

Research and Development in Indian Pulp, Paper and Allied Industries.

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Indian Paper Industry in general suffers with low productivity. Causes of low productivity may be manifold, but the main cause of this ailment is the lack of adequate Research and Development programmes to meet the needs of the time. Since some time past, the Indian Paper Industry has been seriously trying to take up Research and Development activities in their regular operational programmes. The tax concessions and import facilities offered by the Government to Industry have worked as a good catalyst. Several big paper mills have set up their R and D laboratories in a big way with ambitious research programmes, although with the recent recession in paper market, their enthusiasm for R and D activity has also declined. This situation does not only prevail in private sector, but also in the Government sector. The Central Government have been proposing setting up of a R and D Board for Pulp, Paper and Allied Industries. This creates a thinking

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Research is the back-bone of industrial productivity. Low productivity causes stagnation and inefficiency. Today Indian Paper Industry is suffering from low productivity. It has many drawbacks like old machinery, less productive techniques, wasteful labour, rising cost of energy, water and social security. There are vast resources of raw material, but it is short-fibred and of diverse nature. All these limitations have crippling effect on paper and Rayon Industry's performance to stand in the international market. More than 90% of the sophisticated equipment and machinery are still imported from abroad for paper and pulp making. Even the chemicals required for high grade paper making are to be imported. Paper Industry of the West and of Japan is far ahead of us. In such a state of affairs, the country cannot just sit idle and watch. The country is passing through the phase of industrial revolution and the Paper and Rayon Industry of India has to meet the challenge of the time. With whatever resources available, the Indian Paper Industry has to improve its productivity, quality and economy. There is vast scope for improvement, but it is possible only when the industry is based on sound foundations of research and Development programmes.

There are scores of Research and Professional Institutions where process research, equipment and design development are possible. In several factories also good amount of such research facilities exist. But these facilities are either not well organised or left untapped. There is no positive effort to channelise these facilities to develop R & D activities in a planned and organised way so that the Industry may have substantial social and economic benefits out of it. Some suggestions to innovate the whole concept of R & D activities have been described in this paper. The author has firm belief if the suggestions given hereunder are sincerely implemented, they can certainly change the face of Paper and Rayon Industry to improve its productivity, efficiency, cost and quality.

for research planning in the country, but for various reasons, the growth of Research and Development activities has not

been to expectations.

Thanks to the U. N. D. P. that a well planned and well thought out research programme has

been taken up for the first time in this country to develop semi-chemical pulping and newsprint grade pulping out of mixed hardwoods. This is an ambitious programme financed by the Government of India and the F. A. O. to the tune of nearly Rs. 340 lakhs for the work to be carried out both in F. R. I., Dehra Dun and the I. P. T., Saharanpur. Such programmes have great national importance to help the country to develop its wealth and technology. As a matter of fact, India needs many such programmes in different branches of pulp and paper making.

Institutions presently engaged in Pulp and Paper Research :

There are a good number of Research Institutes and Laboratories, both in public and private sectors in the country either wholly or partly devoted to research in pulp, paper and rayon technology. These Institutes can be categorised into 3 groups according to their working, viz.

GROUP I: Institutes exclusively devoted to Research work in Pulp paper and Allied Technology.

Under this category, following Institutes and Laboratories need special mention.

A) In Public Sector :

1. Cellulose Research, F.R.I., Dehra Dun.
2. Institute of Paper Technology, Saharanpur.

3. Hand-made Paper Unit, Jamnalal Bajaj Research Institute, Wardha.

B) Private Sector :

4. Birla Research Institute of Applied Sciences, Nagda, M. P.
5. Central Research Laboratory, Rohtas Industries Ltd., Dalmia Nagar, Bihar.
6. R & D Laboratories, The Sirpur Paper Mills Ltd., Sirpur-Kaghaznagar(A.P.).
7. R & D Laboratories, West Coast Paper Mills Ltd, Dandeli, Karnataka.
8. R & D Laboratories, Orient Paper Mills, Amlai M. P.
9. R & D Department, Titaghur Paper Mills Ltd., Titaghur, West Bengal.
10. R & D Laboratories, J. K. Paper Mills Ltd, Jaykaypur, Rayagada, Orissa.

GROUP II : Institutes partly devoted to Pulp and Paper and Rayon Research.

Under this category, following Institutes and laboratories may be mentioned.

1. Regional Research Laboratories of Jammu, Jorhat, Hyderabad and Bhubaneswar.
2. H.B.T.I., Kanpur.
3. Sriram Research Institute, Delhi.
4. National Chemical Laboratory, Poona.

Among above institutes, S. R. Research Institute, Delhi and

N.C.L., Poona are mostly working on Rayon grade pulping projects.

Group III: Institutes having facilities for Research in Pulp, Paper and Rayon but not actively engaged at present.

In this group, following laboratories and professional teaching institutes may be mentioned, where good laboratory and workshop facilities are available for both process and engineering research in Pulp, Paper and Rayon.

1. Indian Institutes of Technology of Kharagpur, Delhi, Kanpur and Bombay.
2. Institute of Technology, Banares Hindu University, Varanasi, U.P.
3. Laxmi Narayan Institute of Technology, Nagpur.
4. Ahmedabad Textile Industries Research Institute, Ahmedabad.
5. Jute Research Institute, Ranchi.

From the above list, it will be clear that the country does not lack in basic facilities and infrastructure for research work in pulp, paper and rayon technology, equipment design and pilot plant facilities. What is necessary is correct planning, adequate finances and sincere coordination to exploit the available facilities in the country.

In Private Sector, some of the paper mills and rayon factories have reasonably good facilities for research, both in process and

engineering. They have made substantial success in some equipment designing. These days there is general talk of brain drain. India does not lack in genius and creativity. Our scientists and engineers, when given the right opportunity and a congenial atmosphere, give performance in no way inferior than their counter-parts working in developed countries where working facilities and social security are much more.

Need of the Hour :

Indian Paper and Rayon Industry is still far behind in quality and performance than what it should be and what the advanced countries of the world have today. There may be some reasons for our not catching up the line, but there is no reason why quality and economy in our production cannot be achieved.

Diverse raw material, old machinery, costly chemicals, wasteful labour, shortage of power and many such other things continue to pull down the Indian Paper Industry from international competition. To get rid of this muddle, intensive and extensive planning on all fronts of industrial discipline is required, may it be the production, research or management. With growing problems of raw material shortage, pollution control, costly water and energy, increasing liabilities of social security to workmen, higher operational losses in process and inadequate supply of specialised equipment and machine parts, we cannot achieve our

goal unless we plan out a National strategy on war footing to work out our goal. Crash programmes for R & D activities should be planned with whatever facilities and resources we have at our disposal at present, without looking too much for foreign aid. To make such a crash programme successful, some steps mentioned below may prove useful and vitally important.

Action called for :

To infuse the right blood group and vitalise the R and D activities in Pulp, Paper and Allied Industries of the country, following action is called for which, if earnestly implemented, may help to achieve the goal.

1. (A) A National Forum for R & D in Pulp, Paper and Rayon technology should be formed to draw out plans and decide national policies for country-wide activities, both in public and private sectors.
- (B) The National Forum should be an autonomous body under the chairmanship of the Planning Commission Member responsible for Industrial Development in Cellulose Industries or the Minister for Industries, Government of India, and it should be composed of adequate representations from eminent technologists and scientists

recognised for their research contributions to paper and rayon industry and the representatives from Ministries of Agriculture (for raw material), Education (for research), Central Pollution Control Board, I.G. of Forests, Industrialists and the Ippta.

- (C) The Forum should maintain a permanent control secretariat to periodically compile and sort out important R and D work carried out all over the country, publish a digest of the same for information of all engaged in research work, and also to review the progress of different R & D programmes from time to time. This will not only help in avoiding duplication of work, it will also help the research scientists to come closer in their work and create the atmosphere of healthy competition.
- (D) All planning, policy and guidelines for carrying out research programmes in process and engineering in all the recognised laboratories of the country should be controlled by the National Forum and it should work as a coordinating body between the public sector and private sector industries and research institu-

tions for all matters of R & D Work programming.

2. For successful R & D achievement, a well managed journal is equally essential for exchange of ideas. Such a journal gives the window to research workers to acquaint the world with their work and to get themselves acquainted with the work carried out elsewhere. A technical journal is an ambassador of a country's technological achievements. There are at present two journals of this type, viz. The Indian Pulp and Paper and the IPPTA journal, but unfortunately they fall behind in their international standard. The Indian Pulp and Paper had been till late, a monthly publication and was going well, but due to reasons unknown, it not only reduced its publication periodicity to half, it reduced its body also very much. The Ippta journal is published quarterly and due to lack of funds and adequate managerial staff, it has not been possible to achieve its International status like the *Tappi* of U. S. A., the *Paper* of U. K., the *Japan Tappi*, the *Das Papier* of W. Germany and the *Fulp and Paper Magazine* of Canada. It is not that there is no sufficient research work to be published or there are insufficient resources. It may be quite costly to publish a

well managed and prestigious technical journal, but in the long run, such a publication proves a valuable asset both in money and material to the organisation. As a matter of fact, if such a journal is published monthly, it can well serve the whole of Southern Asian Countries from Indonesia to Iran, Arabian and African Countries and bring the Scientists and Technologists as well as the Paper Industry of these countries much closer to each other. Ippta rightly deserves this honour, but for this purpose, well qualified and experienced permanent editorial and managerial staff and adequate finances are required. It is not a difficult task if the Government, the Industry and Technologists have a determination to do it.

3. Stress on engineering research and equipment designing to develop suitable machines to handle diverse raw material of the country for paper and rayon making, is to be given the first priority. For this purpose, the workshop facilities available in various Technical Institutes, Professional Colleges, National Laboratories and Industries should be geared up to work in close collaboration to fuse together the experience of Industry and the knowledge of the Academic Institutes to

develop new designs, sophistication in existing machinery and new processes for pulp, paper and rayon making.

4. Engineers and Scientists engaged in research work, both in Industry and Institutes who give useful contributions in research should be adequately rewarded and provided with incentives besides giving them recognition on National level for their work. All hurdles that come in the way of finding out and utilising the talent should be overcome.
5. The existing patent laws should be suitably amended to protect the rights of the true and genuine inventor and save them from exploitation and unhealthy practices.
6. The partition wall between the academic institutions and the industry still exists high. Although this is well realised, yet, no serious effort has been taken to break away this partition. Voluntary efforts cannot remove such hurdles. National laboratories and professional institutes are trying to associate themselves with the masses for their social uplift by sponsoring community development programmes, but their people seldom get the chance to associate with the industries working in their areas. So is true the vice versa. If the association of Research Institutes with Industry and Vice-

versa is brought about in all earnestness, it can solve many an educational and development problems of the country. For this purpose, a National policy need be drawn out to make such programmes more realistic and fruitful.

7. The Institute of Paper Technology, Saharanpur rightly deserves to become the nucleus for R & D activities and professional training in Pulp, Paper and Allied Technology on all India level as a National Institute. With its good set up and well equipped laboratories and workshops, it is not difficult to upgrade the Institute to such a status. As a matter of fact, at present, this establishment is working wastefully just as an Artisan training Centre. The Central Government should not find any hitch to take up the

management of this Institute and run it as a National Institute for Cellulose Technology where both process and engineering research specialised training and teaching upto post graduate and research levels can be taken up to serve the paper and rayon industry of India as well as its neighbouring countries. It is a matter of great regret that this matter has been discussed many a time by the Experts Committee and recommendations were made, yet, no serious attention has been given to it with the result we are not getting the due returns from the huge investment made on this Institute by the Government.

CONCLUSION :

In terms of programme formulation or resource allocation, planning R & D programme for Indian Paper and Rayon Industry

has so far been limited only to a few major scientific research agencies and departments, without considering the technological needs of development projects for the Industry. If the nation is to secure real and substantial social and economic benefits from Science and Technology, the whole R & D programming is to be reorganised to serve the Nation at large. For this purpose, a Central body, with equal participation from the Government, the Scientists and the Industry is essentially needed to control and organise various R & D activities in different research centres in public and private sectors, in order to speed up all round industrial development of the country.

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