



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



19339

Distr.
LIMITED

ID/WG.505/8(SPEC.)
20 December 1991

ORIGINAL; ENGLISH

United Nations Industrial Development Organization

Workshop on Technological Co-operation
among Developing Countries for the
Development of Pharmaceutical-related
Ancillary Industries

Amman, Jordan, 4-6 November 1991

R E P O R T *

* This document has not been edited.

V.91-31796

Table of contents

	<u>Page</u>
Introduction	1
I. ORGANIZATION OF THE WORKSHOP	1
Opening of the Workshop	1
Election of officers	2
Adoption of agenda	3
II. AGREED CONCLUSIONS AND RECOMMENDATIONS	3
A. Conclusions	3
B. Recommendations	4
<u>Annex I:</u> Agenda of the Workshop	6
<u>Annex II:</u> List of documents	8
<u>Annex III:</u> List of participants	9

Introduction

1. The System of Consultations is an instrument through which UNIDO serves as a forum for developed and developing countries in their contacts and consultations directed towards the industrialization of developing countries. Consultations permit negotiations among interested parties at their request, at the same time as or after the meetings. Participants of each member country include representatives of government, industry, labour, consumer groups and others, as deemed appropriate by each government.
2. Benefits emerging from this activity include the identification of obstacles to industrial development in developing countries, monitoring trends in world industry in order to identify action-oriented measures for increasing the share of developing countries in world production; determination of new forms of international industrial co-operation in North-South and South-South relations.

Background to the Workshop

3. UNIDO organized three Consultation meetings on the Pharmaceutical Industry at Lisbon (Portugal), Budapest (Hungary) and Madrid (Spain) in 1980, 1983 and 1987, respectively. At these meetings the participants emphasized the importance of developing domestic pharmaceutical industry covering pharmaceutical formulations, biologicals, pharmaceutical chemicals and drugs based on medicinal plants, as well as pharmaceutical-related ancillary industries. These meetings took into account the factors involving policy and production measures and identified a number of issues involved in the promotion and development of pharmaceutical and pharmaceutical-related ancillary industries in developing countries.
4. As a follow-up to the recommendations of the third Consultation on the Pharmaceutical Industry, UNIDO planned to convene a Workshop on Technological Co-operation among Developing Countries for the Development of Pharmaceutical-related Ancillary Industries in collaboration with the Arab Company for Drug Industries and Medical Appliances (ACDIMA) in Amman, Jordan. The objectives of the Workshop were exchange of information and experience on development and use of local raw materials for packaging, information on specifications and standards for packaging materials, discussion on possibilities of setting-up a: R&D centre for packaging materials, and enhancement of co-operation among developing countries for the development of ancillary industries.

I. ORGANIZATION OF THE WORKSHOP

Opening of the Workshop

Statement by the Director-General of ACDIMA

In his opening statement the Director-General of ACDIMA welcomed the Minister of Health of the Hashemite Kingdom of Jordan and the participants of the Workshop. He expressed his gratitude to His Majesty, the King of Jordan, and the Crown Prince for their continued guidance and for granting continuous support to such intellectual and scientific gatherings. He thanked UNIDO for associating ACDIMA as a partner in the organization of the Workshop. He said that ACDIMA, which is an outcome of joint Arab efforts, was ever ready to offer its services in the field of pharmaceutical industries and medical appliances. He stressed the importance of pharmaceuticals and the role of

packaging materials. He expressed his hope that deliberations of the Workshop would assist in attaining the strategic goals of ensuring self-sufficiency in pharmaceuticals in the Arab world. He assured of all assistance in making the Workshop a success and achieving its goals.

Statement by the Minister of Health of the Hashemite Kingdom of Jordan

The Minister of Health of the Hashemite Kingdom of Jordan, Dr. Mandouh Al-Abbadi, noted that human beings were the most valuable asset of a nation, and therefore his Government attached great importance and accorded priority to all channels which provided protection, care, welfare and development to society. Pharmaceuticals, he said, were one of the essential ingredients for health and his Government supported the developmental activities in this field. He expressed the view that development of the pharmaceutical industry faced a number of difficulties which posed a challenge to its development. He asserted his Government's resolve for concerted efforts so as to succeed in overcoming impediments. The Minister expressed his admiration to the Jordanian pharmaceutical industry and to ACDIMA for the level of development and high standards they have achieved. He applauded the role played by UNIDO in enhancing international co-operation so as to achieve equality between North and South in their economic welfare through industrial development. He appreciated the efforts put in by UNIDO and ACDIMA for the progress and success of the pharmaceutical sector in the Arab world. He wished every success to the Workshop.

Statement by the representative of UNIDO

5. The Chief of the Unit for Process Industries Sector of the System of Consultations Division, speaking on behalf of the Director of the System of Consultations Division of UNIDO, expressed the organization's deep appreciation and thanks to the Minister of Health of the Government of the Hashemite Kingdom of Jordan for inaugurating the Workshop. He said it was very satisfying to note the priority the Governments of the Arab region give to the development of the pharmaceutical and ancillary industries sector for the well-being of the people. He also thanked the Director General of ACDIMA for generously hosting the Workshop and making a valuable contribution towards its success. He briefly explained the origin and scope of the System of Consultations of UNIDO and presented the objectives of the Workshop which were primarily to enhance technological and economic co-operation amongst the countries of the region in the field of pharmaceutical-related ancillary industries. He touched upon the proposed main topics of discussion which would range from a strategic plan for packaging of pharmaceuticals in plastics, techno-economic analysis, cost-effectiveness, specifications, process technologies and sources of supply of packaging materials, especially those based on plastics. He hoped that the Workshop would provide an opportunity for exchange of information and experience and to discuss possible business opportunities in the sectors of pharmaceuticals and its related ancillary industries.

Election of officers

The following officers were elected:

Chairman: Dr. Muwaffak J. Haddadin, Director-General, ACDIMA

Vice-Chairman: Dr. G. Saeed, ACDIMA

Adoption of agenda

The Workshop adopted the agenda as per Annex I.

Documentation

The documents issued prior to the Workshop are listed in Annex II.

Adoption of conclusions and recommendations

The conclusions and recommendations of the Workshop were adopted by consensus on 6 November 1991.

Concluding statements

At the closing session, ACDIMA and its staff were thanked by the representative of UNIDO and the delegates for the hospitality and efficient way in which the Workshop was organized, which had contributed to its success. The Chairman of the Workshop in his closing remarks thanked the delegates for their active participation and valuable results of the Workshop.

II. AGREED CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. Packaging plays an important role in the production and distribution chain of pharmaceutical products. It is recognized that availability and knowledge about appropriate packaging materials assume a significant importance, especially in relation to local pharmaceutical industry that helps in keeping the supply of medicine at an adequate level and cost-effective.
2. Plastics as raw material for packages for pharmaceutical products are undoubtedly a heterogeneous group, but with the aid of some additives, the same polymer can render different properties. Most plastics are interesting in the pharmaceutical field in view of their advantageous properties as they are light, flexible, easy to form in different shapes, comparably inexpensive and not brittle in handling and transportation.
3. A careful assessment of resources potential and constraints to formulate strategies and policies to guide investments in ancillary industries for the pharmaceutical industry is essential. It is preferred, however, to consider such investment within an overall strategy for the development of the pharmaceutical industry in general.
4. A wider compilation and dissemination of information on specifications and standards for raw materials as well as finished packaging materials, sources of supply of such materials, good manufacturing practices for plastics used for pharmaceuticals, and other data are essential for the successful implementation of projects related to the pharmaceutical ancillary industry.
5. Initiation of work on the preparation of an inventory of national resources in raw or semi-converted materials suitable for use for the manufacture of packaging products which are effectively demanded in a country or region would be a positive step for the development of packaging material industries.

6. A regional and integrated approach can offer new opportunities to increase economic, financial and industrial co-operation. Therefore, the need to build up regional capabilities in addition to national ones for packaging materials, in particular based on plastics, was stressed. To accelerate growth an integrated approach towards the development of a scientific and technological infrastructure and to improve regional economies, the participants strongly favoured strengthening present national research and development centres and setting-up of regional research and development centres offering testing facilities, pilot plant facilities, information network, R&D on packaging materials and facilities for training personnel.

7. The participants concluded that the following technical advisory and extension services are very important:

- (a) Preparation of techno-economic feasibility studies;
- (b) Advice on choice of technology, selection and procurement of equipment;
- (c) Provision of information on raw materials, their quality and cost;
- (d) Assistance in improvement of management capabilities in marketing, financial accounting, factory legislation and personnel relation, etc.;
- (e) Provision of human resource training possibilities at all levels.

Moreover, the participants felt a strong need for the establishment of a mechanism ensuring close relations and feed-backs between producers of pharmaceutical packaging materials, and of pharmaceutical products.

B. Recommendations

Considering the above conclusions, the participants recommended that:

1. Developing countries should take appropriate policy measures to promote developing packaging industry, in particular pharmaceutical-related plastic-based ancillary industries. It is preferred, however, that such promotion policy should be considered within a national/regional strategy for the overall development of the pharmaceutical industry. International organizations such as UNIDO, WHO and UNCTAD/TTC could be called upon to assist in this field particularly on such aspects as formulation of industrial policies, acquisition of technology and marketing of products.

2. Steps should be taken to strengthen existing, and wherever not available, establish new national institutes/centres for development of packaging materials. These institutes should set up and promote national standards and specifications, and promote total quality control systems for products and processes and undertake whenever possible R&D activities in packaging. UNIDO, upon request, should provide assistance in this field. Moreover, UNIDO should assist in the elevation of existing institutions or the establishment of new regional centres.

3. New forms of international co-operation schemes should be identified to foster and increase the flow of new technologies and information. Consideration should be given to setting-up of a regional centre for development of packaging materials, dissemination of information and training of manpower for packaging materials of all types. Such a centre should be able to provide technical advisory and extension services for industries with thrust on ancillary materials. Action should be taken to strengthen co-operation between more advanced developing countries and less developed ones. Existing information systems in UNIDO and other international

organizations should be used to assist such a centre in its work. It could also function as focal point in a world-wide system of information network. Such a regional centre should be established through co-operation between UNIDO and a Pan-Arab body overseeing the development of the drug industry in the Arab world, such as ACDIMA.

4. UNIDO, jointly with developing and developed countries, should organize periodic workshops to arrange for policy-makers and entrepreneurs to exchange information and experience, as well as views connected with promotion of ancillary industries. The areas for discussion at these workshops should cover, inter alia, investment policy, plant design, machinery and equipment, technology adaptation, specifications and quality, operational problems, repair and maintenance, development of competent management and export promotion schemes, etc. The participants felt that the next workshop should be held at ACDIMA and be of a promotional nature dealing with the establishment of drug and medical devices ancillary industry. For such a workshop entrepreneurs, know-how experts and policy makers be invited.

5. A regional pharmaceutical R&D centre for the Arab countries be established in collaboration between ACDIMA and UNIDO. Steps being taken to this effect be reported to the meeting referred to in item (4).

6. UNIDO and other organizations should assist developing countries in the establishment and/or strengthening of national training institutes with special emphasis on advanced technology, teaching means and methods, etc. to achieve human resource development and mastering of technologies. UNIDO is requested to provide special training programmes for developing countries in this field.

Annex I

AGENDA

Monday, 4 November 1991

- 8.30 - 10.00 Registration
- 10.00 - 11.00 Opening session
- Welcome speech by ACDIMA's Director General
 - Address by UNIDO's representative
 - Opening address by His Excellency the Jordanian Minister of Health
- 11.30 - 12.30 Session presided by the elected Chairman
- Election of the Chairman
 - Adoption of the agenda
 - Presentation of working documents
 - Presentation of UNIDO technical co-operation programmes (J. Belo)
- 15.00 - 17.00 Session presided by Dr. Ghassan Said
- "A strategic plan for the packaging of pharmaceuticals in plastic" (D. Dean)
 - Country papers
- 20.00 Dinner at Kan-Zaman/Al-Yadoudah

Tuesday, 5 November 1991

- 9.00 - 10.30 Session presided by Dr. H. Ibrahim
- "Overview of main packaging materials used in pharmaceutical and related industries" (ACDIMA)
 - Development and current status of locally produced plastics packaging materials for pharmaceuticals and future prospects (M. Darwazeh)
 - Country papers

Annex II

LIST OF DOCUMENTS

Background and discussion papers:

- Use of Plastics in the Pharmaceutical Industry ID/WG.505/1(SPEC.)
- Packaging Materials, Technologies and Infrastructure for Pharmaceuticals (K. Lotz) ID/WG.505/2(SPEC.)
- Selected Technical Profiles for Pharmaceutical-related Packaging Materials (M. Kosak and F. Tramte) ID/WG.505/3(SPEC.)
- A Strategic Plan for the Packaging of Pharmaceuticals in Plastic (D. Dean) ID/WG.505/4(SPEC.)
- Use of Plastic Materials in Pharmaceutical Packaging (S. Merli, FICETEC) ID/WG.505/5(SPEC.)
- Development of Pharmaceutical-related Ancillary Industries in Developing Countries with Special Reference to Packaging Materials (UNIDO Secretariat) ID/WG.505/6(SPEC.)
- Tomorrow's Packaging in the Pharmaceutical Industry (J.-P. Pothet) ID/WG.505/7(SPEC.)
- Overview of Main Packaging Materials used in Pharmaceutical and related Industries (ACDIMA)
- Development and current status of locally produced plastic packaging materials for pharmaceuticals and future prospects (M. Darwazeh)

Country papers:

- Medical Packing in **Egypt** (M.A. EL HEFNAWY)
- Pharmaceutical-related Ancillary Industries in **Sudan** (Prof. Abdel Karim Mohammed SALIH)
- Summary Description of the Pharmaceutical Industry in **Syria** (Dr. Zeyad MANSOUR)
- Situation and Perspectives of Pharmaceutical-related Ancillary Industries in **Tunisia** (Sadok ZGARNI)
- Pharmaceutical-related Ancillary Industries in the **Yemen Republic** (Dr. Ali SALEH)

Annex III

LIST OF PARTICIPANTS

Algeria

Mr. Bechiri Zemal, Deputy Director Pharmaceutical Industries, Ministry of Industry and Mines, Algiers

Bahrain

Mr. Mohamed Jafar Abdul Redha, Directorate of Pharmacy and Drug Control, Ministry of Health, P.O. Box 12, Manama

Egypt

Dr. Mohamed Ahmed Elhefnawy, Chairman of the Board, Medical Packing Co., 47, Industrial Area, Abbassia, Cairo

Iraq

Mr. Talal S. Daoud, Samerra Drug Industries, ACDIMA, Baghdad

Jordan

Mr. Eid Abu-Dalbouh, Al-Hikma Pharmaceutical Co., P.O. Box 182400, Amman

Mr. Samih A. Afifi, Dar Al Dawa Investment and Development Co., P.O. Box 9364, Amman

Mr. Mohammed Ismail Atrash, Arab Union for Pharmaceutical Manufacturers (AUPAM), P.O. Box 811520, Amman

Mr. Mohamed Siddeq Al-Badri, Private Consultant

Mr. Raja Dalahmeh, Arab Company for Drug Industries and Medical Appliances (ACDIMA), P.O. Box 925161, Amman

Mr. Mazen Darwazeh, Arab Medical Containers Company (AMC), P.O. Box 80, Street 5A, Sahab Industrial Estate, Sahab

Mr. Eid Mohammad Abu-Dalbouh, Al-Hikma Pharmaceutical Company, P.O. Box 182400, Amman

Mrs. Muna Shaher Fayyad, The Arab Company for Veterinary Drug Industry & their Appliances (ARAVET), Amman

Mr. Simon Ghanem, ACDIMA

Mrs. Nadia Ghazal, The Jordanian Pharmaceutical Manufacturing & Medical Equipment Company (JPM), Naur

Jordan (cont'd)

Ms. Sawsan Ahmed Hader, Veterinary & Agricultural Products Manufacturing Company (VAPCO), P.O. Box 17058, Amman

Dr. Hussein G. Ibrahim, ACDIMA

Mr. Munir S. Al-Joundi, ACDIMA

Mrs. Kareemeh H. A. Al-Khashman, ACDIMA

Mr. Nazih Masarweh, ACDIMA

Dr. Takiuddin Mahmoud, United Pharmaceutical Manufacturing Company, Amman

Mr. Mohamed Al-Manfalouti, Arab Center for Pharmaceuticals and Chemicals, Sahab Industrial City

Mr. Sami Mohammed Manfalouti, Dar Al Dawa Development and Investment Co., P.O. Box 9364, Amman

Dr. H.Y. Muti, Dar Al Dawa Investment and Development Co., P.O. Box 9364, Amman

Mr. Wadi M. Nabulsi, AMC

Mrs. Eiman Al-Naser, ACDIMA

Mr. Nerses Nersessian, Dar Al Dawa Development and Investment Co., P.O. Box 9364, Amman

Dr. Maria Qasem, The Jordanian Pharmaceutical Manufacturing & Medical Equipment Co. (JPM), Naur

Ms. Majeda Saleh, Amman Pharmaceutical Industries Co., P.O. Box 926958, Amman

Mr. Mohammad Saleh Al-Safadi, ACDIMA

Dr. Ghassan Said, ACDIMA

Mr. Saif Salameh, The Arab Company for Veterinary Drug Industry & their Appliances (ARAVET), SWIFIEH, Amman

Mr. Abir M. Shahin, Arab Medical Containers, P.O. Box 80, Sahab Industrial Estate, Street 5A, Amman Sahab

Ms. Muna Shair, The Arab Company for Veterinary Drug Industry & their Appliances (ARAVET), SWIFIEH, Amman

Dr. Mohammed Said Shubair, Arab Pharmaceutical Manufacturing Company, P.O. Box 42, Sult

Dr. Mohammad S. Suleiman, United Pharmaceutical Manufacturing Company, P.O. Box 1027, Amman

Jordan (cont'd)

Mr. Mahmoud Takieddin, United Pharmaceutical Co., P.O. Box 960755, Amman

Mr. Fouad L. Taktak, Amman Pharmaceutical Industries Co., Abdoun

Mr. Raed M. Al-Tel, Veterinary & Agricultural Products Manufacturing Company (VAPCO), P.O. Box 17058, Amman

Ms. Dhabia Wanna, Arab Center for Pharmaceuticals and Chemicals, Sahab

Mr. Ghaleb Zureikat, ACDIMA

Mauritania

Mr. Mohamed Salem Ould Miske, Arab Company for Drug Industry and Medical Appliances, Ministry of Industry and Minerals, Nouakchott

Morocco

Mr. Boubker Sahib, Pharmacien, Laboratoire national de Contrôle des médicaments, Ministère de la Santé Publique, Rabat

Oman

Dr. Abdul Hussain Jaffar, Director General of Pharmaceutical Affairs and Drug Control, Ministry of Health, P.O. Box 393, Muscat

Sudan

Dr. Abdel Karim Mohamed Salih, Director, National Council for Research, P.O. Box 2404, Khartoum

Tunisia

Mr. Sadok Zgarni, Directeur du Project des Médicaments Pénicilliniques, Société des Industries pharmaceutiques de Tunisie (SIPHAT), Foundouk Choucha, 2040 Radès

Yemen

Ali Saleh Alhamadani, Ex-Director General, Yemen Company for Drug Industry, SAPCO (Assanabani Agro & Poultry Co.), P.O. Box 2006, Sana'a

UNIDO Consultants:

Mr. Dixie Dean, Dixie Dean Packaging Consultancy, Education and Training, 56 Sandy Lane, Beeston, Nottingham NG9 3GS, England

Dr. Sergio Merli, Armitalia Carlo Erba Tecnimont Engineering (FICETEC), Viale Monte Grappa 3, 20124 Milan, Italy

Mr. Jean-Paul Pothet, Directeur Général, Institut français de l'Emballage et du conditionnement (IFEC), 3 Rue de la Terrasse, 75017 Paris, France