

39

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INTRODUCTION:

The system of working in an R&D organisation is much different than a Non-R&D organisation like Ministerial departments, Courts and Production units etc. In the Non-R&D organisation the things move in a set system or method with little scope of change and by virtue of well defined system of working they can be easily managed and organised. In an R&D organisation the work is based on high level expertise, precision, instrumentation (both sophisticated and ordinary) materials and machine and their handling, available past data and forecasting etc. Mingled with the fear of success of technology and its acceptance when R&D work is completed.

More so the Coordination of various activities mentioned above involve different sets of individuals. Thus satisfaction of workers with a healthy working atmosphere can help to a great extent in any organisation, especially an R&D organisation. When measurements of some natural phenomenon like rain, wind, temperature etc, are involved, it requires recording systems, manual/computerised, which have no or minimum chances of failure, as they can not be recreated.

A congenial R&D atmosphere is necessary with a working system free of any difficulties permitting concentration in the job with an aim of early results. A working system which may be useful has been given below in figure - 1.

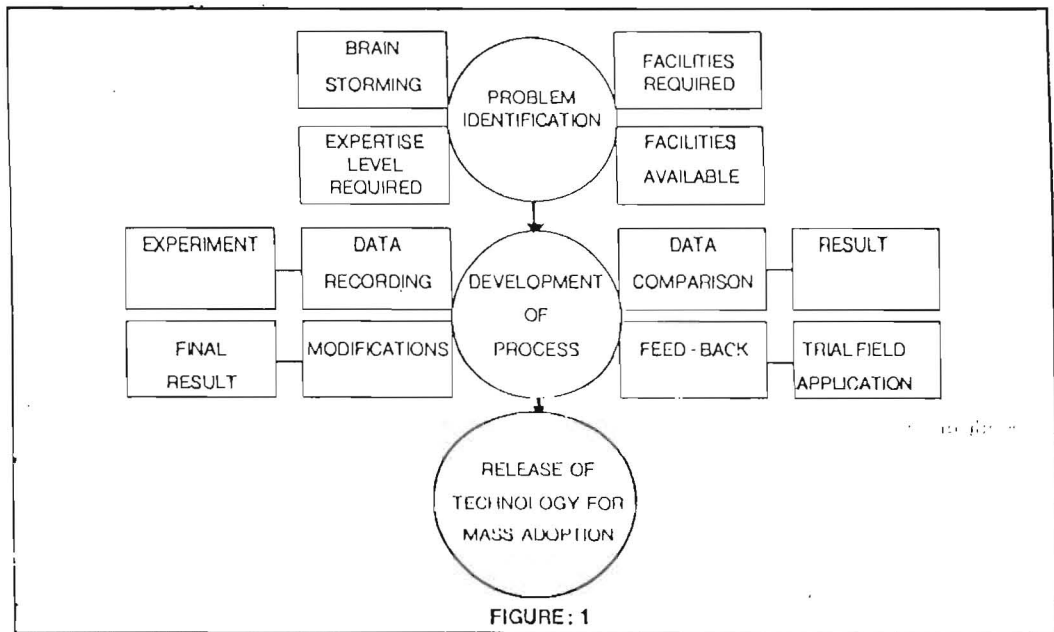


FIGURE: 1

SET-UP OF THE ORGANISATION:

The success of an organisation depends on its set-up and the mechanism of working. Different activities needs to be well planned, monitored for the progress and revised where necessary to achieve the goals set within the stipulated time frame.

Coordination and feed back from the users and link persons is another parameter to be watched and controlled. The environment of the work place viz., behavioural aspect of individuals and inter-personal relations also need to be reviewed with aim of changes where needed for improvement.

The main aim remains to make best use of the skill of scientific and technical manpower

for achieving best result possible. The support and guidance from the management helps in a unrestricted flow of results, without creating hindrance of any sort in the working of scientific and technical group, helping in achievement of goals as per stipulated time frame or even earlier. In case there is no management support the workers are likely to be trapped in getting various administrative formalities completed and the progress towards the results will get slowed down. Set up should be such in which the management remains aware of the likely problems, so that they could be attended without loss of time. An effort has been made to show such an organisational set-up in figure 2.

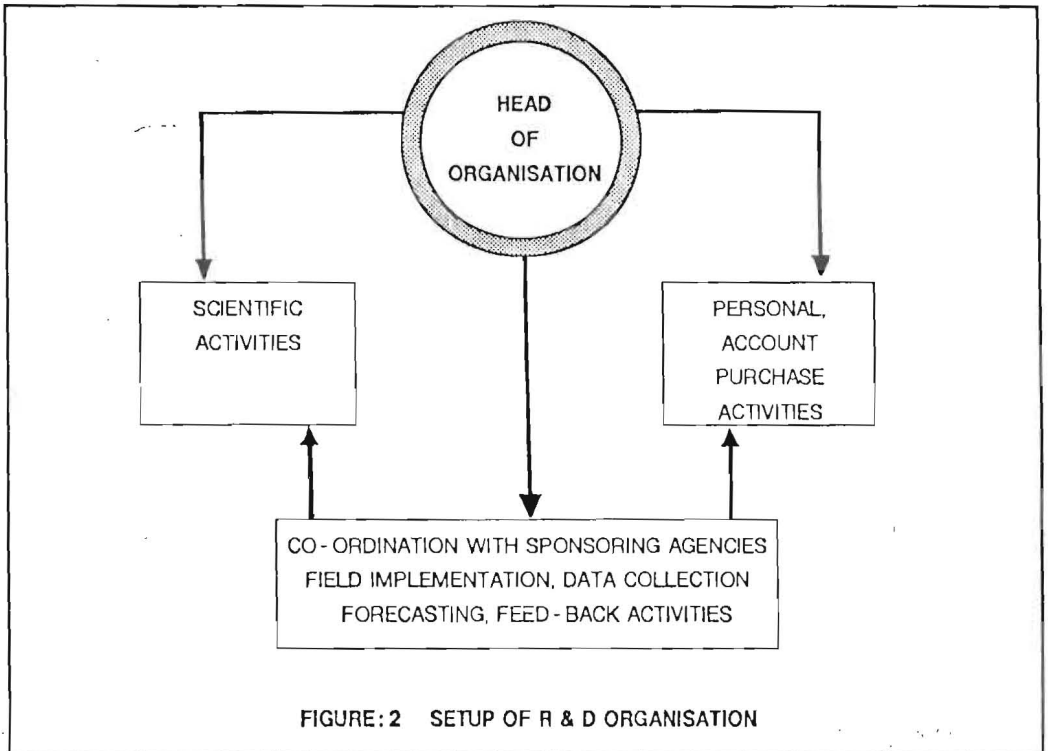


FIGURE: 2 SETUP OF R & D ORGANISATION

FACILITY UTILISATION:

In any R&D organisation, the work involves lot of testing and experimentation and the interpretation of their results. For this different equipments and test set-ups are available in the organisation, but their control lies with different individuals and sections. The approach to them becomes difficult on account of permission of the sectional head holding such facility or in the absence of person responsible for its operation. To avoid such a situation it would be advisable to have an inventory of all equipments with a copy of such documents made available in each section. This will also make it possible to plan procurement of equipment in future. It will be more appropriate if the testing facilities are pooled and made available for use by who so ever want to use the facility, but for control, the facilities could be placed under one person alongwith the operators of various test setups. Even one operator can handle more than one test equipment if the need arises or if the work load on one setup does not justify one whole-time operator.

New and sophisticated test equipments are being introduced in the market which are time savers and more accurate. Efforts should be made to procure the latest equipments and simultaneously discard the old out-dated ones to accomodate new ones without additional space. The training of personnel on the new/latest equipment may also be arranged before their installation, so that they are put to use from the day of installation.

Sometimes the experiments are needed to be carried out in the fields and not in the laboratory. For handling such situations the portable and handy equipments preferably with data recording system which is becoming common, may be procured. Such an arrangement will help in achieving better progress with earlier end results.

A set procedure should be developed to keep upto date records of the data in the tracable form. Now-a-days with the computerization it has become easy to screen, index or edit the data. Some times the experimental data is important or vital to the other project is not tracable due to non availability of upto date Record/Data up-keep, which pulls back the R&D work in the backward direction.

Each facility created should be easily available and properly maintained and the question arises what is needed? How should it be created and utilised? It should be given high priority and judicious decision made.

PROJECT IDENTIFICATION:

The first step in R&D project is the feasibility analysis which include.

- Generation of Ideas

- Screening of the ideas generated

- Detailed evaluation of the screened ideas

The idea of the project can be generated through group discussion, on matters of national/local importance or if some identified problem is imposed which needs solution.

Before the project is finalised, the ideas related to it need proper screening. While filtering such ideas constrains like, physical, human

and financial resources, socioeconomic impact, power shut-downs alongwith acceptability of final result, export parameters or import substitution leading to foreign exchange saving, level of automation etc., need to be considered in depth.

At the time of detailed analysis of evaluation, the analysis of technical feasibility, measurement of cost, benefits and comparison of the benefits vis-a-vis costs should be included in the programme. A programme should also be given higher priority if it is included in the thrust area programme of the state or central government.

PROJECT FORMULATION:

R&D project formulation is a multi-round exercise, which needs due care to be exercised at the formulation stage. Necessary expert advice of the know figures in the field will work out to be of much help. This will help to avoid re-doing or repeating experiments of the work which has already been accomplished, and necessary objectives should be met after successful completion of the project. The programme or plan of action also form the part of project formulation. Targets should be identified and their time schedule drawn with the help of time saving techniques like CPM and PERT. These targets should be represented graphically through bar charts for ease in monitoring. A properly formulated project would proceed systematically, rather than listing various activities to be carried out under the project in haphazard manner, which may lead to delays.

COLLECTION OF DATA AND INTERIUM REVIEW:

After planning the activities involved the experimental work would start. It is desirable that each data should be properly recorded for different experiments and kept in the safe custody. There should be a separate cell for compilation of all the experimental data and also collecting the previous or any other authentic details available. The data collected by this cell should be available to all the scientists as a ready-recorder for other experiments also. Since R&D work is probability oriented, hence it should be periodically reviewed by an expert committee based on the interium experimental data and necessary amendments may be done based on the recommendations of experts committee. Now-a-days with the induction of computer the work of data recording and screening or shortening has become very simple. Different types of ready made softwares are also available for helping in the process.

RELEASE OF TECHNOLOGY & FEED BACK:

It becomes much easier to release a technology through the sponsorer if it happens to be sponsored, as the sponsorer would immediately start using it. In the event it has not been sponsored some publicity bringing out the salient features and advantages will attract users. The users may be provided minimum required training for proper utilisation of technology/process developed for its success. In case field trials/pilot plant trials have not been possible before its release, the help and assistance to the users upto the fields trial

stage may be assured, which will be both in the benefit of R&D organisation and the users. A proper record of feed back from the field should be maintained, so as to attend to the difficulties faced / failure points if any before passing on the results to the next parties / users.

PROCESS MODIFICATION:

The process should be re-evaluated in the light of feed back from the field. The drawbacks if any checked the modification should carried out to avoid the difficulties / failures reported earlier. The modified process / product is now finally ready for release, with more confidence of its success. However the final success will depend on the capabilities of the user in studying the consumer needs and the publicity to mould their minds towards its use.

TECHNOLOGY FORECASTING:

Sometimes technology after putting in great effort and consuming much labour and time, does not attract attention and remains less important due to the changed trend or equivalent technology being made available by a separate organisation. There is need of considering changing trends and based on the past data and recent surveys the scope of acceptability of new technology should be established in the begining itself. For example the use of prefab building components in place of in-situ constructions needs to be examined for acceptability by the users. The trend of acceptability will also depends on the demand which should also be considered while selecting

a project.

Forecasting is a useful tool for helping in giving a direction for decision in R&D programmes.

MOTIVATION:

Accepting a good work through appreciation award, honourarium and upgradation etc, help in motivating workers to provide better output. It even creates a sense of competition among the workers resulting into better output and quality. Moral boosting through personal behaviour of senior personnel and management during experimentation and trials also help in attaining better results, with proper guidance wherever needed. An opportunity of interaction of research works of an organisation with that of other organisations lead to new ideas and better understanding and should be encouraged.

CONCLUSION:

R&D management is multifold except needing expert and experienced co-ordinators. He should act promptly at appropriate stages to facilitate smooth going of project. Coordinator should be capable to guide the solve the problems of scientific / technical persons belonging to different fields involved in the single project. Environment congenial to research is of utmost importance for persuing R&D project.

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