of risk assessment (20 participants from local Hygiene services in charge of licensing waste disposal sites/water treatment plants, etc.)		01.12.93
h) Training course on Modern Methods of Epidemiology (25 participants/IHPH/one week duration)		01.03.94
i) Training course on Advanced Environmental Epidemiological Methods (20 participants/IHPH/ one week duration)		01.05.94
j) Participation of five Romanian experts at Environmental Epidemiological Summer School in Prague (3 week duration).		01.01.94
k) Expected date of completion		31.12.95

3. TRANSFER OF WATER AND SANITATION TECHNOLOGY

EXPECTED DATES OF	START	COMPLETION
a) Preparation initial project proposal		15.12.91
b) Initial assessment of project proposal:		
- at national level	01.04.93	01.04.93
c) Final formulation of project proposal		01.05.93
d) Approval negotiations	01.05.93	01.06.93
e) Starting date of Project	05.07.93	
f) Preparation of rapid assessment of the project problems related to provision of and quality of water and sanitation systems (IHPH)		01.10.93
g) Preparation of report on existing analytical capabilities for monitoring of drinking water quality, both at the source and at the consumer level		01.12.93
h) Outside toxicologist to visit (i) IHPH to advise preparation of report on health effects caused by presence of organic and inorganic pollutants in drinking water, and (ii) equipment needs (AMES test on mutagenicity (carcinogenicity).)		01.12.93
i) Study on the present managerial procedures for the construction and operation of water and sanitation services, including policies for the recovery of instruments and for compensation in case of environmental industrial pollution		01.04.94
j) Update on existing analytical capabilities for the adequate monitoring of drinking water quality, at the source and at the consumer level		01.06.94
k) Preparation of report on health effects caused by presence of organic and inorganic pollutants in drinking water		01.01.95

3. TRANSFER OF WATER AND SANITATION TECHNOLOGY (CONT'D)

EXPECTED DATES OF	START	COMPLETION
l) Preparation of report on health effects of existing hydrocarbon pollutants in aquifers as a pre-investment tool for petrol companies in Romania		01.08.95
m) Sanitation engineer to be appointed by MOE to attend outside training (one month duration)		01.08.95
n) Epidemiological study to investigate the health effects caused by the presence of organic and inorganic pollutants in drinking water		01.12.95
o) Preparation of report on health effects of chlorination of organically polluted reservoir of surface water used for drinking water purposes		01.01.96
p) Preparation of report on requested health effects between nitrate levels and morbidity/mortality in Southern Romania		01.03.96
q) Expected date of completion		31.12.96

4. UPGRADING OF WASTE MANAGEMENT TECHNOLOGY

EXPECTED DATES OF:	START	COMPLETION
a) Preparation initial project proposal		05.12.91
b) Initial assessment of project proposal: at national level	01.04.93	01.04.93
c) Final formulation of project proposal		01.04.93
d) Approval negotiations	01.04.93	01.06.93
e) Starting date of project	05.07.93	
f) Preparation of report on acute environment and health problems related to the management of waste in selected urban agglomerations (IHPH) (i) staff involved in waste management, and (ii) populations living close to waste disposal sites in Romania	01.10.93	01.12.93
g) Study in selected urban agglomerations of the country to determine the quantity of waste produced, its characteristics, the methods of collection, treatment and disposal		01.06.94
h) Assessment of present environmental and health problems related to the management of waste in selected urban agglomerations		01.06.94
i) Assessment in selected urban agglomerations of the present status of the equipment used for the collection and disposal of municipal waste		01.06.94
j) Sanitary engineer to be nominated by MOH to attend outside training (one month duration) to advise mayors of towns on correct siting and collection of waste disposal sites		01.08.94
k) National atlas of existing waste dumping sites		01.12.94
l) Plan for the upgrading of waste management in the selected urban agglomerations		01.12.94

4. UPGRADING OF WASTE MANAGEMENT TECHNOLOGY (CONT'D)

EXPECTED DATES OF	START	COMPLETION
m) Study of the existing methods for the recovery, recycling and re-utilization of waste in the country		01.12.94
n) Assessment of the legal aspects connected with the management of waste, with special emphasis on "hazardous waste"		01.06.95
o) Assessment of the health hazards related to the agricultural re-utilization of waste		01.06.95
p) Training course on Environmental Management at the municipal and local level (20 participants/Institute of Environmental Engineering/IHPH)		01.06.95
q) Expected date of completion		31.12.96

VIII EVALUATION

Self evaluation: The subcontracted regional and local institutes will be requested to prepare a fact sheet giving a brief self evaluation of the status of their respective activities on a half-yearly basis.

The self-evaluation sheet and a report of the Project Manager Bilthoven will form the basis of the yearly meetings of the contracting parties (i.e. WHO-ECEH, Ministry of Welfare, and the Government of the Netherlands). If certain activities are not implemented within the foreseen timetable or their quality does not fulfil the expectations of the contracting parties, the contracting parties reserve the right to discontinue the cooperation with the subcontracted parties.

The contracting parties will agree on a set of achievement indicators during their first meeting. A list of draft achievement indicators will be prepared by the Project Manager in consultation with the MOH and participating regional and local institutions.

Mid-term review: After two years of operation WHO-ECEH in cooperation with the national contracting parties will appoint an independent consultant to prepare a report for the contracting parties indicating possibilities for improved management of the programme.

Final evaluation: Three months before finalization WHO-ECEH in cooperation with the national contracting parties will appoint an independent consultant to prepare a report for the contracting parties on the achievements of the project, indicating lessons learned for follow-up activities of the programme.

IX BUDGET

WHO European Centre for Environment and Health
PROGRAMME BUDGET (WHO)

Table 1 Summarized cost (in Nfl.)

No.	Name of Project	External funding requested (in NLG 1,000)				
		1993	1994	1995	1996	TOTAL
1.	Assessment of air pollution and the effects on the health status of the population in selected areas of Romania	96	98,6	82,4	-	277
2.	Development and implementation of environmental health impact assessment studies in Romania	96	106	90,4	-	292,4
3.	Transfer of water and sanitation technology	102	107,2	116,4	86,4	412
4.	Upgrading of waste management technology	76,6	88,2	110,8	113,6	389,2
TOTAL		370,6	400	400	200	1.370,6

1. ASSESSMENT OF AIR POLLUTION AND THE EFFECTS ON THE HEALTH STATUS OF THE POPULATION IN SELECTED AREAS OF ROMANIA

ESTIMATED PROJECT COST (in NLG 1,000)

Project Component	External	National	Total
a) External expertise	49,0	-	49,0
b) Evaluation and coordination cost	40,0	-	40,0
c) Training nationals abroad	100,0	20,0	120,0
d) Training nationals within country	64,0	10,0	74,0
e) Non-expendable equipment	p.m.	-	p.m.
f) Expendable equipment	-	-	-
g) Supplies	4,0	20,0	24,0
h) Reports production	8,0	--	8,0
i) Miscellaneous cost	12,0	10,0	22,0
Total cost	277,0	60,0	337,0

EXPECTED SOURCE OF FUNDS

External Support Agencies:

TOTAL NLG 277,000

National Institutions:

Ministry of Health NLG 40,000

Ministry of the Environment NLG 20,000

Others -

SUB-TOTAL NLG 60,000

GRAND TOTAL NLG 337,000

DISTRIBUTION OF BUDGET PROVIDED BY THE NETHERLANDS
GOVERNMENT (in NLG 1,000)

Project Component	1993	1994	1995	Total
a) External expertise	17,0	32,0	-	49,0
b) Evaluation and coordination cost	-	-	40,0	40,0
c) Training nationals abroad	44,0	37,0	19,0	100,0
d) Training nationals within country	27,0	24,0	13,0	64,0
e) Non-expendable equipment	p.m.	p.m.	p.m.	p.m.
f) Expendable equipment	-	-	-	-
g) Supplies	--	--	4,0	4,0
h) Reports production	4,0	1,6	2,4	8,0
i) Miscellaneous cost	4,0	4,0	4,0	12,0
Total cost	96,0	98,6	82,4	277,0

Annex No. 1: External Sources Budget Estimations

1. External Expertise:

There shall be a senior Expert responsible for the Project. He/she will visit the country three times during the first year and two times the following years. In addition, at the beginning of the Project, there shall be a need for additional external expertise. It is expected that each mission will last at least 10 working days. Salaries and travel expenses will vary as well as daily subsistence allowances (DSA).

The missions are progressively reduced in the following years. In the interest of the Project, to save money and use it for other purposes, whenever possible, WHO-staff can be used for an expert mission.

2. Evaluation and Coordination Cost:

Review meetings will be organized at the end of each year, between all parties involved. Progress will be evaluated and future activities will be up-dated. Travel of WHO/ECEH staff and Consultants to Romania will be covered from this fund.

3. Training of nationals abroad:

Training of nationals needs to be carried out during the first two years in order to allow them to put into application the knowledge acquired. The Government should, whenever possible, facilitate the travelling of national staff on study tours, by the Romanian Airlines. In this way, more national staff will have an opportunity of training abroad. If only Per diem is to be paid from external funds, the cost of one national travelling abroad (to WHO/Collaborating Centres in order to save on the tuition fees) will vary between NLG 5,000 - NLG 7,000 for a 15-day study tour.

4. Training of nationals within the country:

In order to train large quantities of national staff in a given technique, it is proposed to carry out training courses at national level, bringing into the country

external expertise. Considering that simultaneous translation will be needed, a one week workshop may cost around NLG 8,000 - NLG 12,000.

5. Expendable Equipment and Supplies:

This item is assumed to be responsibility of the Romanian Government.

6. Reports Production:

Printing Consultants' reports is envisaged. Translation into Romanian will be the responsibility of the counterpart office.

7. Miscellaneous Costs:

Unforeseen expenses, mainly at local level, shall be covered from this budget component.

2. CAPACITY BUILDING IN ENVIRONMENTAL HEALTH IMPACT
ASSESSMENT IN ROMANIA

ESTIMATED PROJECT COSTS (in NLG 1,000)

Project Component	External	National	Total
a) External expertise	76,4	-	76,4
b) Evaluation and coordination cost	50,0	-	50,0
c) Training nationals abroad	48,0	20,0	68,0
d) Training nationals within country	60,0	30,0	90,0
e) Non-expendable equipment	p.m.	-	p.m.
f) Expendable equipment	18,0	20,0	38,0
f) Supplies	20,0	20,0	40,0
g) Reports production	8,0	-	8,0
h) Miscellaneous cost	12,0	20,0	32,0
Total cost	292,4	110,0	402,4

EXPECTED SOURCE OF FUNDS

External Support Agencies:

TOTAL	NLG 292,400
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National Institutions:

Ministry of Health	NLG 80,000
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Ministry of the Environment	NLG 30,000
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Others	-
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SUB-TOTAL	NLG 110,000
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GRAND TOTAL	NLG 402,400
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DISTRIBUTION OF BUDGET PROVIDED BY THE NETHERLANDS
GOVERNMENT (in NLG 1,000)

Project Component	1993	1994	1995	Total
a) External expertise	36,0	40,4	--	76,4
b) Evaluation and coordination cost	--	--	50,0	50,0
c) Training nationals abroad	--	40,0	8,0	48,0
d) Training nationals within country	32,0	8,0	20,0	60,0
e) Non-expendable equipment	p.m.	p.m.	p.m.	p.m.
f) Expendable equipment	8,0	8,0	2,0	18,0
g) Supplies	12,0	4,0	4,0	20,0
h) Reports production	4,0	1,6	2,4	8,0
i) Miscellaneous cost	4,0	4,0	4,0	12,0
Total cost	96,0	106,0	90,4	292,4

Annex No. 1: External Sources Budget Estimations

1. External Expertise:

There shall be a senior expert responsible for the Project. He/she will visit the country three times during the first year and two times during the following years. In addition, at the beginning of the Project, there shall be a need for additional external consultants. It is expected that each mission will last at least 10 working days. Salaries and travel expenses will vary as well as daily subsistence allowances.

The missions are progressively reduced in the following years. In the interest of the Project, to save money and use it for other purposes, whenever possible, WHO-staff can be used for an expert mission.

2. Evaluation and Coordination Cost:

Review meetings will be organized at the end of each year, between all parties involved. Progress will be evaluated and future activities will be up-dated. Travel of WHO/ECEH staff and/or Consultants to Romania will be covered from this fund.

3. Training of nationals abroad:

Training of nationals needs to be carried out during the first two years in order to allow them to put into application the knowledge acquired. The Government, whenever possible, should facilitate the travelling of national staff on study tours, by Romanian Airlines. In this way, more national staff will have an opportunity of training abroad. If only Per diem is to be paid from external funds, the cost of one national travelling abroad (to WHO/Collaborating Centres in order to save on the tuition fees) will vary between NLG 5,000 to NLG 7,000 for a 15-day study tour.

4. Training of nationals within the country:

In order to train large quantities of national staff in a given technique, it is proposed to carry out training courses at national level, bringing into the country external expertise. Considering that simultaneous translation will be needed, a one week workshop may cost around NLG 8,000 - NLG 12,000.

5. Expendable Equipment and Supplies:

Although this item is usually the responsibility of Governments, it is proposed that the Project should be assisted with at least a few computers and required software.

6. Reports Production:

Printing of Consultants' reports is envisaged. Translation into Romanian will be responsibility of the Romanian counterpart office.

7. Miscellaneous Costs:

Unforeseen expenses, mainly at local level, shall be covered from this budget component.

3. TRANSFER OF WATER AND SANITATION TECHNOLOGY

ESTIMATED PROJECT COST (In NLG 1.000)

Project Component	External Support	National Support	Total Budget
a) External Expertise	32,0	--	32,0
b) Evaluation and Coordination cost	90,0	---	90,0
c) Training nationals abroad	92,0	20,0	112,0
d) Training nationals within country	80,0	20,0	100,0
e) Non-expendable equipment	66,0	20,0	86,0
f) Expendable Equipment	18,0	10,0	28,0
g) Supplies	14,0	10,0	24,0
h) Reports production	8,0	10,0	18,0
i) Miscellaneous cost	12,0	10,0	22,0
Total cost	412,0	100,0	512,0

EXPECTED SOURCE OF FUNDS:

External Support Agencies

TOTAL NLG 412,000

National Institutions

Ministry of the Environment: NLG 30,000

Ministry of Health: NLG 30,000

Municipalities NLG 40,000

Total National contribution NLG 100,000

Grand Total NLG 512,000

DISTRIBUTION OF BUDGET PROVIDED BY THE NETHERLANDS
GOVERNMENT (in NLG 1,000)

BUDGET COMP	93	94	95	96	TOTAL
a) External Expertise	--	24,0	8,0	-	32,0
b) Evaluation and Coordination cost	--	--	40,0	50,0	90,0
c) Training nationals abroad	16,0	24,0	40,0	12,0	92,0
d) Training nationals within country	24,0	20,0	16,0	20,0	80,0
e) Non-expendable equipment	42,0	24,0	--	--	66,0
f) Expendable Equipment	8,0	6,0	4,0	--	18,0
g) Supplies	6,0	4,0	4,0	--	14,0
h) Reports production	2,0	2,0	2,0	2,0	8,0
i) Miscellaneous cost	4,0	3,2	2,4	2,4	12,0
Total cost	102,0	107,2	116,4	86,4	412,0

Annex No. 1: External Sources: Budget Estimations

1. External Expertise:

There shall be a senior Short Term Consultant responsible for the Project. He/she will visit the country three times during the first year and two times during the following years. In addition, at the beginning of the project, there shall be a need for external consultants in the following areas: water supply, waste water collection, wastewater treatment, analytical capabilities, epidemiology, manpower development, cost recovery and management. It is expected that each mission will last at least 10 working days. Salaries and travel expenses will vary as well as daily subsistence allowances.

The missions are progressively reduced during the following years. In the interest of the project, to save money and use it for other purposes, whenever possible, WHO staff can be used for an expert mission.

2. Evaluation and Coordination Cost:

Review meetings will be organized by the end of each year, between all parties involved. Progress will be evaluated and future activities will be up-dated. Travel of the national project coordinator to WHO/EURO or to the WHO ECEH will be covered from this fund.

3. Training of nationals abroad:

Training of nationals needs to be carried out during the first two years in order to allow them to put into application the knowledge acquired. The Government whenever possible, should facilitate the travelling of national staff on study tours, by the Romanian Airlines. In this way, more national staff will have an opportunity for training abroad. If only Per diem is to be payed from external funds, the cost of one national travelling abroad, (to our Collaborating Centres in order to save on the tuition fees), will vary between NLG 5,000 to NLG 7,000 for a 15 days study tour.

4 Training of nationals within the country:

In order to train large quantities of national staff in a given technique, it is proposed to carry out training courses at national level, bringing into the country the external expertise. Considering that simultaneous translation will be needed, a one week workshop may cost around NLG 8,000 to NLG 12,000.

5. Non expendable equipment:

Upgrading of the equipment is a priority that needs to be completed in the first two years of the life of the project. NLG 80,000 have been foreseen mainly for analytical and laboratory equipment.

6. Expendable Equipment and Supplies:

Although this item is usually the responsibility of Governments, it is proposed that the project should be assisted with at least a few computers and required software.

7. Reports production:

Printing of Consultant's reports is envisaged. Translation into Romanian will be the responsibility of the Romanian counterpart office.

8. Miscellaneous costs:

Unforeseen expenses, mainly at local level, shall be covered from this budget component.

4. UPGRADING OF WASTE MANAGEMENT TECHNOLOGY

ESTIMATED PROJECT COST (In NLG 1.000)

Project Component	External Support	National Support	Total Budget
a) External Expertise	17,0	-	17,0
b) Evaluation and Coordination cost	90,0	-	90,0
c) Training nationals abroad	48,0	40,0	88,0
d) Training nationals within country	133,6	30,0	163,6
e) Non-expendable equipment	36,6	20,0	56,6
f) Expendable Equipment	24,0	20,0	44,0
g) Supplies	20,0	20,0	40,0
h) Reports production	8,0	-	8,0
i) Miscellaneous cost	12,0	20,0	32,0
Total cost	389,2	150,0	539,2

EXPECTED SOURCE OF FUNDS

External Support Agencies:

SUB-TOTAL NLG 389,200

National Institutions:

Ministry of the Environment: NLG 40,000

Ministry of Health: NLG 30,000

Municipality of NLG 60,000

Others NLG 20,000

SUB-TOTAL NLG 150,000

Grand Total NLG 539,000

DISTRIBUTION OF BUDGET PROVIDED BY THE NETHERLANDS
GOVERNMENT (in NLG 1,000)

BUDGET COMPONENT	93	94	95	96	TOTAL
a) External Expertise	--	9,0	8,0	--	17,0
b) Evaluation and Coordination cost	--	--	40,0	50,0	90,0
c) Training nationals abroad	--	24,0	12,0	12,0	48,0
d) Training nationals within country	32,0	28,0	38,4	35,2	133,6
e) Non-expendable equipment	24,6	12,0			36,6
f) Expendable Equipment	8,0	6,0	4,0	6,0	24,0
g) Supplies	6,0	4,0	4,0	6,0	20,0
h) Reports production	2,0	2,0	2,0	2,0	8,0
i) Miscellaneous cost	4,0	3,2	2,4	2,4	12,0
Total cost	76,6	88,2	110,8	113,6	389,2

Annex No. 1: External Sources: Budget Estimations

1. External Expertise:

There shall be a senior Short Term Consultant responsible for the Project. He/she will visit the country three times during the first year and two times during the following years. In addition, at the beginning of the project, there shall be a need for external consultants in the following areas: domestic solid waste collection, treatment and disposal; municipal waste management; heavy duty equipment for the collection and disposal of municipal waste; recycling and re-utilization of waste; hazardous waste management; health hazards related to agricultural waste; and manpower development for solid waste management. It is expected that each mission will last at least 10 working days. Salaries and travel expenses will vary as well as daily subsistence allowances.

The missions are progressively reduced in the following years.

In the interest of the project, to save money and use it for other purposes, whenever possible, WHO staff can be used for an expert mission.

2. Evaluation and Coordination Cost:

Review meetings will be organized at the end of each year, between all parties involved. Progress will be evaluated and future activities will be up-dated. Travel of the national project coordinator to WHO/EURO or to the WHO ECEH will be covered from this fund.

3. Training of nationals abroad:

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In order to train large quantities of national staff in a given technique, it is proposed to carry out training courses at national level, bringing into the country the external expertise. Considering that simultaneous translation will be needed, a one-week workshop may cost around NLG 8,000 to NLG 12,000.

5. Expendable Equipment and Supplies:

Although this item is usually the responsibility of Governments, it is proposed that the project should be assisted with at least a few computers and required software.

6. Reports production:

Printing of Consultants' reports is envisaged. Translation into Romanian will be the responsibility of the Romanian counterpart office.

7. Miscellaneous costs:

Unforeseen expenses, mainly at local level, shall be covered from this budget component.