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Contact: Executive Editor, Shrishti Eco-Research Institute, B-106, Devgiri,
Opp. P. L. Deshpande Garden, Near Ganesh Mala, Pune - 411 030. India.
Phone: 91-20-24253773 / Telefax: 91-20-66206539

Website: www.seriecotech.com Email: seri_news@yahoo.co.in

Point for discussion this month "Go, No-go" policy

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Shrishti Eco-Research Institute, Pune

Eternal Words

The World we all share is given to us in trust. Every choice we make regarding the earth, air and water around us should be made with the objective of preserving it for all generations to come."

~ August A. Bush III

Because we don't think about future generations, they will never forget us.

~ Henrik Tikkanen

Understanding the laws of nature does not mean that we are immune to their operations.

~ David Gerrold

Dear Readers,

The scenic beauty in the cover picture is of river Bhima before Ujjani dam near Pune. All five main rivers flowing through the civilised Pune city get polluted with domestic and industrial waste water and confluence with Bhima River before Ujjani Dam. This dam is approximately 100 km downstream of Pune. Due to accumulation of 160000 tons per annum* of this waste at its bottom Ujjani dam has become a huge Methane gas factory generating about 50000 tons* of methane gas every year. (*as estimated by SERI's experts)

In the last week of August SERI team surveyed the downstream area and analyse river water samples at different locations as a part of massive environmental campaign organized by Maharashtra Vikas Kendra in presence of Dr. Rajendra Singh, Magaseysey Award winner. We observed that there is excessive concentration of Nitrates in the river water. Our observation is supported by presence of anaemic condition in local children.

Dr. Suresh Karkhanis is a well-known geochemist and has more than fifty years of experience in this field. With the funding from The Royal Society he has done extensive analysis of Mula-Mutha Rivers of Pune and observed presence of pesticides in these river waters. In this issue he has expressed his thoughts about setting up an analytical laboratory in research and development.

In India mining Industries are under scanner due to different reasons and environment deterioration is one of them. Most of the policies are good on papers but proper execution is key to the success of any policy. Development and Environment should be two sides of a coin and neither will be benefited at the cost of other. Pradnyesh has discussed about the policies of Government of India for mining in forest areas.

International Lake Environment Committee (ILEC) in association with The River Institute, Texas University, is organizing 14th World Lake Conference at Austin, Texas during 31st October to 4th November, 2011. This will be another feather of success in the cap of organisers. SERI team wishes a great success for this conference.

Thank you,
Chief Editor

Organizational Design in a Changing Environment for Analytical Laboratory in Research and Development

Dr. Suresh N. Karkhanis

Introduction

Today most of the work in industry is basically analytical in character, even though the chemists performing the work are not aware of that fact. When I talk about analytical chemistry as a profession, I am not talking about a routine function that can be performed by a high school graduate or in an instrument era by an automated analyzer. As analysis becomes more automated and computerized, the demands of analytical chemist become greater because his primary function will be to interpret the data that comes out of these microprocessor controlled systems. He is the one who in final analysis will decide whether or not the numbers that spew forth from the computer have real value. In today's complex technical environment, there are many varieties of analytical laboratories with extreme ranges of need and size.

Each establishment has its own unique and distinctive requirement. A particular format for one industry or academic institution may not necessarily be the best choice for other. Thus, the needs and objectives of the organization must be understood before setting up an analytical laboratory. The purpose of this paper is to present certain factors that should be considered when an analytical laboratory is being organized.

A number of authors have written about organizational development of an analytical laboratory and psychology as applied to corporations in general. The variety of analytical laboratories required in today's complex technological environment cover extreme ranges of need and size. Analytical laboratories are operational in three major units-industries, universities, and Government, each has its own unique requirements as a consequence of different needs and objectives in terms of business goals. Out of the three units, I will discuss only the industrial unit. One overriding factor which the industry must keep in perspective is the economic value of the services. To begin a discussion of an analytical laboratory organizational design, the following definition by Schein of an organization needs to be reiterated:

"An analytical chemistry organization is the rational co-ordination of the activities of a number of people for the achievement of some common explicit analyses or analytical goals, through division of labour and function and through a hierarchy of authority and responsibility."

C. F. Cooks of Phillips Petroleum Co.'s R&D Unit summarizes the above comments by Schein in a singular sentence -The (analytical) organization is a complex social system which must be studied as a total system. If this summary is taken at face value, then any organization design change must equally weigh corporate organization and complex personal interactions. In India, or for that matter in any other country, the factor that influences the social system is Government regulations. This factor will vary from Government to Government.

Now the organization designer has to incorporate the three influences - Corporate, Personnel and Government.

With this background, let us consider the detailed objectives in developing an Organizational design for a particular laboratory. For any company; the three factors mentioned above must include the recognition of the following:

Corporate

- i) Management attitude towards reorganization
- ii) Changes in corporate goals and objectives
- iii) Short and long term economic forecasts of major business
- iv) Computing capacity available for automation?
- v) Recognition of the nature of the corporate business one supports manufacturing, pilot plant and/ or research and development

Personnel

- i) Staff requirement- age distribution
- ii) New breed of specialists
- iii) Job rotation and progression
- iv) Psychological contract

Government

Government's regulation and bureaucracy.

Planning

One cannot overstress the important association with organizational changes. No Change is without pain, but the consideration of corporate and personal objectives of the Staff should be handled in a professional way. If poorly handled the losses can be enormous at the professional level, resulting a slow but significant decline in professionalism. This could be disastrous to the

individual and the corporation. It does not surface immediately but over the years it declines and could wipe out the "*esprit de corps*" of an organization.

In the following sections, I will review the planning of an organizational design in light of the influence of corporate organization, personnel and government.

Corporate Organization

Management attitude towards reorganization is the key factor in the success of proposed reorganization. Any change in organization structure regardless of the benefits and merits to the R&D operation could result in a shift in the corporation power structure. To accomplish a significant organization change, the corporate management must be 100% supportive of the change. Without this support road blocks and conflicts with power blocks will impede success.

A factor which is frequently overlooked by individuals developing an alternate organization is a change in a long range of goals and objective in a corporation. If this requirement is overlooked the initial design, then each new business venture requires readjustments in the R&D structure especially in the analytical requirement.

The short and long term business forecasts for the major business lines of the corporation will serve as a guide to organization planning. This will reflect in the services provided by the analytical laboratories.

Personnel

The matter of personnel plays a dominant role. It is difficult to deal with individuals in an organization design unless one has an organization into which people could be incorporated. It is also difficult to develop an effective organizational structure without specific personnel in mind, such as specialists, trouble shooters, problem solvers, etc. A number of key factors need to be developed.

Staff Requirements -Age Distribution

Once the ground rules of the corporate business are clearly delineated, the next step is the appreciation of the present staff capabilities. Many laboratories are in a situation where there are a large number of experienced and valuable long-term career technologists, who have or who will shortly retire. The scientist/ technologists in the age group of 40+ years have by now acquired 15-20 years experience. For their career to continue in an upward direction with additional responsibilities, opportunities have to be created in a corporate structure. Alternatively, if they remain in the same structure they have to prepare

themselves psychologically and mentally to "compete" with the more recent graduate. It becomes a problem between "Youth vs. Experience".

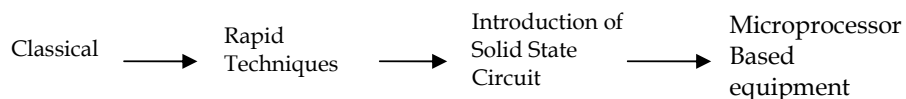
In this situation, the cards are probably stacked in the favour of the youth who because of his excess energy and outstanding technical training cannot suffocate. This generation gap is revealed when one tries to evaluate various personnel. There are some who still practice chemistry as taught by books by Gladstone and Partington etc. in the case of inorganic chemistry and Fieser and Fieser for organic chemistry. Incidentally, it could be the chemistry by Mitra.

Present approach in chemistry is mainly based on general valence theory, Ligand field theory and structure etc., which are incorporated in the text books, such as Cotton and Wilkinson (inorganic) and Morrison and Boyd (organic). The older text books (syllabus) contained descriptive chemistry. This knowledge is taken for granted while the modern concept is based on approach with emphasis on kinetics and thermodynamics.

In an organizational design, to cope up with "Youth vs. Experience" problem, things like job enrichment programs should be incorporated to maintain technical competence.

New Breed of Specialists

The analytical services are in the same state of affairs. The methods are time consuming and there is every scope for errors in the numerous steps that are involved. During the technical/ analytical instrument explosion, there were three major development stages, whereby previous generation of equipment was made obsolete.



The next development in analytical instrumentation will bring the new electronics and new applied mathematics in order to provide fundamentals and reliable analytical data on a large scale.

Any R&D establishment in its infancy is at a stage in which most of the equipment that will be purchased will have solid circuitry and microprocessors, and also most of it will be modular form. Thus, equipment will not become obsolete in the near future, and at the same time we will have powerful tools at our disposal. This should be a point of respite for the financial manager in corporate structure who always feels the difficult task of cost - justifying.

The mature (older) professional in this technological quantum jump can easily be left behind and he will feel obsolete and useless. In this situation, the original organizational design must include viable options for either members of the team without creating win/ lose situations.

Job Rotation

More frequently no provision is made in the original organizational design for planning rotation. When a number of specialists go on vacation or are absent for a longer period, the question arises for substitution. If the former policy is not in existence, the administration breaks down. As a contingency plan, the job rotation is essential for the smooth running of a laboratory or for that matter any organization. It also reduces the monotony of doing the same work day in and day out, especially in a place where there is more emphasis on routine analytical services. In some personnel there develops an ego and false pride and misconception that he has become indispensable by the virtue of doing the same job for such a long time and he feels a false security out of knowing that his colleagues do not know anything about his job function.

Job Progression

Most of the analytical R&D laboratories should have the following job progression media which when implemented could become ~ long time motivation. The four areas are:

- New Research techniques
- Method Development
- Problem Solving
- Service Analysis

Now let us work through the above scheme. Consider a young graduate who acquired his training in the University environment. He can be drafted in an organization, where he can couple his youthful energies in developing new techniques which he learned during his training in the academic environment and effectively make the transition from his previous atmosphere into the real world.

In later years he becomes saturated with this type of experience; the breadth of the individual will have increased. His next step is method development. As time goes on the experience gained in method development leads many persons to become top -notch problem solvers who perform unique roles in the organization. Experience, knowledge, enthusiasm and self motivation to reach a definite solution are the traits of these individuals. The final shift for these individuals is to assign them as managers or supervisors. The services here are less demanding and less challenging and crucial to the corporation. This is a stage where a scientist has sacrificed his career and succumbed to managerial, administration and paper pushing tasks. As a scientist, he accepts his challenge or invariable he is forced into it as he finds out for himself that lots of things around him are not proceeding in the best direction and he feels that he is the person to make it right. In summary, the organization has to provide such routes for career progression for personnel.

Psychological Contract

Schein in 1970 discussed psychological problems in an organization; he emphasizes a valuable concept when he considered the problem of motivation of people towards a high level performance. He describes the relationship between an employee and the corporation as a psychological contract. It implies that the employee has a variety of expectations of the organization and vice-versa.

These expectations are not written as a formal agreement; however, they operate powerfully as the determinants of behaviour.

Government

The third consideration, the government influences and bureaucracy needs to be addressed to complete the major factors affecting the organization designer's thinking.

Though I have included this factor in my discussion, I don't feel that I am competent enough to make any worthwhile contribution at this stage in the game. However, I can visualize a situation in the future where a need will arise to establish various regulations at the local, state and central levels that will have to be taken into account. At this time, in view of then existing regulations, the compliance with the regulations will be the issue.

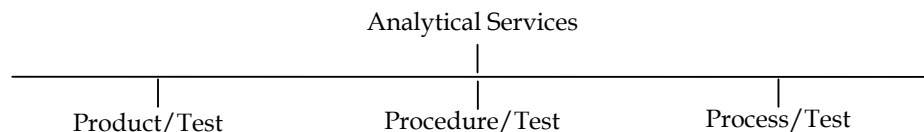
The prime objectives in designing the analytical R&D organization will be the ability to perform promptly and precisely according to the regulations. This will

happen when there will be lots of genuine awareness of the major problems in the area of air pollution, water pollution, quality control of the raw materials and the finished products etc.

After having considered all the background requirements for R&D set up, let us now consider the structure.

Organizational Structure

Several options are possible and it is beyond the relevance of this paper to discuss them all here. In control laboratories where all the analyses are associated with an on going product or process and the procedures are all written up, the simplest option will be -



The organization designer has many options at his disposal. He can develop the structure either an analyses oriented or product oriented or it would be oriented along the lines of discipline.

Whichever way is followed, the following have to be kept in mind:

1. Staffing and equipping the facilities and avoid duplication;
2. Keep a leeway for the growth of corporate organization;
3. Keep viable options for diversification of products

One final factor must be kept in perspective. An analytical service organization must be capable of responding to emergency requests to solve critical problems immediately.

Whatever posture the analytical group has, a prime requirement is that in a given crisis it must respond promptly and accurately.

Personal Integrity

In absence of proper title, I have tried to lump together under this heading some after thoughts. The greatest morale problem the organization designer has to face, right from when the site is acquired until the construction of the building and equipping, is that there is a lot of vested interests of different parties or individuals involved which ultimately results in a project being acquired which is totally off the given specification.

This sickness of vested interests is not peculiar to our local situation. It is a worldwide phenomenon. It can occur in developed countries -America, Canada, U. K. etc. as well as in developing countries, right on our doorsteps. However, there is a significant difference between the two situations.

Vested interests can be served in various ways such as under the table commission, substitution of inferior quality of material for higher prices etc.

The ultimate delivery of the product does not suffer in developed countries. In other words, after serving the vested interests of various parties, the final project is delivered to Specification. A far cry from a local situation.

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“Go, No-Go” has no legal Basis: Environment Minister, GOI - Pradnyesh Agre

Union environment minister, Government of India (GOI), *Jayanti Natrajan*, told the Group of Ministers (GoM) that system of ‘go’ and ‘no-go’ has not been mandate by the *Forest Conservation Act, 1980 (FCA)* and does not have Legal standings. This is a significant departure from stand advocated by her predecessor *Jairam Ramesh*, namely that allowing coal mining in forest areas would “defeat the spirit” of the FCA. Natrajan, however told GOM, chaired by Finance minister Pranab Mukharjee, that environment minister cannot grant blanket permission for **“diversion of forest land for non-forest purpose**

“The ‘Go- no go’ Classification Classifies; No Go zones which are statutorily declared prohibited or protected zones under various central, state and local government regulations and international conventions. These No-Go areas should exclude from mining considerations.

The classification has effects stalled production of 600 million tone of coal in 203 blocks. Ramesh had designated about 30% of 4, 50,000 hectare encompassing 206 coal blocks, as “no-go” areas for mining. The coal ministry had then

opposed the demarcation saying it would hamper India’s economic growth as potential production capacity of 660 million tonnes per annum falls in these areas. At meeting Natrajan said her ministry agreed with nine out of 18 recommendations given by *BK Chaturvedy committee* that was set up by the GoM to examine the efficacy and legality of existing forest clearance norms and procedures being followed, which had been criticized by Coal, Steel and power ministries and resolve issues related to mining of coal.

The committee recommended abonding the ‘go’ ‘no-go’ system and also lifting the moratorium imposed under the Comprehensive Environment Pollution Index (CEPI) from Chandrapur and Korba coalfields by September, 30.

In the view of the Supreme Court judgments on Lafarge cement and bailadila iron ore mine, GoM has agreed to review the circulars issued on November 1, 2010 and March 31, 2011 on account of which many projects have been stranded.

Commerce and industry minister Anand Sharma had asked the environment ministry to relax environment clearance norms for projects up to Rs.100 crore or mandate investor to spend 5 percent of their investment on improving the environment.

It is no doubt to assess the norms and conditions but relaxing the present norms would create threat to the Forest and its biota haphazardly. It’s a nice suggestion to spend on improving the environment quality but protection conservation of existing



forest and bio diversity should be given priority because the question arises - will it be possible to retrieve their (rich forests under no-go zone) intricate biological features and biodiversity even after best efforts in afforestation and reclamation? Is the scientific study of these area have been done for the green cover and topography and is checked for the mining after-effects and adverse impacts, before allowing the mining in restricted areas? Also the available and necessary scientific study may take in account checked for effects of mining on animals living in vicinity in way of their behaviour, migrations. The available guidelines will help in these studies and will lead to find the efficacy of classification as well as the impacts and benefit of projects in unbiased way.