CHAPTER I

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1.1. Preamble

Performance appraisal methods have gained importance nowadays in view of the growing awareness about human resource development among employers. The performance appraisal system adopted in Research and Development organizations are different in the sense that output cannot be measured in quantitative terms as in the case of manufacturing organizations. Technological developments taking place elsewhere influence the thrust and focus of research, forcing scientists to reorient their priorities. Globalisation adds a new dimension to this problem. Other factors include natural calamities and market forces as well as government policies such as those that require research organisations to be self-sustaining by generating their own funds through sponsored research work from industries. In this study, an attempt has been made to assess the performance appraisal methods adopted in the Council of Scientific and Industrial Research (CSIR) vis-à-vis those adopted in other public-funded R&D organisations. Performance appraisal has been decreed as a subjective instrument, implying that the confidential report is not an index of performance, but it is only an index of the degree of relationship one has with his boss. This myth has been slowly giving way to an objective evaluation, paving the way for quantitative ratings. Performance appraisal should also serve the purpose of potential appraisal/training needs of the employees. Performance appraisal is the administrative device used to plan and control the assignment of work and to communicate to the employee how well or poorly
it is completed. Additionally, if used effectively, performance appraisal can be used as a motivational tool in that future performance goals can be established for the employee and that knowledge of the results can be provided via the performance appraisal. Furthermore, the appraisal system can be used to provide a basis for reward such as pay increases and promotion.

In India R&D is generally pursued by Government of India by agencies like the Department of Space (DoS), Department of Atomic Energy (DAE), Defence Research and Development Organisation (DRDO), and central autonomous bodies like Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR) and Indian Council of Medical Research (ICMR). The research expenditure is less than 1% of the gross domestic product (GDP). On the contrary, the expenditure in advanced countries like the U.S.A, Japan, Germany and South Korea the expenditure on R&D ranges from 2 to 4% of their respective GDP (Balaram, 2004). Indian R&D is only coming of age after more than 50 years of independence. The contribution of the private sector in R&D is meager in comparison to that in western countries. Therefore the number of scientists working in the private sector is small in number India.

A problem with the performance appraisal of scientists is that the outcome of their performance cannot be judged precisely as in the case of personnel belonging to the manufacturing sector where products can be quantitatively measured. However, the performance of the scientists can be judged by factors such as papers published in important peer reviewed journals, impact factor of the journals (journals like Nature have high impact factors) citation index (the number of times the work of a scientist is
quoted by fellow scientists), number of projects undertaken for industries (extra-
budgetary support), Intellectual property generated in the form of patents filed in India
and abroad, technologies transferred to industries, socially relevant problems addressed,
environment impact assessments of new initiatives, effluent treatment, weather
prediction, foreign exchange saved, low-cost medicines developed, and such other factors
that cannot be physically measured (for e.g. tsunami warning systems, storm surge,
cyclone prediction etc.) Natural Disaster Management systems can save millions of lives
across the globe, the value of which cannot be measured in physical terms. However,
there can be systems of performance appraisals that can measure, to the extent possible,
the performance of scientists (may be their physical traits, behaviour, attitude and
aptitude apart from measuring their outputs in a particular period, normally one year) at
the time of considering their promotion, which may be considered after a minimum
assessment period of three years to five years of residency period upon reaching a
prescribed threshold marks.

Performance appraisal and counseling are key to professional development. Many
techniques have been developed to administer and document performance
appraisal. Each has its own good and bad points but all are aimed at reducing the
subjectivity of the appraisal. The basis of each format has evolved into three major areas:
1) appraisals based on traits or attributes, 2) appraisals based on goals (MBO) and cost-
related outcomes, and 3) appraisals based on behavioral criteria (BARS).
The literature dealing explicitly with appraising research professionals is diverse. Edwards, Wolfe and Sproull (1973)\(^2\) state that there has been little agreement on the operational definitions of scientific performance, let alone on what components to include or who should measure it. Roman (1968)\(^3\) states that establishing standards for performance evaluation of research professionals is extremely difficult because the work is usually no-repetitive and lacks precedent. Also, the lack of quantifiable factors for this type of employee is a major problem. Performance evaluation should include attributes of both personality and job-related activity. Roman suggests that a work management system could be a means of evaluating R&D performance. This particular system consists of relating individual assignments to project objectives and commitments.

Evans (1969)\(^4\) emphasizes that the factors chosen for R&D employees should be unique. Examples of these factors are ingenuity, creativity, and ability to plan and conduct research and to prepare reports. Gibson (1981)\(^5\) suggests that each professional have a descriptive scenario on the past period's significant accomplishments and a normalized scenario that includes long-term goals.

Harper (1983)\(^6\) has recommended the use of performance review and development (PR&D). Basically, it is a multi-step process that combines the ideas of MBO with training and development. However, for this type of program to work, it must be used in an organisational context that places a premium on the quality of work life.

In summary, there is a relevant body of literature presently available on the measurement of individual research professionals. There are some good suggestions in this literature that deserve consideration. There seems to be a consensus that some type of MBO approach for research professionals should be employed. Unique attributes should
be used in performance evaluation instruments to get at the factors such as creativity and ability to plan research projects, which are unique to the research professional. Rewards should be individualised. Supervisors should be sensitive to individualised rewards and needs. Career objectives of the research professional must be considered.

In an effort to learn more about the concerns that practitioners have about performance appraisal, Meinhart and Pederson surveyed 114 supervisory and non-supervisory R&D professionals at a large energy company in the Southwestern United States.

To sum up, there were no significant differences between supervisory and non-supervisory responses, and their principal concerns were subjectivity of the process, measurement problems with some performance attributes such as creativity and judgment, and ambiguities in the relationship between specific attributes and the evaluation of overall performance. There is no traditional method of classifying performance evaluation forms. However, there are certain characteristics that one can use in classifying them. These characteristics are the approach (MBO, attributes, critical incidents, etc.), the number of attributes, and uniqueness to the R&D organisation. They were interested in the uniqueness of the particular instrument to the R&D department. It is obvious that some of the instruments have attributes that are not optimal for research professionals. These instruments were apparently designed with the overall organization in mind and they sometimes contain attributes that don’t fit well, e.g., evaluating profit performance or planning and organisation.
The survey of performance appraisal instruments employed by the 20 organisations studied by Meinhaant and Pederson (1989)\(^7\) offered a perspective rarely articulated in the literature. Only five of the organisations used an instrument unique to the R&D unit. Currently fashionable constructs in the literature such as BARS were little used. A goal (or MBO) approach was the overwhelming favorite. Use of attributes varied a great deal.

Meinhart and Pederson (1989)\(^7\) have recommended the following for conducting the performance appraisal of research professionals.

1. The instrument should be designed especially for research professionals. Their needs are sufficiently different from those of managers and other professionals to require special care.

2. The instrument probably should focus on the MBO approach, which seems particularly relevant because the R&D environment involves complexity, dynamics, and high project and individual differentiation.

3. The supervisor and the subordinate should identify relevant tasks (projects) for the evaluation period, appropriate goals and objectives, and actual levels of performance for each task.

4. The supervisor and the subordinate should identify key performance attributes that are used in accomplishing the task. They should be chosen from a generic set of attributes that is relevant to the R&D organization. Such a set can be determined through a BARS procedure. Creativity and judgment are examples of attributes that are difficult to operationalize and measure.
5. The supervisor should establish and communicate the priority of goals for each task performed by the subordinate.

6. The supervisor should establish and communicate the overall performance evaluation and performance trend over the past three years or less.

7. Motivational needs, career objectives, and development needs of the employee should be explicitly considered. These must be developed, communicated and made part of the formal process of performance evaluation. The supervisor should, by his or her signature, make a commitment to a proposed development program.

8. Employee inputs to the performance and development process should be explicit.

9. Every employee should receive a copy of the completed performance appraisal documents. This will serve both developmental and legal purposes. Only two of the 20 organisations studied explicitly required that the employee receive a copy of the completed appraisal instrument.

10. They have concluded that an instrument employed only for research professionals, and stressing special characteristics of their job, can be a key element in enhancing the effectiveness of research management.

The Council of Scientific & Industrial Research (CSIR), the premier industrial R&D organisation in India, was constituted in 1942 by a resolution of the then Central Legislative Assembly. It is an autonomous body registered under the Societies Registration Act of 1860. CSIR aims to provide industrial competitiveness, social welfare, strong S&T base for strategic sectors, and advancement of fundamental knowledge.
The Strategic Road Map designed for CSIR as it stepped into the new Millennium envisaged:

1) re-engineering the organisational structure;
2) linking research to market space;
3) mobilising and optimising the resource base;
4) creating an enabling infrastructure; and
5) investing in high quality science that will be the harbinger of future technologies.

The Government of India has announced a new Science and Technology Policy 2003 in the early years of the new century. It presents science and technology with a human face and emphasizes realities such as facing open, global competition; need for examining social, economic and environmental consequences of S&T; and aggressive international benchmarking and innovation. It advocates strong support for basic research. It emphasizes manpower build-up and retention as important challenges. It advocates dynamism in S&T governance, through the participation of scientists and technologies.

Today CSIR is recognized as one of the world’s largest publicly funded R&D organisations having linkages to academia, and other industry R&D organisations. CSIR’s 38 laboratories not only knit India into a giant network that impacts and add quality to the life of each and every Indian but CSIR is also party to the prestigious Global Research Alliance with the objective of applying global knowledge pool for global good through global funding. CSIR’s R&D portfolio embraces areas as diverse as aerospace, biotechnology, chemicals and almost the A to Z of Indian Science.
From time to time there were questions raised about the personnel policy of CSIR. The Valluri/Varadarajan Committee of 1981 classified the scientific and technical staff in to four groups popularly called as New Recruitment and Assessment Scheme (NRAS). Scientists were placed in Group IV; technical staff in group III; the support staff in group II or I depending upon their educational qualifications. In each group there were several grades and a minimum residency period is prescribed for assessment to a higher grade. In this assessment scheme there was a rider for promotion. Percentage restrictions were imposed for moving from one grade to next depending upon the grades. The person in the lowest grade got 100% promotion without any restriction. When one moved further in the ladder restrictions were imposed that at a higher level only one third of the eligible staff were promoted. This created frustration among the staff. This anomaly was removed by another scheme called Merit and Normal Assessment Scheme (MANAS). Under this scheme, scientists with outstanding grades in their Confidential Report get promotion in three years upon getting higher threshold marks, which were 10 marks higher than those for normal promotion. The final grading was communicated and the staff members were let known their grades which created a reasonable sense of transparency. April 1, 2001 onwards, CSIR has adopted a new Recruitment and Assessment Procedure under which the scientists do not know their Annual Performance Appraisal scores. This created a sense of desperation among the scientific community. The researcher has made an attempt to study the performance appraisal methods adopted in the CSIR over the period of time to ensure a balanced Performance Appraisal Method.
CSIR had a total manpower of 18,412 during the financial year 2003-04 (Group IV staff: 4,670; Group III Technical staff: 2953; Group II Support staff: 3297; Group I staff: 2337; and administrative staff: 5,146). Establishment and administrative expenses constituted 66% of CSIR budget (Kelkar, 2005).^8

The CSIR is having its own performance appraisal system from the time of its inception. The New Recruitment and Assessment Rules has been introduced from 01-04-1982 was in vogue upto 31-03-1988. It has percentage restriction for promotion from different groups and grades. The Merit and Normal Assessment Scheme (MANAS) was introduced from 01-04-1988, which had three components, viz. personal interview 40% weightage, peer review 30% weightage and Annual Performance appraisal reports 30% weightage. The new Annual Review of Performance was introduced from 01-09-2002 was a closed system. The scientists did not know their grades. This created some difficulties. The research study has been undertaken to address the problems.

1.2. Objectives

The specific objectives for which the study was taken up were

1) to critically evaluate the performance appraisal systems of various R&D organizations,

2) to analyze the CSIR system for further development,

3) to highlight thrust areas for objective evaluation and

4) to suggest a revised performance evaluation system for CSIR.
1.3. Methodology

In India, most of the scientific research is carried out in public funded R&D organisations, which gets substantial funding from the Government of India. In the United States, 70% of the R&D spending is met by the Industries. In India, 80% of R&D funding allotment is spent in defence, atomic energy and space sectors. The CSIR budget is over 1000 crores. An attempt has been made by the researcher to study the performance appraisal methods which include the factors assessed, the method(s) of performance appraisal and how the information is shared with scientists. The performance appraisal methods of the public sector organisations like Department of Ocean Development (DOD), Indian Council of Medical Research (ICMR), Steel Authority of India Limited (SAIL), Indian Oil Corporation (IOC), Department of Atomic Energy (DAE), National Remote Sensing Agency (NRSA), Oil & Natural Gas Corporation (ONGC), ARC International, Hyderabad (ARC), Defence Research Development Organisation (DRDO). CSIR is having 38 labs throughout the length and breadth of the country. It is almost impossible to get details from scientists working in these laboratories which are located at various centres in the country. For the purpose of collection of data, the researcher decided to select 5 CSIR labs which he had intimate relationship. Though the selection of labs was made purely to suit the convenience of the researcher, in order to ensure collection of data, independent respondents were chosen at random.

Information was also collected by a suitable questionnaire from senior scientists of the CSIR Laboratories viz., Indian Institute of Petroleum (IIP), Dehradun, Central Leather Research Institute (CLRI), Chennai, National Institute of Oceanography (NIO),
Goa, Industrial Toxicological Research Centre (ITRC), Lucknow, and Central Electrochemical Research Institute (CECRI), Karaikudi. The Researcher was a nodal officer for implementing the personnel policy of CSIR. The researcher has conducted informal discussions with senior scientists and also used the ideas he has developed over a period of 20 years in CSIR for conducting this study. For the purpose of this study, a questionnaire was developed which was vetted by senior scientists. For the purpose of this study, the scientists were divided into four groups, viz., a) young Scientists (below 35 years); b) middle-level scientists (between 36 and 45 years); c) senior scientists (between 46 and 55 years), and d) senior most scientists (above 55 years). The questionnaire administered to the scientists addressed fifteen parameters about the new ARP (Annual Review of Performance) and the data collected were interpreted by a two-way ANOVA to find out whether scientists agreed or disagreed with the statements made in the questionnaire, or undecided about them.

1.4. Limitations

For the purpose of the study the researcher selected only five CSIR laboratories where he had chance to work closely with scientists. The thrust and focus of each of these laboratories/Institutes are different, and their geographical locations cover a substantial length and breadth of the country. It is also expected that the socio-cultural factors play a significant role in the scientific temper of the scientists. Apart from the organisational climate, working environment and pressures of unions also play a significant role in assessing performance by other scientists. Finally, group dynamics do have their own role to play. The CSIR labs significantly differ from each other. There
were many instances in the past where scientific studies were conducted selecting only few labs. For example, the Kelker Committee (2005) which took up a study to evaluate the relevance of CSIR has conducted to study by choosing only six labs out of 38 labs.

1.5. Structure of the Thesis

The Thesis is presented in six chapters including the present first Chapter.

The second Chapter presents the review of Literature on performance appraisal about the Forms, problems of Performance Appraisal, bias in Performance Appraisal and methods of ensuring objectivity including the latest trends on 360° appraisal.

The third Chapter deals with the different systems of performance appraisal methods adopted in Public funded R&D Organisations in India such as Oil and Natural Gas Corporation (ONGC), Steel Authority of India Limited (SAIL), Indian Oil Corporation (IOC), Department of Ocean Development (DOD), Defence Research Development Organisation (DRDO), Indian Council of Agricultural Research (ICAR), Indian Council of Medical Research (ICMR), Indian Institute of Remote Sensing (IIRS), Department of Atomic Energy (DAE) and ARC International (ARCI).

The fourth Chapter deals with the performance appraisal system adopted in Council of Scientific and Industrial Research (CSIR) the organisation where the researcher is currently employed. The study covers the old APAR and its limitations and problems, provisions and procedures, shortcomings, problems experienced in normalisation and a discussion on other issues.
The fifth Chapter presents and analyses pinions of respondent scientists on various aspects of performance appraisal system.

The new performance appraisal system developed by the researcher based on data analysed for the present study is presented in the six and final chapter.
REFERENCES


