



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org



D00587



United Nations Industrial Development Organization

Distr.
GENERAL

ID/B/64/Add.4
5 January 1970

ORIGINAL: ENGLISH

Industrial Development Board

Fourth Session

Vienna, 20 - 30 April 1970

Agenda item 5(a) and (b)

PROGRAMME OF WORK FOR 1971 INCLUDING REPORT OF ACTIVITIES

FOR 1969 AND UPDATING OF 1970 PROGRAMME

PART TWO

Group 4: Chemicals, Pharmaceuticals and Pulp and Paper Industries

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

NOTE

Documents ID/B/64/Add.1-15 contain a detailed description of the fifteen groups of activities of UNIDO for the years 1969 to 1971. A list of these fifteen groups appears in the preface to document ID/B/64.

The material in each addendum is organized as follows:

Introduction

A. Operational Activities

B. Supporting Activities

Section A on Operational Activities lists the field projects by technical assistance programmes (UNDP/SF, UNDP/TA, RP and SIS). Under each programme appears a detailed description of the projects approved as of 30 September 1969 and a forecast of new projects. The list of approved projects is followed by a summary of expenditures. Projects that have been completed in 1969 (barring possible extension) are indicated by an asterisk.

Section B on Supporting Activities is divided into "projects" corresponding to major areas of work, each project being subdivided into "components". Under each component, details of expenditure are given for the following items: staff man/months, meetings and consultants. Priorities A and B, under which components are listed, apply to the programmed activities in 1970 and 1971, priority B indicating that implementation is subject to availability of funds. Unless otherwise indicated, expenditures on supporting activities are financed from the UNIDO Regular Budget. Because of the nature of the item, expenditures on publications are listed separately in this section. Finally, the section contains summary tables of expenditures on supporting activities by sources of funds for 1969, 1970 and 1971.

INTRODUCTION

1. Since the latter half of 1968 assistance from UNIDO to developing countries in the area of chemicals, pharmaceuticals and pulp and paper industries has been expanding, a trend that was welcomed by the Industrial Development Board at its third session (A/7617, para. 108). UNIDO will continue to give priority to assistance in this area in 1970 and 1971.
2. As the area covered by activities under this group is very broad, it is necessary to be highly selective. Emphasis has been placed by UNIDO on five sectors in which numerous requests for technical assistance have been received: basic chemicals, marine salt, pharmaceuticals, industrial fermentation, and pulp and paper. This selection was favourably commented upon by the Industrial Development Board at its third session (A/7617, para. 107, 108). In addition, UNIDO is providing assistance in essential oils, utilization and disposal of industrial wastes, and production of chemicals from coal.
3. In the case of basic chemicals, technical assistance requests were received from nineteen countries in 1969. The requests pertained to questions of scale in relation to available markets, planning the industry as a whole and commercial and monetary implications of the industry. These aspects will be considered at an interregional seminar to be held in 1970 and will be followed up by a number of regional surveys and pre-investment studies in 1971.
4. The activities of UNIDO related to the marine salt industry have grown rapidly as a result of the expert group meeting held in Rome in 1968. The proceedings aroused considerable interest, and technical assistance projects in more than ten countries have resulted from this meeting. The projects deal mainly with technical matters such as the improvement of manufacturing controls and the modernization of existing plants. It is expected that, in the future, technical assistance in this sector will be dealing increasingly with commercial and economic aspects.
5. The pharmaceutical industry is another sector in which developing countries show great interest, and a considerable increase of activities in this sector is foreseen. The follow-up of the 1969 expert group meeting has resulted in a

growing number of technical assistance requests. The desirability of several countries combining to form a common pharmaceutical industry was illustrated in an East African Community project. The work of UNIDO in this sector is being carried out in close collaboration with WHO.

6. The work of UNIDO on pulp and paper has so far been entirely in technical assistance where considerable activities have taken place. Many developing countries that do not have supplies of soft wood, normally used for pulp and paper manufacture, attach particular importance to the use of other raw materials such as bagasse, sisal, bamboo and tropical hardwood. The use of bagasse as raw material for paper and the improvement of utilizing bagasse plants were the subjects of several projects.

7. The results of technical assistance projects mentioned above will be coordinated and collated in 1970 and will be submitted to an expert working group in 1971 to provide a basis for future programming. Collaboration with FAO and the regional economic commissions will be maintained.

8. The fermentation process is of particular importance to developing countries that have suitable raw materials but that do not have ready access to a petrochemical industry. The expert working group held by UNIDO in 1969 is expected to lead to an expansion of technical assistance activities in this sector.

A. OPERATIONAL ACTIVITIES

UNDP/SPECIAL FUND - projects under preparation

THE AMERICAS

Pilot solar salt works

ASIA AND THE FAR EAST

Pilot production of vitamin C from native plant

UNDP/TECHNICAL ASSISTANCE - approved projects

<u>Project number</u>		<u>1969</u>	<u>1970</u>	<u>1971</u>
		(in US dollars)		
<u>THE AMERICAS</u>				
<u>Argentina</u>				
ARG-68-6	<u>Assistance to the National Institute for Industrial Technology (INTI) - cellulose, chemistry and rubber technology</u>			
	experts	5/20 m/m	3,850	28,000
	fellows	2/13 m/m	7,200	8,000
			-	-
<u>Brazil</u>				
BRA-68-25	<u>Technical assistance to SUDENE - superintendency for the development of the northeast - chemical industrial planning (continuing project)</u>			
	expert	1/24 m/m	23,100	24,000
			-	-

UNDP/TECHNICAL ASSISTANCE - approved projects (cont'd)

<u>Project number</u>			<u>1969</u>	<u>1970</u>	<u>1971</u>
			(in US dollars)		
<u>ASIA AND THE FAR EAST</u>					
<u>Ceylon</u>					
CEY-69-12	<u>Development of chemical industry - chemical engineering - caustic soda (project started under SIS 69/537)</u>				
	expert	1/9 m/m	1,925	16,000	-
<u>China</u>					
CHA-68-8	<u>Sea salt manufacturing techniques*</u>				
	fellow	1/6 m/m	3,400	-	-
<u>Mongolia</u>					
MON-68-11	<u>Technological development of a soap factory at Ulan Bator - chemical engineering</u>				
	experts	2/6 m/m	3,850	8,000	-
	fellows	2/6 m/m	4,400	-	-
	equipment		1,000	-	-
<u>Papua and New Guinea (Oceania)</u>					
PAP-69-3	<u>Assistance to pulp and paper industries - tropical hardwoods</u>				
	expert	1/12 m/m	1,925	22,000	-
<u>EUROPE AND THE MIDDLE EAST</u>					
<u>Bulgaria</u>					
BUL-68-12	<u>Investigation of metal-oxide electrodes for their application in electro-chemical power sources*</u>				
	fellow	1/4 m/m	2,600	-	-

UNDP/TECHNICAL ASSISTANCE - approved projects (cont'd)

<u>Project number</u>			<u>1969</u>	<u>1970</u>	<u>1971</u>
			(in US dollars)		
<u>EUROPE AND THE MIDDLE EAST (cont'd)</u>					
<u>Bulgaria (cont'd)</u>					
BUL-69-13	<u>Synthesis of pyrimidine derivatives*</u>				
	fellow	1/5 m/m	3,000	-	-
<u>Czechoslovakia</u>					
CZE-69-5	<u>Modernisation and application of new processes in chemical industries*</u>				
	fellows	3/5 m/m	5,000	-	-
<u>Poland</u>					
POL-69-1	<u>Industrial technology - chemical and pharmaceutical industry*</u>				
	fellows	10/30 m/m	12,000	-	-
<u>Turkey</u>					
TUR-68-1	<u>Industrial planning - assistance to the State Planning Organisation in programming and implementing chemical industrial projects (continuing project)</u>				
	expert	1/24 m/m	23,100	24,000	-
TUR-69-5	<u>Chemical industry - manufacture of synthetic resins and lacquer nitro-cellulose</u>				
	fellow	1/12 m/m	-	6,400	-
<u>Yugoslavia</u>					
YUG-69-2	<u>Purification of industrial waste water*</u>				
	expert	1/1 m/m	1,925	-	-

UNDP/TECHNICAL ASSISTANCE - approved projects (cont'd)

<u>Project number</u>		1969	1970	1971
		(in US dollars)		
<u>EUROPE AND THE MIDDLE EAST (cont'd)</u>				
<u>Yugoslavia (cont'd)</u>				
YUG-69-3	<u>Paper production from straw</u> - assistance to the pulp and paper mill in Kocani			
	expert	1/3 m/m	5,775	- -

Table 1

Estimated expenditures for approved UNDP/TA projects, 1969-1971

	1969		1970		1971	
	<u>m/m</u>	<u>US\$</u>	<u>m/m</u>	<u>US\$</u>	<u>m/m</u>	<u>US\$</u>
Experts	11/35	65,450	11/61	122,000	1/4	8,000
Fellows	21/74	37,600	2/12	6,400		-
Other	-	1,000	-	-		-
Total		<u>104,050</u>		<u>128,400</u>		<u>8,000</u>

UNDP/TECHNICAL ASSISTANCE - (SUMMARY OF NEW PROJECTS FOR 1971)

	<u>Experts</u> <u>n/a</u>	<u>Fellow</u> <u>n/a</u>	<u>Other</u> <u>n/a</u>
<u>AFRICA</u>			
Development of pharmaceutical industries	2/12	3/12	-
Assistance in the establishment and development of basic chemical industries	5/30	-	-
Assistance to the pulp and paper industry	2/12	2/8	-
<u>THE AMERICAS</u>			
Manufacture of solar salt	2/12	-	-
Assistance in the development of pulp and paper industries	3/18	4/24	-
Pharmaceutical industry development	2/12	-	-
Development of the basic chemical industries	3/18	-	-
<u>ASIA AND THE FAR EAST</u>			
Modernisation of solar salt manufacture	2/12	-	-
Development of pharmaceutical industry	2/12	2/24	-
Utilisation of rubber trees for wood pulp	2/24	-	-
Assistance in the field of industrial and trade wastes	2/12	-	-
<u>EUROPE AND THE MIDDLE EAST</u>			
Production and quality control in basic chemicals industries	3/18	3/30	-
Utilisation of sodium chloride	2/12	-	-
Development of pharmaceutical industries	2/6	3/18	-
Pulp and paper industries	2/6	4/20	-

UNIDO REGULAR PROGRAMME - approved projects

<u>Project number</u>			<u>1969</u>	<u>1970</u>
			(in US dollars)	
<u>AFRICA</u>				
<u>Regional</u>				
RP-04-8	<u>Chemical industry</u> regional adviser	1/12 m/m	-	24,500
RP-04-46	<u>Chemical industry*</u> regional adviser	1/12 m/m	23,600	-
<u>THE AMERICAS</u>				
<u>Chile</u>				
RP-04-2	<u>Chemical industries - industrial fermentation</u> experts	2/6 m/m	-	11,550
RP-04-3	<u>Chemical industries - pulp and paper</u> expert	1/3 m/m	-	5,775
<u>Honduras</u>				
RP-04-2	<u>Chemical industries - technology of pulp and paper</u> fellows	2/6 m/m	-	4,400
RP-04-98	<u>Chemical industry* - pulp and paper</u> fellow	1/7 m/m	3,800	-
<u>Nicaragua</u>				
RP-04-101	<u>Chemical industry* - petrochemicals</u> fellow	1/6 m/m	3,400	-
<u>Paraguay</u>				
RP-04-130	<u>Chemical industries - development</u> fellow	1/6 m/m	3,400	-

UNIDO REGULAR PROGRAMME - approved projects (cont'd)

<u>Project number</u>			<u>1969</u>	<u>1970</u>
			(in US dollars)	
<u>THE AMERICAS (cont'd)</u>				
<u>Regional</u>				
NP-04-6	<u>Chemical industries</u> - chemicals and pulp and paper			
	regional advisers	2/12 m/m	-	49,000
NP-04-109	<u>Chemical industries*</u> - pulp and paper			
	regional advisers	2/12 m/m	47,200	-
<u>ASIA AND THE FAR EAST</u>				
<u>Japan</u>				
NP-04-48	<u>Development of chemical industries*</u> - petrochemicals			
	fellows	3/24 m/m	11,700	-
<u>Coria</u>				
NP-04-50	<u>Chemical industries*</u> - production			
	follow	1/4 m/m	2,600	-
<u>China</u>				
NP-04-3	<u>Chemical industries</u> - chemicals and petrochemicals			
	fellows	2/12 m/m	-	6,800
<u>France</u>				
NP-04-3	<u>Chemical industries</u> - pharmaceutical industries			
	follow	1/6 m/m	-	3,400
<u>Poland</u>				
NP-04-70	<u>Chemical industries*</u> - development of chemicals and petrochemicals			
	fellows	4/24 m/m	13,600	-

UNIDO REGULAR PROGRAMME - approved projects (cont'd)

<u>Project number</u>			<u>1969</u>	<u>1970</u>
			(in US dollars)	
<u>ASIA AND THE FAR EAST (cont'd)</u>				
<u>Philippines</u>				
RP-04-73	<u>Chemical industries*</u> - fermentation			
	fellows	2/10 m/m	6,000	-
<u>Thailand</u>				
RP-04-78	<u>Chemical industry*</u> - industrial microbiology			
	fellow	1/9 m/m	4,600	-
<u>EUROPE AND THE MIDDLE EAST</u>				
<u>Malta</u>				
RP-04-2	<u>Chemical industries</u> - industrial standards laboratory			
	expert	1/3 m/m	-	5,775
<u>Poland</u>				
RP-04-4	<u>Chemical industries</u> - plastics production			
	fellow	1/3 m/m	-	1,500

Table 2Estimated expenditures for approved RP projects, 1969-1970

	1969		1970	
	<u>m/m</u>	<u>US\$</u>	<u>m/m</u>	<u>US\$</u>
Experts	3/36	70,800	7/48	96,600
Fellows	14/90	49,100	6/27	16,100
Other	-	-	-	-
Total		119,900		112,700

UNIDO REGULAR PROGRAMME - forecast of new projects for 1971

	<u>Experts</u> <u>n/n</u>	<u>Fellows</u> <u>n/n</u>
<u>AFRICA</u>		
Industrial standards for chemical industries	-	2/12
Regional adviser, chemical industries	1/12	-
<u>THE AMERICAS</u>		
Technology of pulp and paper industry	-	2/12
Chemical and petrochemical industries development	-	1/12
Plastics production	-	1/12
Regional adviser, chemical industry	1/12	-
Regional adviser, pulp and paper	1/12	-
<u>ASIA AND THE FAR EAST</u>		
Pharmaceutical industries	-	2/12

SPECIAL INDUSTRIAL SERVICES - approved projects

<u>Project number</u>		<u>1969</u>	<u>1970</u>
		(in US dollars)	
<u>AFRICA</u>			
<u>Congo (Brazzaville)</u>			
68/417 CON(B)-5	<u>Feasibility study for the establishment of a pulp and paper industry</u> consulting firm	3,000	7,000
<u>Guinea</u>			
68/418 GUI-5	<u>Feasibility study on the establishment of a pulp and paper industry*</u> expert	1/1 m/m	3,000 -
<u>Madagascar</u>			
68/420 MAG-7	<u>Assistance to pulp and paper industry</u> consulting firm	-	35,000
<u>Uganda</u>			
69/451 UGA-7	<u>Feasibility study for paper manufacturing from papyrus</u> experts	2/4 m/m	4,000 4,000
<u>United Arab Republic</u>			
67/78 UAR-7	<u>Assistance to the Eifu bagasse pulp and paper mill - chief engineer (pulp and paper technologist)</u> expert	1/11 m/m	23,000 -
67/223 UAR-12	<u>Assistance to the Organic Chemical Industries Company* - industrial chemist</u> expert	1/2 m/m	5,000 -
69/549 UAR-28	<u>Assistance to the Organic Chemical Industries Company at Hawamdia - butanol-acetone by fermentation (applied microbiologist, fermentation technologist)</u> experts	2/6 m/m	2,000 10,000

SPECIAL INDUSTRIAL SERVICES - approved projects (cont'd)

<u>Project number</u>		<u>1969</u>	<u>1970</u>
		(in US dollars)	
<u>THE AMERICAS</u>			
<u>Cuba</u>			
69/479 CUB-1	<u>Assistance to the pulp and paper industry - industrial economist</u>		
	expert	1/6 m/m	3,000 9,000
<u>Dominican Republic</u>			
67/146 DOM-2	<u>Rehabilitation of bagasse building boards factory* - Dominco Suisa CA</u>		
	consulting engineering firm		41,700 -
69/631 DOM-11	<u>Assistance in the field of paper technology</u>		
	expert	1/1 m/m	3,500 -
<u>Jamaica</u>			
69/562 JAM-6	<u>Surveys for the promotion of the chemical, electrical and metal industries</u>		
	expert	1/12 m/m	- 24,000
<u>Nicaragua</u>			
67/109 NIC-1	<u>Petrochemical complex - low density polyethylene and polyvinyl chloride* - chemical engineer</u>		
	experts	2/6 m/m	12,400 -
<u>Peru</u>			
67/161 PER-2	<u>Feasibility study for a bagasse pulp and paper project for Pucala Limited</u>		
	consulting firm		- 72,000
<u>Trinidad and Tobago</u>			
68/415 TRI-6	<u>Purfural industry - technologist, market specialist</u>		
	experts	2/13 m/m	4,000 22,000

SPECIAL INDUSTRIAL SERVICES - approved projects (cont'd)

<u>Project number</u>			<u>1969</u>	<u>1970</u>
			(in US dollars)	
<u>THE AMERICAS (cont'd)</u>				
<u>Regional</u>				
69/591 LA-7	<u>Ecuador, Peru, Bolivia - exploratory mission to assist the solar salt industry</u>	expert	1/1 m/m	1,750 -
<u>ASIA AND THE FAR EAST</u>				
<u>Ceylon</u>				
67/178 CEY-1	<u>Assistance to Parathan Chemicals - production of chlorine and caustic soda* (chemical engineer)</u>	expert	1/3 m/m	6,000 -
69/537 CEY-12	<u>Development of the basic chemical industries - chemical engineer</u>	expert	1/3 m/m	3,000 3,000
<u>China</u>				
67/119 CHA-6	<u>Process selection for manufacturing melamine* - manufacturing specialist</u>	expert	1/2 m/m	5,000 -
67/120 CHA-7	<u>Assistance in quality improvement in the production of synthetic fibres</u>	expert	1/5 m/m	11,200 -
69/490 CHA-12	<u>Assistance to the Union Industrial Research Institute in the field of instrumentation - analytic chemist</u>	expert	1/6 m/m	2,000 10,500

SPECIAL INDUSTRIAL SERVICES - approved projects (cont'd)

<u>Project number</u>		<u>1969</u>	<u>1970</u>
		<u>(in US dollars)</u>	
<u>ASIA AND THE FAR EAST (cont'd)</u>			
<u>India</u>			
69/626 IND-21	<u>Exploratory mission to assess the solar salt industry*</u>		
	expert	1/10 m/days	1,500 -
<u>Indonesia</u>			
69/589 INS-11	<u>Assistance to the Goa Paper Mill for quality improvement and production increase</u>		
	expert	1/12 m/m	- 24,000
<u>Iran</u>			
69/539 IRA-25	<u>Advisory mission on industrial and trade wastes - industrial effluents specialist</u>		
	expert	1/6 m/m	2,000 10,000
<u>Philippines</u>			
69/599 PHI-10	<u>Assistance in the evaluation of pulp and kraft paper production from abaca stalks</u>		
	expert	1/2 m/m	- 4,000
<u>EUROPE AND THE MIDDLE EAST</u>			
<u>Bulgaria</u>			
69/483 BUL-4	<u>Paper technology - production and quality control* (chemical engineer)</u>		
	expert	1/1 m/m	3,000 -

SPECIAL INDUSTRIAL SERVICES - approved projects (cont'd)

<u>Project number</u>		<u>1969</u>	<u>1970</u>
		(in US dollars)	
<u>EUROPE AND THE MIDDLE EAST (cont'd)</u>			
<u>Iraq</u>			
69/481 IRQ-3	<u>Evaluation of offers for manufacture of fibreboard from date palm wastes</u> consulting firm	3,600	3,600
<u>Southern Yemen</u>			
68/450 SYE-3	<u>Assistance to rehabilitate the salt industry*</u> expert 1/2 m/m	4,000	-
<u>Syria</u>			
68/445 SYR-4	<u>Advice on industrial utilization of sodium chloride - industrial chemical engineer</u> expert 1/3 m/m	-	6,000
69/619 SYR-24	<u>Assistance to assess the present status of solar salt industry sectors and to recommend implementation steps for their initiation, modernization and/or mechanization</u> expert 1/1 m/m	500	-

Table 3

Estimated expenditures for SIS projects, 1969-1970

	<u>1969</u>		<u>1970</u>	
	<u>m/m</u>	<u>US\$</u>	<u>m/m</u>	<u>US\$</u>
Experts	23/46	99,850	14/61	126,500
Fellows	-	-	-	-
Other	-	48,300	-	117,600
Total		<u>148,150</u>		<u>244,100</u>

B. SUPPORTING ACTIVITIES

9. The supporting activities for Group 4 are classified under the following projects:

Basic chemicals	4.01
Marine salt	4.02
Pharmaceuticals	4.03
Essential oils	4.04
Pulp and paper	4.05
Industrial fermentation	4.06
Utilization and disposal of industrial wastes	4.07
Chemicals from coal	4.08

10. As was mentioned in the prefatory remarks to the section on supporting activities in Part One (ID/B/64), the objective of the supporting activities is to establish a two-way flow of information and experience between the supporting activities at headquarters and the field. A great deal of material on which headquarters' studies and meetings are based is derived from information received from the field. In turn, the studies and meetings are intended to improve the substantive support given by headquarters to the field operations. In many cases these results are fed directly to the field in the form of reports. In all cases, they constitute an accumulation of knowledge and experience on which both headquarters and field staff are able to draw in response to the needs arising in the technical assistance operations.

Basic chemicals (4.01)

11. In keeping with the recommendations of the Industrial Development Board at its third session (A/7617, para. 108, 109), the 1969 and 1970 programmes of UNIDO have emphasized the need for establishing basic chemicals industries as an essential step in the industrialization of developing countries. In 1969, a number of technical assistance projects were requested from UNIDO in this sector. These projects helped to identify certain problem areas common to many developing countries such as the question of scale in relation to available markets.

Interregional seminar on basic chemicals (4.01.01)

12. This seminar is to provide guidelines to developing countries on basic chemicals production. These guidelines should be of help to countries in formulating their requests for technical assistance. ILO, FAO and the regional economic commissions will be invited to participate in the seminar.

	Staff (in m/m)	Meetings (US\$)	Consultants (US\$)
1969	1	150	2,600 ^{a/}
1970	3	57,000 ^{b/}	7,000 ^{b/}
1971	3	-	-

^{a/} \$500 financed from the General Trust Fund of UNIDO.

^{b/} In the original 1970 programme, there was an allocation of \$80,000 from the General Trust Fund of UNIDO and \$38,000 from UNDP/TA. This has now been modified to \$39,000 from the General Trust Fund of UNIDO and \$25,000 from UNDP/TA.

Regional survey of basic chemicals (4.01.02)

13. It is proposed that, in 1971, a consultant will make a survey of the conditions for basic chemicals manufacture in a particular region and will advise as to whether manufacture on the basis of a regional market or a sub-regional market would be desirable, taking into account the effects of economy of scale in many chemical manufactures.

	Staff (in m/m)	Consultants (US\$)
1969	-	-
1970	-	-
1971	3	7,000 ^{a/}

^{a/} UNDP/TA funds.

Marine salt (4.02)

14. The marine salt industry is closely connected with the manufacture of basic chemicals as the improvement of existing salt fields is often the first step towards the establishment of a basic chemicals industry in a developing country.

15. Following the Expert Group Meeting on Modernisation and Mechanisation of Salt Industries based on Seawater, held in Rome in 1968, the report of the proceedings (ID/26), including a number of conclusions and recommendations, was distributed in 1969 to all developing countries which were likely to be interested. The report has already led to a number of requests for technical assistance. In addition to technical advice, market studies will be emphasized in response to the findings of most of these projects. The activities will be co-ordinated with the work of the regional economic commissions.

Marine salt industry (4.02.01)

16. The programme described above will be carried out in 1970 (ID/B/44, para. 116). UNIDO staff will prepare the outline, and regional field advisers will be used extensively for the collection of data which will then be analysed by outside consultants. These studies will focus on commercial and technical aspects of the marine salt industry and identify opportunities for the establishment of manufacturing facilities.

17. On the basis of the findings of these studies, it is proposed for 1971 to encourage the regional economic commissions to co-operate with UNIDO in organizing missions to interested developing countries of the regions. The missions will outline the needs in these countries for technical assistance in the initiation or upgrading of the basic chemicals industry. They will also make use of the findings of the basic chemicals seminar to be held in the Union of Soviet Socialist Republics in 1970 (ID/B/44, para. 115).

PRIORITY A

	<u>Staff</u> <u>(in E/R)</u>	<u>Consultants</u> <u>(US\$)</u>
1969	-	-
1970	2	6,000
1971	8	6,000

**Expert working group on
water-salt chemicals complex (4.02.02)**

18. The utilization of marine salt as a raw material for basic chemicals is largely dependent on the use of fresh water for processing. Subject to availability of funds, it is proposed to hold in Vienna in 1971 an expert working group with eight participants to examine whether a combination of processes, which would result in the production of water, salt and other chemicals from seawater, would be economically feasible for a given area. This subject is of interest to IAEA since it may be related to some of its projects. In addition to IAEA, the United Nations Resources and Transport Division will also be invited to collaborate.

PRIORITY B

	<u>Staff</u> <u>(in E/R)</u>	<u>Meetings</u> <u>(US\$)</u>	<u>Consultants</u> <u>(US\$)</u>
1969	-	-	-
1970	-	-	-
1971	2	3,000 ^{a/}	3,000 ^{a/}

^{a/} It is hoped that additional funds may be available from IAEA.

**Expert Group Meeting on Modernisation and Mechanisation
of Salt Industries based on Seawater (4.02.03)**

19. In view of the great interest the report of this meeting (ID/26) has aroused (see para. 15 above), it is intended to publish in 1970 some of the papers submitted to the meeting in 1968.

Priority A

	<u>Staff</u> <u>(I.S./E)</u>
1969	3
1970	1
1971	-

Pharmaceuticals (4.03)

20. UNIDO is engaged in a number of technical assistance projects in this sector. The interest in pharmaceuticals is expected to grow steadily, leading to a substantial increase in technical assistance projects in the coming years. These activities are being co-ordinated with WHO in accordance with the resolution WHA 22.54 passed 25 July 1969 at the World Health Assembly. (See also 15b.02.02.)

**Expert Group Meeting on the Establishment of
Pharmaceutical Industries in Developing Countries (4.03.01)**

21. As scheduled (ID/B/26, para. 72), an expert group meeting on pharmaceuticals was held in Budapest in), the proceedings of which will be published in 1970. Representatives of WHO and FAO also attended.

22. Among other recommendations, the meeting concluded that the status of present pharmaceuticals industries should be assessed before requests for technical assistance are formulated in order to determine the type and degree of assistance required. The meeting also emphasized that developing countries should not attempt to establish an integrated industry straight away, but should preferably start with small packaging operations and gradually build up to the

more sophisticated activities of raw material preparation and product testing. In order to take full advantage of economies of scale and to ease the financial burden on individual countries, it was suggested that consideration should be given to the possibility of pharmaceutical production on a subregional basis.

23. UNIDO is giving increasing attention to the linkage between the manufacture of pharmaceuticals and the manufacture of medical supplies and equipment. Programmes for 1972 and subsequent years will take this linkage into consideration.

Priority A

	<u>Staff</u> <u>(in m/m)</u>	<u>Meetings</u> <u>(US\$)</u>	<u>Consultants</u> <u>(US\$)</u>
1969	2	3,848	5,930 ^{a/}
1970	1	-	-
1971	1	-	-

a/ \$1,030 from the General Trust Fund of UNIDO.

Team missions on pharmaceuticals (4.03.02)

24. As a follow-up to the above mentioned expert group meeting, UNIDO proposes to collaborate with the WHO regional offices in setting up missions during 1971 to outline objectives and prepare plans for initiating and up-grading the production of pharmaceuticals (including veterinary products) in several regions. The need to enlist the co-operation of firms from the private and public sectors in developed countries will be kept in mind. FAO will be consulted in so far as veterinary products are concerned.

Priority A

	<u>Staff</u> <u>(in m/m)</u>	<u>Consultants</u> <u>(US\$)</u>
1969	-	-
1970	-	-
1971	3	2,000

Guide book for pharmaceutical industries (4.03.03)

25. A guide book on the manufacture of pharmaceutical products from natural products was commissioned during 1969. The book will provide basic information needed to plan studies on the evaluation of natural products as sources of pharmaceutical materials. It is hoped that the book will be printed and distributed in 1971.

Priority A

	<u>Consultants (US\$)</u>
1969	3,333 ^{a/}
1970	-
1971	-

a/ From the General Trust Fund of UNIDO.

Essential oils (4.04)

Expert working group on essential oils (4.04.01)

26. Essential oils and other perfume and flavouring materials are in demand in both developed and developing countries, and a flourishing export trade can often be established in the latter. Many developing countries have the raw materials, but feasibility of manufacture depends upon quality of the product, availability of markets and production costs. In view of the high cost of shipping and the low price of the bulk materials, several developing countries plan to improve their position by processing bulk materials into semi-finished or finished products. During the period 1967 to 1969, UNIDO provided technical assistance to several countries to evaluate the development possibilities of this industry. The findings indicate the need to review the techno-economic impact of substitute synthetic materials, the quality of natural essential oils required for specific markets and the problems of cultivation, harvesting, processing and packaging.

27. Accordingly, it is proposed to convene in Vienna in 1971, for one week, an expert working group consisting of eight participants to discuss these problems. FAO will be asked to collaborate with UNIDO in those aspects related to raw materials.

Priority A

	<u>Staff</u> <u>(in m/m)</u>	<u>Meetings</u> <u>(US\$)</u>	<u>Consultants</u> <u>(US\$)</u>
1969	-	-	-
1970	-	-	-
1971	3	3,000	3,500

Pulp and paper (4.05)

28. Appreciation was expressed by the Industrial Development Board at its third session, of the work of UNIDO in the field of pulp and paper (A/7617, para. 116). This work has not been confined to conventional wood pulp but includes such raw materials as bagasse, bamboo and hardwood fibres. According to the agreement between UNIDO and FAO, manufacture of pulp and paper from non-wood raw materials is a sector to be developed by UNIDO. The great interest of developing countries in this subject is evidenced by the considerable number of technical assistance projects carried out or planned by UNIDO.

Expert group meeting on pulp and paper (4.05.01)

29. Although there is a considerable amount of information available on the technological and economical aspects of pulp and paper manufacture, the Industrial Development Board at its third session recommended that an expert group meeting on the pulp and paper industry be held by UNIDO (A/7617, para. 116) to review the results of technical assistance in this field over the past few years and to collate the information obtained from such projects and from other sources. Accordingly, UNIDO plans to make the necessary preparations in 1970 and to hold a one-week meeting for eight participants in 1971 in Vienna, in collaboration with FAO and the regional economic commissions.

30. The proceedings of this expert group meeting will, when published, provide an authoritative source of information on the whole problem of pulp and paper manufacture in developing countries.

Priority A

	<u>Staff</u> (in m/m)	<u>Meetings</u> (US\$)	<u>Consultants</u> (US\$)
1969	-	-	4,150
1970	2	-	3,000
1971	3	6,000	3,000

Industrial fermentation (4.06)

**Expert Working Group on Manufacture of Chemicals
by Fermentation (4.06.01)**

31. Although fermentation originally developed as a means of producing food products, it has become a flourishing branch of the chemical industry, producing a great variety of industrial products such as organic acids, glycerine and antibiotics. Moreover, the establishment of industries based on the fermentation process is particularly suited to many developing countries as the required equipment can be simple in design and construction and of relatively low capital cost, while the raw materials are usually readily available in the form of agricultural or waste products. Industrial fermentation thus has an important economic significance in its function of converting low-cost materials into valuable chemical products.

32. An expert working group on industrial fermentation was held by UNIDO in December 1969 in Vienna in collaboration with WHO. The group studied the various aspects of industrial fermentation and dealt, inter alia, with the results of technical assistance projects now in progress. The proceedings of the meeting will be published in 1971.

Priority A

	<u>Staff (in m/m)</u>	<u>Meetings (US\$)</u>	<u>Consultants (US\$)</u>
1969	2	7,000	7,000 ^{a/}
1970	1	-	-
1971	2	-	-

^{a/} \$700 from the General Trust Fund of UNIDO.

Utilisation and disposal of industrial wastes (4.07)

Regional meeting on industrial wastes (4.07.01)

33. There has been considerable discussion between UNIDO and ECAFE on the promotion, in the developing countries, of industries utilizing industrial wastes. In many cases, little use can be found for such wastes, but the problem of disposal becomes more acute as a country becomes industrialized. The 1969 programme (ID/B/26, para. 73) provides for preliminary work in this connexion, and several technical assistance projects have been undertaken in this sector.

34. In view of the interest of ECAFE in this sector, it is planned, subject to availability of funds, to hold a regional meeting for one week, possibly in Bangkok, in 1971. This meeting will focus, inter alia, on the possibility of providing training in the subject area. Collaboration with FAO and WHO will also be established as appropriate.

Priority B

	<u>Staff (in m/m)</u>	<u>Meetings (US\$)</u>	<u>Consultants (US\$)</u>
1969	-	-	-
1970	2	-	-
1971	2	7,000 ^{a/}	5,000 ^{a/}

^{a/} UNDP/TA funds.

Chemicals from coal (4.08)

Studies on chemicals from coal (4.08.01)

35. A start was made on the studies on the manufacture of chemicals from coal referred to in the 1969 programme (ID/B/26, para. 74). A bibliography on the subject was commissioned from the Union of Soviet Socialist Republics, and the draft is under review. In addition, negotiations were undertaken on the preparation of more detailed studies. If the findings of these studies prove encouraging, and if funds are available, the subject will be continued in 1970 as outlined in document ID/B/44, paragraph 124.

Priority B

	<u>Staff</u> <u>(in E/S)</u>	<u>Consultants</u> <u>(US\$)</u>
1969	1	9,500 ^{a/}
1970	1	4,000
1971	1	-

^{a/} 85,500 from the General Trust Fund of UNIDO.

PRINTED PUBLICATIONS

		<u>Languages</u>	<u>Cost</u> (US\$)
<u>Publications issued in 1969</u>			
ID/26	Modernization and mechanization of salt industries based on seawater in developing countries (report of expert group meeting, Rome, September 1968)	E	<hr/> 450
<u>1970 publications programme</u>			
ID/32	Proceedings of expert group meeting on the modernization and mechanization of salt industries based on seawater in developing countries (Rome, September 1968)	E F S	
ID/35	Report and proceedings of expert group meeting on establishment of pharmaceutical industries in developing countries (Budapest, May 1969)	E	<hr/> 8,800
<u>Forecast of 1971 publications programme</u>			
	Report and proceedings: Expert group on pharmaceutical industries (Budapest, May 1969)	F S	
	Report: Manufacture of chemicals by fermentation (Vienna, December 1969)	E	
	Guide book for pharmaceutical industries	E	<hr/> 6,900

Note: In the computation of the printing costs a standard formula was applied based on averaging the cost of printing inside UNIDO and by an outside firm. The standard formula is used to provide for comparability of the cost of printing.

Table 4

Expenditures for supporting activities in 1969^{a/}

Project components	UNIDO Regular Budget				UNDP/TA	UNIDO General Trust Fund	Total ^{b/}
	(1) Staff n/a	(2) Meetings US\$	(3) Consultants US\$	(4) Publications US\$	(5) US\$	(6) US\$	(7) US\$
4-01-01	1	150	2,100		-	500	2,750
4-02-03	3	-	-		-	-	-
4-03-01	2	3,848	4,800		-	1,030	9,778
4-03-03	-	-	-		-	3,333	3,333
4-05-01	-	-	4,150		-	-	4,150
4-06-01	2	7,000	6,300		-	700	14,000
4-08-01	1	-	4,000		-	5,500	9,500
Total	9	10,998	21,450	450	-	11,063	43,961

^{a/} Expenditures have been calculated on the basis of actual expenditures up to 30 September 1969, projected to the end of the year.

^{b/} The totals in column 7 do not include the cost of publications. Thus the total of the items in this column does not correspond to the last line of the column.

Table 5

Estimated expenditures for supporting activities in 1970

Project components	UNIDO Regular Budget				UNDP/TA	UNIDO General Trust Fund	Total ^{a/}
	(1) Staff n/a	(2) Meetings US\$	(3) Consultants US\$	(4) Publications US\$	(5) US\$	(6) US\$	(7) US\$
Priority A							
4-01-01	3	-	-		25,000	39,000	64,000
4-02-01	2	-	6,000		-	-	6,000
4-02-03	1	-	-		-	-	-
4-03-01	1	-	-		-	-	-
4-05-01	2	-	3,000		-	-	3,000
4-06-01	1	-	-		-	-	-
Total	10	-	9,000	8,800	25,000	39,000	61,800
Priority B							
4-07-01	2	-	-		-	-	-
4-08-01	1	-	4,000		-	-	4,000
Total	3	-	4,000	-	-	-	4,000

^{a/} The totals in column 7 do not include the cost of publications. Thus the total of the items in this column does not correspond to the last line of the column.

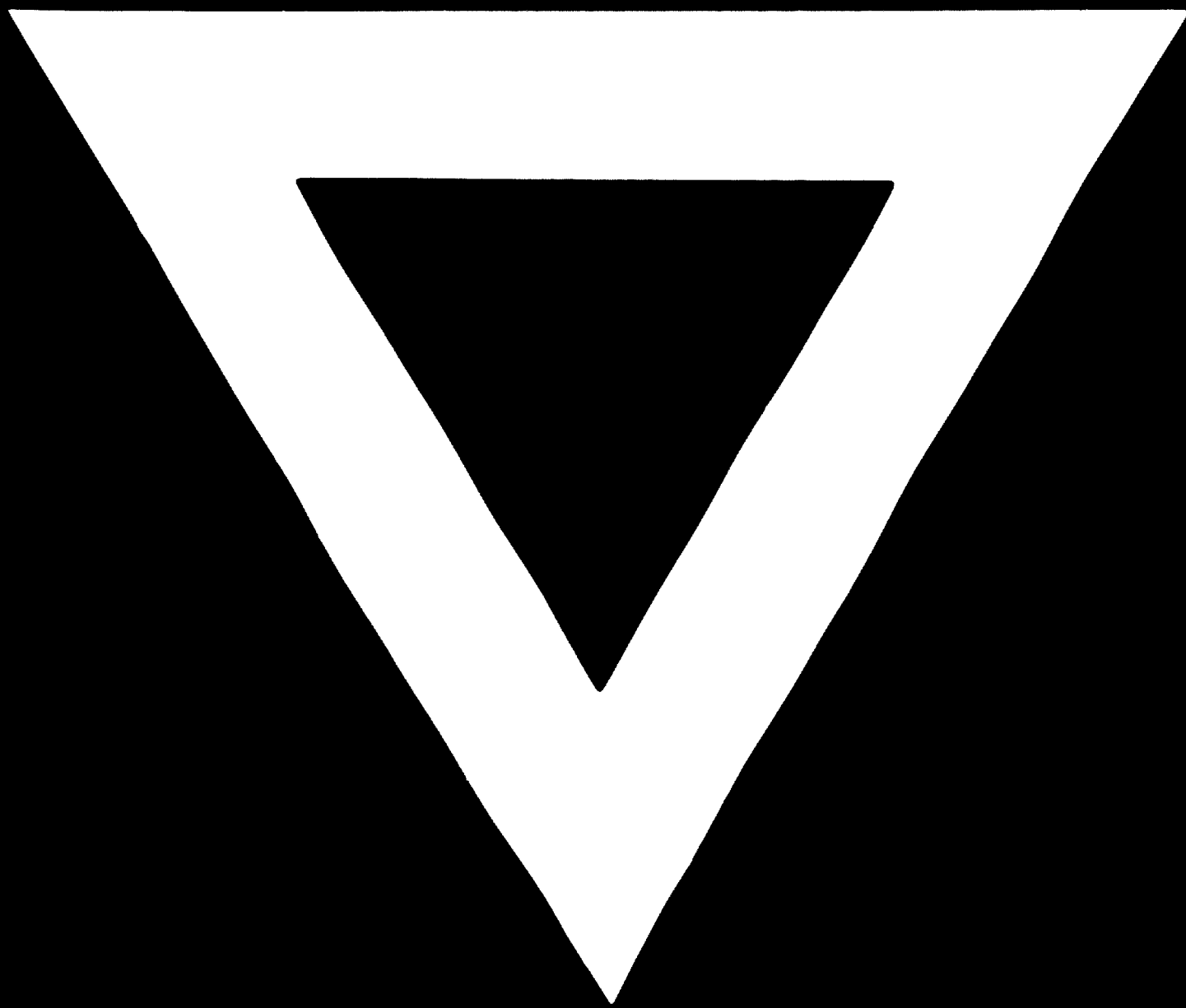
Table 6

Expenditures for supporting activities in 1971

Projects components	UNESCO Regular Budget				UNEP/TA	UNESCO General Trust Fund	Total ^{a/}
	(1) Staff n/a	(2) Meetings USD	(3) Con- sultants USD	(4) Publi- cations USD	(5) USD	(6) USD	(7) USD
Priority A							
4-01-01	3	-	-		-	-	-
4-01-02	3	-	-		7,000	-	7,000
4-02-01	0	-	0,000		-	-	0,000
4-03-01		-	-		-	-	-
4-03-02	3	-	2,000		-	-	2,000
4-04-01	3	3,000	3,500		-	-	6,500
4-05-01	3	6,000	3,000		-	-	9,000
4-06-01	2	-	-		-	-	-
Total	20	9,000	14,500	0,000	7,000	-	37,400
Priority B							
4-02-02	2	3,000	3,000		-	-	6,000
4-07-01	2	-	-		12,000	-	12,000
4-08-01	1	-	-		-	-	-
Total	5	3,000	3,000	-	12,000	-	18,000

^{a/} The totals in column 7 do not include the cost of publications. Thus the total of the items in this column does not correspond to the last line of the column.





30. 11. 73