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DIRECTORY OF RESEARCH
AND DEVELOPMENT INSTITUTIONS
SECTOR: SUGAR AND
SUGAR BY-PRODUCTS

Prepared for
the Industrial and Technological Information Section
UNIDO-Industrial Promotion, Consultations and Technology Department

by
G. Anestis
UNIDO Consultant

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Objectives of the Directory

Part of the work programme of the Industrial and Technological Information Section and within the framework of the First Consultation Meeting on Sugar and Sugar By-products is the preparation of a directory on R&D institutions concerning sugar-beet, sugar-cane, and sugar by-products.

This directory has to provide, in particular the following information:

- (i) sphere of activity of the respective R&D institution with particular former, current and anticipated projects;
- (ii) essential extent and purpose of operation together with the corresponding research equipment (pilot scale);
- (iii) identification of possibilities and interest for technical co-operation and availability of organizing training programmes;
- (iv) number of staff and relation with other organization(s);
- (v) budget and source of funds.

It is hoped that the above outlined objectives of the directory in question will contribute to develop co-operation among R&D institutions/centers etc., working and/or supporting work in similar fields, and strengthen substantially the technological capabilities of R&D facilities in developing countries.

How to obtain the necessary Information

All the information in the directory under preparation has to be elicited by means of a professional questionnaire. The preparation of the questionnaire constitutes a very substantive part within the framework of the preparation of this directory. The major problem how to cover, as systematically and comprehensively as possible, the various possibilities of activities related to sugar industries has been tackled by designing a table with properly defined code-numbers. By means of this system it is intended to obtain an abundance of information from every questionnaire be replied.

Indexes

Three indexes will provide full access to the descriptive listings in the

main body of the directory. These will be:

- (i) Country code index.
- (ii) Activity index to provide access to research units by specific field of activity.
- (iii) Technical co-operation index to provide access to R&D units carrying out training programmes or requesting training and/or assistance.

Entry Format

Each institution of research and development will be given a separate entry. Each entry will be introduced with the full title of the institution. In detail the following subject fields will compose the the information profile corresponding to each entry and will confine the format lay-out. These are:

- Name
- Acronym
- Address
- Telephone - Telex - Cable
- Director
- Contact person
- Staff
- Budget - Year - Sources of funds
- Relationship with other organization(s)
- Former projects on Research and Training
- On-going projects on Research and Training
- Anticipated projects on Research and Training
- Availability of pilot installation / equipment
- Technical co-operation given
- Technical co-operation requested
- Publications
- Notes
- Country chapter
- Index entry

Appendix: Questionnaire



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE

P.O. BOX 300, A-1400 VIENNA, AUSTRIA

TELEPHONE: 26 310 TELEGRAPHIC ADDRESS: UNIDO VIENNA TELEX: 135612

17 September 1987

Dear Sir,

**Directory of Research and Development Institutions:
Sugar and Sugar By-products**

The United Nations Industrial Development Organization is in the process of compiling a Directory of R & D institutions concerning sugar and the by-products of the sugar industry.

The information obtained from research and training together with its proper evaluation and dissemination are pivotal elements in the industrialization process of developing countries, but a number of factors that contribute to the development of an appropriate technological infrastructure in industrialized countries are either insufficient or totally lacking in these countries.

Research and development co-operation is typically an area where a number of ideas, both old and new, still have to be fully tested. The promotion of twinning arrangements leads to direct channels of communication between R & D institutes and organizations in industrialized and developing countries. These arrangements also provide a framework for various types of training facilities and longer-term collaboration. Efforts might also be made to launch co-operative research programmes aimed at developing new technologies from which both industrialized and developing countries could benefit.

UNIDO's activities in this field are aimed at promoting the underlined objectives of technical co-operation, assistance and the exchange of industrial and technological information, and within the framework of the

.../...

First Consultation Meeting on Sugar and Sugar By-products to be held in 1988, we plan to compile and disseminate the above mentioned directory throughout the Organization's Member countries. This is part of the work programme of the Industrial and Technological Information Section and it is hoped the technological capabilities of R & D institutions in developing countries will thereby be substantially strengthened.

..... By means of the attached questionnaire, UNIDO will be able to compile a list of your activities and to identify priority areas of common interest for co-operative activities. I would, therefore, kindly ask you to submit the completed questionnaire to UNIDO not later than the end of November in order that the first draft of the directory will be available by January 1988.

I would greatly appreciate your co-operation in this matter.

Yours sincerely,



V. Podshibyakin
Chief

Industrial and Technological
Information Section



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE
P.O. BOX 300, A-1400 VIENNA, AUSTRIA

Industrial and Technological Information Section

TELEPHONE: 26 310 TELEGRAPHIC ADDRESS: UNIDO VIENNA TELEX: 136612

Attn.: Mr. V. Počshibyakin

QUESTIONNAIRE

Co-operative arrangements among R and D institutions

(Sector: Sugar and sugar by-products)

1. Country

2. Name of institution		3. Acronym
4. Address in full		
5a. Cable	5b. Telephone	5c. Telex
6. Director/Head	7. Contact person(s)	8. Total number of professional staff
9a. Approximate budget in 1986 (give approximate equivalent in US\$)		9b. Source of funds
10. Relation with other organization(s) (please indicate relation(s) with particular governmental organization(s), private enterprise(s), etc.)		

(i) Table with the fields of activities on sugar-beet and sugar-cane*)

Technology	Sugar-beet	Sugar-cane	Management/Technology	Sugar-beet	Sugar-cane
- Raw materials: preparation and beneficiation	B1	C1	- Economics	B8	C8
- Juice: preparation and treatment	B2	C2	- Energy	B9	C9
- Sugar crystals: formation and final treatment	B3	C3	- Environmental control (effluents treatment, etc.)	B10	C10
- Refining of raw sugar	B4	C4	- Manpower and safety	B11	C11
- Recycling and recovery operations	B5	C5	- Process control and automation	B12	C12
- Utilities and equipment for processing	B6	C6	- Process instrumentation	B13	C13
- Other	B7	C7	- Quality control	B14	C14
			- Other	B15	C15

(ii) Table with the fields of activities on the by-products of sugar production*)

Technology	Bagasse	Filter mud	Molasses	Protein from juice	Cane tops and leaves	Other
- Processing technology applicable to the by-products listed	BG1	FM1	MO1	PJ1	CL1	OT1
- Recycling and recovery operations	BG2	FM2	MO2	PJ2	CL2	OT2
- Utilities and equipment for processing	BG3	FM3	MO3	PJ3	CL3	OT3
- Other	BG4	FM4	MO4	PJ4	CL4	OT4
Management/Technology						
- Economics	BG5	FM5	MO5	PJ5	CL5	OT5
- Energy	BG6	FM6	MO6	PJ6	CL6	OT6
- Environmental control	BG7	FM7	MO7	PJ7	CL7	OT7
- Manpower and safety	BG8	FM8	MO8	PJ8	CL8	OT8
- Process control and automation	BG9	FM9	MO9	PJ9	CL9	OT9
- Process instrumentation	BG10	FM10	MO10	PJ10	CL10	OT10
- Quality control	BG11	FM11	MO11	PJ11	CL11	OT11
- Other	BG12	FM12	MO12	PJ12	CL12	OT12

*) Please use above defined code-numbers (B1 to C15 and BG1 to OT12) to answer the following items 11. to 16.; fill in the respective spaces with the appropriate code-number(s).

11. Please list your former projects** (field of activity and project title) according to the following classification and by means of the code-numbers from page 2 (tables (i) and (ii)):

R e s e a r c h		T r a i n i n g	
Field (in code number)	Project title	Field (in code number)	Project title

***) Carried out during the last four years.

12. Please list your ongoing projects (field of activity and project title) according to the following classification and by means of the code-numbers from page 2 (tables (i) and (ii)):

R e s e a r c h		T r a i n i n g	
Field (in code number)	Project title	Field (in code number)	Project title

13. Please list your anticipated projects (field of activity and project title) according to the following classification and by means of the code-numbers from page 2 (tables (i) and (ii)):

R e s e a r c h		T r a i n i n g	
Field (in code number)	Project title	Field (in code number)	Project title

14. Availability of pilot installation or equipment: YES [] NO []

If YES, please fill in the following table with the suitable code-number:

EXTENT OF OPERATION	PURPOSE OF OPERATION		
	Research	Training	Industrial application
For technical co-operation			
For technical assistance			
For own use			

15. Technical co-operation given

15a. Availability of your staff as consultants or experts for UNIDO field assignments: YES [] NO []

15b. Availability of organizing training programme at your institute or organization: for own nationals: YES [] NO []
for other nationals: YES [] NO []

If YES, please explain details of possible programme:

Field (in code-number)	Duration	Language(s)

16. Technical co-operation requested

16a. Immediate technical co-operation requested from international organizations or other countries:

(i) Training

(Do you need your staff trained overseas?) YES [] NO []

(ii) Experts

(Do you need experts from overseas?) YES [] NO []

(iii) Equipment

(Do you need equipment from overseas?) YES [] NO []

If YES, please specify:

Field (in code-number)			Duration	Language(s)
Training	Experts	Equipment		

16b. Any assistance obtained in the past:

(i) from bilateral co-operation: YES [] NO []

If YES, please specify (from whom): _____

(ii) from international organization: YES [] NO []

If YES, please specify (from whom): _____

17.

Publications

Enclosed herewith		Type of publication	Title	AVAIL	Language of publication(s)	UPD
YES	NO					
		Brochure				
		Dissertation				
		Newsletter				
		Project document				
		Report				
		Other				

AVAIL = Availability of publication(s)
 D = Distribution on request
 S = For sale

UPD = Update frequency
 Y = Every year
 Q = Every three months
 M = Every month
 O = Other (in this case, please specify)

**Appendix: Fields of Entry Format
and Lay-out**

1. NAME :	2. ACRONYM :
3. ADDRESS :	4. TELEPHONE : TELEX : CABLE :
5. DIRECTOR :	6. CONTACT : PERSONS(S) :
7. STAFF :	8. BUDGET/ : SOURCE : OF FUNDS : YEAR :
9. RELATIONSHIP : WITH OTHER : ORGANIZATION(S) :	

10. FORMER PROJECTS (CARRIED OUT DURING THE LAST FOUR YEARS)

FIELDS OF ACTIVITIES	SUGAR-BEET	SUGAR-CANE	PROJET TITLE				R	T
FIELDS OF ACTIVITIES ON THE BY-PRODUCTS	BAGASSE	FILTER MUD	MOLASSES	PROTEIN FR. JUICE	CANE TOPS & LEAVES	OTHER	PROJECT TITLE	

11. ON-GOING PROJECTS

FIELDS OF ACTIVITIES	SUGAR-BEET	SUGAR-CANE	PROJECT TITLE				R	T	
FIELDS OF ACTIVITIES ON THE BY-PRODUCTS	BAGASSE	FILTER MUD	MOLASSES	PROTEIN FR. JUICE	CANE TOPS & LEAVES	OTHER	PROJECT TITLE		

12. ANTICIPATED PROJECTS

FIELDS OF ACTIVITIES	SUGAR-BEET	SUGAR-CANE	PROJECT TITLE				R	T	
FIELDS OF ACTIVITIES ON THE BY-PRODUCTS	BAGASSE	FILTER MUD	MOLASSES	PROTEIN FR. JUICE	CANE TOPS & LEAVES	OTHER	PROJECT TITLE		

13. AVAILABILITY OF PILOT INSTALLATION/EQUIPMENT

PURPOSE OF OPERATION	a. RESEARCH						b. TRAINING						c. INDUSTRIAL APPLICATION					
	SUGAR-BEET			SUGAR-CANE			SUGAR-BEET			SUGAR-CANE			SUGAR-BEET			SUGAR - CANE		
FIELDS OF ACTIVITIES																		
FIELDS OF ACTIVITIES ON THE BY-PRODUCTS	BG	FM	MO	PJ	CL	OT	BG	FM	MO	PJ	CL	OT	BG	FM	MO	PJ	CL	OT

14. TECHNICAL CO-OPERATION - GIVEN

STAFF AVAILABILITY AND TRAINING	FIELDS OF TRAINING PROGRAMME						SUGAR-BEET			SUGAR-CANE		
	FIELDS OF TRAINING PROGRAMME ON THE BY-PRODUCTS						BG	FM	MO	PJ	CL	OT
Availability of staff as consultants or experts for UNIDO field assignments :												
Training programme available for own nationals :												
Training programme available for other nationals :												
Training languages :												
Duration :												

15. TECHNICAL CO-OPERATION - REQUESTED

FIELDS OF TRAINING REQUIRED	OVERSEAS TRAINING FOR STAFF						EXPERTS FROM OVERSEAS						EQUIPMENT FROM OVERSEAS					
	SUGAR- BEET			SUGAR- CANE			SUGAR- BEET			SUGAR- CANE			SUGAR- BEET			SUGAR - CANE		
FIELDS OF TRAINING REQUIRED BY-PRODUCTS	BG	FM	MC	PJ	CL	OT	BG	FM	MO	PJ	CL	OT	BG	FM	MO	PJ	CL	OT
ASSISTANCE OBTAINED IN THE PAST							DURATION						LANGUAGES					
FROM BILATERAL CO-OPERATION			FROM INTERNATIONAL ORGANIZATION															

16. PUBLICATIONS

TYPE OF PUBLICATION	TITLE	AVAILABILITY		LANGUAGES OF PUBLICATION(S)	UPDATE FREQUENCY
		DOR	FS		
BROCHURE					
DISSERTATION					
NEWSLETTER					
PROJECT DOCUMENT					
REPORT					
OTHER					

17. NOTES

CODE	DESCRIPTION
R	Research (Tables 10, 11 and 12)
T	Training "
1	For Technical Co-operation (Table 13)
2	For Technical Assistance "
3	For Own Use "
9	ALL of above (1, 2, and 3) "
BC	Bagasse (Tables 13, 14 and 15)
FM	Filter mud "
MO	Molasses "
PJ	Protein from juice "
CL	Cane tops and leaves "
OT	Other "
DOR	Distribution on request (Table 16)
FS	For sale "