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PESTICIDE DEVELOPMENT PROGRAMME IN INDIA

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INDIA

Technical report: Findings and recommendations*

Prepared for the Government of India
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Wade Van Valkenburg
consultant in pesticide formulations

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Explanatory Notes:

UNDP (United Nations Development Programme) sponsors PDPI (Pesticide Development Programme India) under the management of HIL (Hindustan Insecticides Limited), a government of India enterprise. As part of its sponsorship UNDP supports the visits to PDPI of technical experts such as the writer, Dr. Wade Van Valkenburg, a UNIDO expert on pesticide formulations.

PDPI has its offices and laboratories at the HIL research complex at Gurgaon, a short distance from New Delhi.

This report covers the period of 2 November 1987 through 27 November 1987, which constitutes the writer's third mission to India. The first was 21/2/86 to 8/4/86 and the second was for the period 17/1/87 to 28/3/87.

Acknowledgment

It is such a pleasure to see the warm reception, enthusiasm, support and encouragement with which personnel from UNDP, PDPI and HIL greet one's return to India. Everyone is dedicated to the continued growth and effectiveness of PDPI and such a warm reception makes one happy to return.

I express my special thanks for support and cooperation to Dr. S. P. Dhua and Mr. M. Lal of HIL, to Mr. M. Islam and Mr. Sat Pal of UNDP and to Dr. S. K. Khetan, Mr. V. N. Dutta, Dr. R. K. Khandal, Dr. S. Kumar, Dr. B. N. Pandey, Dr. P. K. Ramdas and the others at PDPI.

Summary of Conclusions and Recommendations

Conclusions:

1. PDPI continues to grow, to build its technology base, and to transfer its technology to the private sector. Significant activities since April include the following:

- (a) Three technicians have been trained in good laboratory practices at Rhone Poulenc in Britain.
- (b) Three PDPI scientists have attended technical meetings outside of India.
- (c) Formation of a PDPI formulator's association implements a new method for the transfer of technology from PDPI to the private sector.
- (d) Under the aegis of the PDPI formulator's association Mr. J. Hartmann, UNIDO expert on packaging, organized and presented a very successful week long workshop on pesticide packaging.
- (e) Under the sponsorship of the World Bank, FAC, UNDP, UNIDO, RENPAP and PDPI a regional training program on "Quality Control of Pesticide Formulations" was held in New Delhi, 12/10/87 - 13/11/87. The delegates from the six countries found the training program very useful.
- (f) Safety air flow and dust collection systems have been installed in the pilot plant.
- (g) Significant advances have been achieved in the seven pesticide formulations being developed at PDPI.

2. To continue PDPI's growth and effectiveness PDPI will have to expand its direct contact with pesticide formulators.

Recommendations

1. PDPI should enhance their activities involving their activities involving transfer of technology to the private sector. This could mean a substantial increase in PDPI's budget. It should involve such activities as:

- a) On site consulting and training courses at a pesticide formulator's place of business.
- b) Expediting the formation of the previously agreed upon Pesticide Formulator's Chair at Sadar Patel University.
- c) Expand the number of training courses, such as the packaging course, that met a critical need of members of the formulator's association.
- d) Make a critical effort to expand the association and meet a greater number of the technical needs of the members.

2. A means should be found and implemented to conserve the confidentiality of proprietary information belonging to pesticide formulators who wish to associate with PDPI. This will require that PDPI have an identity different from HIL.

3. Additional safety equipment including hoods, safety showers and eye wash equipment should be installed in the PDPI laboratory.

4. Hire an entomologist. This man would not only be involved in bioassays but could be responsible for insecticide formulations field development.

Activities and Observations

I. RENPAP

During the period October 12, 1987 to November 13, 1987 a regional training program on "Quality Control of Pesticide Formulations" was held at the International Centre, New Delhi. This program, sponsored by the World Bank/FAC/UNDP/UNIDO/RENPAP/PDPI was attended by delegates from Sri Lanka, China, Thailand, Korea, Indonesia and India. Two presentations were made by the writer at this conference. Abstracts of these appear below

a) "Quality; The Route to Survival".

Abstract: A quality product is defined as one that meets customer expectations. These expectations are not constant but increase with the commercial maturity of the product. Essential elements going into quality are discussed along with the challenges that face a vendor in producing and marketing a quality product.

b) "The Cost of Quality"

Abstract: All people demand quality in themselves, their work environment and their work output. Achievements of quality require considerable sacrifices and investment in time, money, effort and other resources. Benefits accrue from such expenditures. However, there are costs associated with a reluctance to invest in quality. These costs and the benefits for quality are reviewed.

During the Renpap program this writer was privileged to accompany Dr. Khetar and the delegates to the following three laboratories:

c) Rallis India Ltd., Bangalore
Agro Research Laboratories

Dr. K. Sivasankaran, general manager, and his staff were very hospitable to us and through a tour of the laboratories and discussions gave us a very clear understanding of the Rallis method

of operating. There were two significant items that bear mentioning here:

- (1) As attendees at a quality conference we are well aware of the need for a good customer service as an element of quality. Rallis customer service appears to be well done and could be a good model for other Indian corporations.
- (2) Rallis, as a primary manufacturer, must supply half of their production to small scale industries. These companies are competitors who have smaller capital requirements and lower overall costs of doing business. They are critical competition to Rallis. It is, therefore, not surprising that Rallis gives them very little technical assistance. PDPI, more than likely, may be the only Indian source of information, for these people, on formulations technology.

d) ICRISAT, Hyderabad

Again our hosts were very hospitable and offered us a good overview of this "International Crops Research Institute For The Semi-Arid Tropics" laboratory and field station. The laboratory facilities were excellent and good technical discussions ensued with personnel there.

e) Central Plant Protection Training Institute; Hyderabad
Dr. R. E. L. Bhaskar, Director

This was an excellent visit and I shall mention just one highlight:

- (1) This training institute trains a lot of personnel from India and the rest of the third world. PDPI's training is complementary to theirs. Consideration is being given to giving one day of training to trainees of CPPTI at the PDPI center at Gorgoan.

II PDPI Organization

PDPI has been in formal existence for the past seven years. It has benefited from good HIL management, UNIDO support, the procurement of good personnel, foreign training of its technical personnel, visits by a multiplicity of reknown foreign UNIDO experts and from its own development activities.

The mission of PDPI is now changing. If phase A was the development and accumulation of technology, phase B is now the dissemination of that technology. This will require a considerable increase in PDPI's interaction with the private sector. It is indeed gratifying to see that PDPI has formed a pesticide company's formulator's association as recommended in previous reports. The association has 25 members. This, of course, is just a start as there are 700-800 pesticide formulators in India.

The association is an excellent vehicle for transferring technology to the private sector. This is exemplified by the first function of the organization which was a week long training course on the packaging of pesticides organized and chaired by Mr. J. Hartmann, UNIDG packaging expert. The course met a real need for the twelve attendees who all were quite enthusiastic about the course. The attendees were indeed fortunate in that their last day was spent at the Trade Fair where they could see the operation of plastics processing machines that had been discussed in the course.

There are problems that arise in relation to increasing the number of members of the pesticide formulator's association. I am now on my third mission to India. In these missions I have been fortunate to interact with private sector pesticide formulators from all over India. I find that PDPI is always regarded as being affiliated with HIL. PDPI does not have its own independent identity. Formulators, as independent business men, regard HIL as a competitor. Formulator's business and technical developments are confidential to their companies. They are suspicious that disclosure of this confidential information to PDPI will constitute disclosure of their information to their competitor, HIL. This inhibits the interactions between PDPI and the private sector. To remove this inhibition some way must be found to give PDPI an independent identity while still operating under the aegis of HIL.

In an overall discussion of the fine accomplishments of PDPI with Shri S. Suri, joint Secretary, Deptt. of Chemicals and Petro-Chemicals, the above problem was reviewed. Shri Suri suggested that this image problem could be resolved by setting up PDPI as an independent organization under the HIL umbrella. PDPI would have its own

governing board of directors and program committee. This is an excellent suggestion; I endorse it and encourage its serious consideration and implementation as soon as possible.

III Bhopal

In September Drs Khetan and Bhatেশwar visited the Union Carbide research facility at Bhopal. Their report indicates that there may be some residual intellectual property there. If that facility is converted to a facility other than pesticide research, will that intellectual property be lost? Should PDPI investigate its availability for PDPI to act as a conduit for transfer of that technology to the private sector?

IV Formulations Research

Current laboratory endeavors are focusing on a dry sulfur flowable. Elemental sulfur behaves as a Lewis Acid (electron accepting). Consequently we are investigating the use of a minor amount of a basic substance that will coat the sulfur prior to adding hydrogen bonding type bulking and dispersing agents. Since this is being written prior to the completion of these experiments, the results are unknown.

V Conclusion

The RENPAP conference was on the subject of quality. Quality is a moving target with continuing demands for higher quality. Performance, like quality, is a moving target. What is acceptable today will not be acceptable tomorrow.