UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS

GIRISH CHANDRA

UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS

HUMAN RESOURCE MANAGEMENT IN WIHG

Ljubljana, October 2009 **GIRISH CHANDRA**

AUTHOR'S STATEMENT

I, Girish Chandra, hereby certify to be the author of this Master's thesis, which was written under the mentorship of professor (dr.) Nada Zupan, in compliance of the Act of Authors' and related Rights-Para.1, Article 21. I hereby agree the thesis to be published on the website pages of ICPE and the Faculty of Economics, University of Ljubljana, Slovenia.

October 2009 Girish Chandra

ACKNOWLEDGEMENTS

Undertaking a project of the master's thesis makes me owe a great deal to so many people both from Slovenia and India.

Intellectually, professionally and personally I am grateful to professor (dr.) Nada Zupan, (Faculty of Economics, University of Ljubljana), my mentor, who inspired my interest in the project. This academic exercise could not have been accomplished but for her unstinted co-operation and guidance. I am thankful to her for her co-operation, guidance, understanding and sympathies on the presentation of the material and for her excellent and timely feedback.

In the academic community, I thank professor (dr.) Nevenka Hrovatin (Co-dean, Faculty of Economics) who has always been very encouraging to me by her intellectual and technical inputs about writing the thesis and for creating and nurturing a supportive intellectual environment. In her capacity as programme director for this MBA programme, she ensured her fullest co-operation to enable me to enjoy my studies during my nine month long stay in Ljubljana and subsequently successful completion of this thesis under her creative leadership.

I am also obliged to Mr. Aswin Shrestha, former senior functionary in ICPE, Ljubljana who had always been very supportive to me in my endeavor. His honest and sincere efforts and liaison with the faculties of the University right from the beginning of the session contributed significantly in timely completion of this exercise.

I would also like to thank dr. Suman Agrawal, Deputy Secretary, Department of Science and Technology, New Delhi and the Director and Registrar of WIHG, Dehradun for their instrumental help without which the timely completion of this task would have been very difficult for me. My interactions and discussion with them have proved to be very fruitful in writing this project.

It has been a great pleasure for me personally and professionally to work and interact with numerous other people. I apologize to them for not mentioning their names here. I would cherish my association with these people and I am thankful to them for their understanding whenever I may not have measured upto their expectation. I shall always remember the support and co-operation, it was my good fortune, to receive from all of them and I am aware, this was due to their generous disposition.

I once again express my sincere thanks to all those directly or indirectly associated with me in this effort for their unflinching co-operation and courtesies. I would also like them to permit me to wish them all the great happiness and all the great success in their work. Their continued and fruitful interaction and association made my task interesting, exciting, and enjoyable.

GIRISH CHANDRA

TABLE OF CONTENTS

		PAGE
	INTRODUCTION	1
1	**HUMAN RESOURCE MANAGEMENT - CONCEPTS AND PRACTICES**	9
1.1	Definition of Human Resource Management	9
1.2	Strategic Human Resource Management-perceptions and perspectives	10
1.3	HRM Practices	12
1.3.1	Recruitment and Selection	13
1.3.2	Performance Management	13
1.3.3	Training and Development	14
1.3.4	Compensation and Rewards	15
1.3.5	Employee Relations	15
1.4	Effect of HRM on Performance of an Organization	16
1.5	Issues influencing Human Resource Management	17
1.5.1	Talent Management	18
1.5.2	Managing Diversity	18
1.5.3	Leadership Development	19
1.5.4	Management of Change	20
1.5.5	Compensation and Rewards	20
1.5.6	Management Information System	21
1.5.7	Measurement of HR Effectiveness	21
1.5.8	Ethical Issues	22
1.6	Dynamic Role of HR	22
2	**WIHG FROM THE HRM ANGLE**	24
2.1	Profile of Wadia Institute of Himalayan Geology	24

2.2 Present Scientific Scenario and Future Plans 25

2.3 Organization of HR in WIHG 26

2.4 Human Resources Strategy 29

2.5 Human Resource Activities in WIHG 31

2.5.1 Recruitment, Selection and Placement 31

2.5.2 Performance Appraisal System 32

2.5.3 Training 33

2.5.4 Motivation 33

2.5.5 Communication 34

2.5.6 Employee Development 34

2.5.7 Compensation 35

2.5.8 Employee Benefit Scheme 35

2.5.9 Institutional Relations 36

3 COMPARARIVE ANALYSIS WITH OTHER SCIENTIFIC INSTITUTIONS 37

3.1 Department of Science and Technology 38

3.2 International Advanced Research Centre for Powder Metallurgy and New Materials 40

3.3 Birbal Sahni Institute of Palaeobotany 41

3.4 Comparison with Other Institutions 42

4 EFFECTIVENESS OF HUMAN RESOURCES IN WIHG 45

4.1 Methodology 45

4.1.1 Methodology for Questionnaire Survey 46

4.1.2 Methodology for SWOT Analysis 51

4.2 General Overview of HRM Effectiveness in WIHG 51

4.3 Understanding Philosophy, Policies and Practices of HRM in WIHG 53

4.4 Results of the Survey on HR Effectiveness in WIHG 57

4.4.1 HR effectiveness-an analysis of primary data 57

4.4.2 Analysis of major HR challenges for WIHG 69

4.5 SWOT analysis of HRM in WIHG 70

4.6 Identifying HRM Needs in the Existing HR Activities 72

5 HUMAN RESOURCE MANAGEMENT - PROPOSED STRATEGIES 73

5.1 Selective Employment 73

5.2 Talent Management 75

5.3 Development of Creative Leadership 76

5.4 Team-work 77

5.5 Performance Management 77

5.6 Training and Development 78

5.7 Compensation and Rewards 79

5.8 Technology to Facilitate Human Resource Management 80

CONCLUSIONS 81

REFERENCES 83

APPENDICES

LIST OF TABLES

PAGE

Table 1 Roles and responsibilities of HR department 12

Table 2 Changing role of HR 23

Table 3 Size of human resources in WIHG 28

Table 4 Age profile of scientists in WIHG 29

Table 5 A comparison of HR in DST, ARCI, BSIP and WIHG 44

Table 6 Analysis of e-mail and other responses 47

Table 7	Details of response rate from scientists of WIHG on HR efficacy survey-2009	47
Table 8	Scientists belonging to three different regions	49
Table 9	Past three year data relating to disbursement of funds to employees	55
Table 10	RTI cases, complaints against harassment of fair sex and grievances of the employees	56
Table 11	Analysis of recruitment and selection system in WIHG	58
Table 12	Analysis of talent management and leadership development in WIHG	59
Table 13	Analysis of performance appraisal system in WIHG	60
Table 14	Analysis of effectiveness of training in WIHG	61
Table 15	Analysis of employee development activities in WIHG	62
Table 16	Analysis of compensation package in WIHG	63
Table 17	Analysis of employee benefit in WIHG	64
Table 18	Analysis of effectiveness of communication in WIHG	65
Table 19	Analysis of team-work in WIHG	66
Table 20	Analysis of employee relations in WIHG	67
Table 21	Analysis of job satisfaction in WIHG	68
Table 22	Analysis of effectiveness of technology in HRM in WIHG	68
Table 23	SWOT Matrix of HRM in WIHG	71
Table 24	Human resource need of WIHG	72

LIST OF FIGURES

Figure 1	Organizational set-up of WIHG	27
Figure 2	HR analysis of WIHG scientists	28
Figure 3	A comparison of HR	45

Figure 4	Representation of two age group of respondents	48
Figure 5	Region wise representation of scientists	49
Figure 6	Pie-chart representing age of employees	50
Figure 7	Pie-chart representing employees in terms of their experience	50
Figure 8	Co-relation between the age and the rank of the scientist based on primary data	51

APPENDICES

Appendix I	Letter of Human resource efficacy survey-2009
Appendix II	Questionnaire of Human resource efficacy in WIHG-2009
Appendix III	Sources used for preparation of questionnaire for survey
Appendix IV	Annual confidential report form for scientist
Appendix V	Acronyms
Appendix VI	Analysis of response from scientific (including technical) staff on the basis of primary data
Appendix VII	Analysis of response from administrative (including ancillary) staff on the basis of primary data

INTRODUCTION

The Department of Science & Technology (DST), Government of India [website-http://www.dst.gov.in] plays a pivotal role in promotion of science and technology in the country. The activities of the Department range from promotion of high end basic research and development of cutting edge technologies on one hand to service the technological requirements of the common man through development of appropriate skills and technologies on the other.

The Wadia Institute of Himalayan Geology (WIHG) is an autonomous (grant-in-aid) [website-http://www.wihg.res.in] research Institute of the Department of the Science & Technology, Government of India, established in June, 1968. During the last quarter century the Institute has grown into a centre of excellence in Himalayan Geology and is recognized as National Laboratory of International repute with well equipped laboratories and other infrastructural facilities for undertaking advance level of research in the country.

The Institute functions as a society registered under Societies Registration Act (Act XXI of 1860). Its headquarters is located at 33, General Mahadeo Singh Road, Dehradun – 248 001 (Uttarakhand), India. At present the Institute's annual budget is about rupees 15 crore (about 2.3 million euro) which it receives from the Department of Science and Technology.

This Institute carries out basic research in Himalayan Geology and related fields which includes geodynamic evolution, mountain building processes, geo-environment and mineral resources. The vision of the Institute is the application of emerging knowledge about the earth processes for fostering sustainable development and secured living in the Himalayan region. Its mission is to continuously strive to unravel the geological truths related to mountain building, particularly Himalaya, for improving understanding of geodynamic processes, climate variability, natural resources, and evolution of life, assessment and mitigation of natural hazards.

Receding of Himalayan glaciers is a much discussed issue. The feared consequences of global warming on glaciers, melting of glaciers and dynamics of water flow in the main rivers of India have urged the Institute to mount new initiatives. The vision of Wadia Institute is expanding. Projects of importance in the long terms horizon on the one hand, and those of immediate need for enhancing the preparedness to avert the damaging consequences of natural hazards on the other have attained high significance (Ramasami, 2007).

The main objective of the Institute is to carry-out research towards the development of new concepts and models concerning geodynamic evolution of the Himalaya through an integrated inter-disciplinary approach. However, in the field of science, scientific activities and scientific research, there is still a great deal of ground to cover.

The Institute functions under a bureaucratic set up. Robbins (2000) has defined bureaucracy as characterized by highly standardized operating tasks achieved through specialization, very formalized rules and regulations, tasks that are grouped into functional departments, centralized authority, narrow spans of control, and decision making that follows the chain of command.

The success of human resource management in such a scientific Institute depends on how it creates a conducive atmosphere for the scientists to grow and develop. The greatest instrument of scientific research and development is the scientist. We have to give him a fair deal and make him feel comfortable from unnecessary hassles. We must create an atmosphere where good scientists are produced.

Nature and Elements of HRM

HRM is based on ideas and techniques developed to enhance worker's motivation, productivity and performance. According to Peng (2007), it clearly indicates that people are key resources of the firm to be actively managed and developed. In the last two decades (since the late eighties), HRM has become even more important and often sports the word strategic to make it "strategic HRM". From a lowly administrative support function, HRM has now increasingly been recognized as a strategic function that together with other crucial functions such as finance and marketing, helps accomplish organizational effectiveness and finance performance.

The importance of HRM, from a strategic perspective, to the management of HR is seen to be a source of competitive advantage (e.g. Huselid, Jackson & Schuler, 1997; Poole & Jenkins, 1996; Schuler, 1992). A strategic approach to HRM is generally characterised by linking the external and internal environment of the business to the management of HR (Baird & Meshoulam, 1988; Beer et al., 1984; Hendry & Pettigrew, 1986). These features emphasise the need to achieve consistency and complementarities among HR practices (Baird & Meshoulam, 1988; Baron & Kreps, 1999) including the uniformity of practices and treatment among individuals, continuity in HR philosophy and practice and technical complementarities among policies and practices (Baron & Kreps, 1999).

Zupan and Kase (2005) lucidly express that frequently, conceptual SHRM models assume linear relationships between the constructs of the model (Boselie et al., 2001). As an example, the SHRM model proposed by Becker et al. (1997) suggests that business and strategic initiatives are the basis for designing HRM systems, thus affecting employees skills and motivation as well as job design and work structures. These systems result in creativity, productivity and discretionary effort that lead to improved organizational performance.

Schuler (1992) proposes that strategic HRM is about integrating people issues with the strategic needs of the business. Therefore, business strategies provide the foundation for HRM strategies, policies and processes to be linked. The elements of the HRM mix are the

philosophy, policies, programs, practices and processes. First, philosophy refers to the organization attitude towards its human resources and the extent to which they contribute towards the success of the organizations. It is used as a guideline for formulating the necessary actions required to manage its HR strategically. Second, policies are used to provide the link between the organization's business needs and specific people related business issues. These issues are critical for the organizations as they impact on the short and long term aspects of people management relevant to the business. Third, programs are shaped by HR policies in an attempt to introduce organizational changes that are essential for meeting business needs. Fourth, HR practices are used to provide the motivation to match the specific role behavior required to reinforce the desired performance. Finally, processes ensure that the HRM practices support the strategic business needs.

HRM **Philosophy:** Philosophy studies the theoretical basis of a branch of knowledge or experience. It is the study of fundamental nature of knowledge, reality, and existence (Concise Oxford Dictionary). The aspects of HRM philosophy that are examined here are those that reflect the organisation's attitude towards its human resources (following Schuler, 1992). The HRM philosophy of the organisation can often set the tone of HRM within the firm, as also reflected in the firm's policies and practices. The communication of these philosophies can be seen as a source of competitive advantage (Sparrow, Schuler & Jackson, 1994).

HRM **Policies:** Policy is a course or principle of action adopted or proposed by an organization or individual (Concise Oxford Dictionary). Studies examining the extent to which all employees are valued by the organization are exemplified by the research into equal employment opportunity and affirmative action (EEO/AA) policies. In accordance with the Constitution of India, the State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India and the State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them. And there shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State. However, there are exceptions to these laws in favour of certain castes/classes of people which are not adequately represented in the services under the State.

HRM **Practices*:*** Practice is the actual application or use of a plan or method. As demonstrated in Baron and Kreps (1999) and Poole and Jenkins (1996) effective strategic HRM relies on choosing the right practices to achieve alignment with business strategies. Therefore, we have operationalised strategic HRM by focusing on the HR practices used to meet business needs in terms of staffing, appraising, compensating, developing and organising. Best practices often include extensive training, high pay for high performance, and self managed teams (emphasis on team work) (Peng, 2007). According to Geringer, et al. (2002) while the list of best practices may vary, the underlying spirit seems to be the same around the world.

Staffing: Ployhart (2006) refers to staffing as HRM activities associated with hiring employees and filling positions. Organizational effectiveness depends on finding the right people in the right job at the right time (Bechet and Walker, 1993). The competitive aspects of selection decisions become especially critical when organizations are confronted with tight labor markets or when competitors tap the same labor market. If one company systematically skims off the best applicants, the remaining companies must make do with what is left (Noe et al., 2003, p. 218).

Appraising: Basically relates to the assessment of the performance of an employee. It is not sufficient just to get the right persons for the right job at the right time. It is also necessary to motivate them to ensure their performance is consistent with the long term needs of the business. According to Noe et al. (2003, p. 330) a performance management system should link employee activities with the organization's goals. One of the primary ways strategies are implemented is through defining the results, behaviours, and, to some extent, employee characterieistics that are necessary for carrying out that strategy, and then developing measurement and feedback systems that will maximize the extent to which employees exhibit the characteristics, engage in the behaviour, and produce the results. To achieve this strategic purpose, the system must be flexible, because when goals and strategies change, the results, behaviours, and employee characteristics ususally need to change corresponsingly.

Compensating: Chang et al. (2006) emphasize that as an HRM area, compensation refers to the determination of salary and benefit.The compensation practices of the firm are important in creating and maintaining specific behaviour and performance outcomes from employees. Compensation practices are often essential in attracting and retaining those employees who are core to the business (Cheng & Brown, 1998; Nankervis, 1995). Noe et al. state (2003, p. 498) that organizations that link pay to individual performance may be more likely to attract indiviualistic employees, whereas organizations relying more heavily on team rewards are more likely to attract team-oriented employees. The implication is that the design of compensation programs needs to be carefully coordinated with the business and human resource strategy.

Developing: HR development practices include those that focus on training (i.e. immediate concerns) and development (longer term). Recent studies into HRM practices have demonstrated that HR development practices can be used to achieve organisational objectives (Nankervis, 1995) and can be a means to minimise staff turnover (Cheng & Brown, 1998). The HR development practices can also be used to narrow skill gaps and to conduct career planning. Pfeffer and Veiga (1999) have emphasized that the training is an essential component of high performance work systems because these systems rely on frontline employee skill and initiative to identify and resolve problems, to inititate changes in work methods, and to take responsibility for quality. Fritchie (1988) is of the view that all too often technical training is given priority over personal effectiveness. This can result in people having technical expertise but no real ability to deal with people in a clear and fair way. By

balancing technical training with assertiveness training it is possible to develop people who not only know what to do but also how to do it by working with people.

Organizing: Organizing is planning, actuating and controlling organization: dynamic relationships (Rozman, 2006). Teamwork has also been emphasised as a key feature of the flexible organization of the 1990s (Scully, Kirkpatrick & Locke, 1995). According to Pfeffer and Veiga (1999) perhaps one of the greatest payoffs from team-based organizations is that teams substitute peer-based control for hierarchical control of work.

Barney and Wright (1998) opined that, although managers cite human resources as a firm's most important asset, many organizational decisions do not reflect this belief. The authors use the value, rareness, imitability, and organization (VRIO) framework to examine the role that the human resource (HR) function plays in developing a sustainable competitive advantage.

WIHG geologists and scientists have to compete in the world. Scientists of the Institute have really a tough task to compete with the scientists and geologists from the highly developed and prosperous nations who have superior technology, tremendous facilities, stupendous infrastructure and very strong financial backing. What lies in the heart of this research problem is to overcome, by scientific assessment of facts, the challenges by addressing certain questions relating to the service to the employees; questions relating to human resource activities, questions relating to core activities and that of employee relations. Conducting the qualitative and quantitative assessment of HRM in WIHG, studying the HRM activities of the Institute in the last three years-2006, 2007 and 2008 and studying the impact of HRM practices on the core aspects of WIHG and studying the employee's relations and its impact on public services rendered by the Institute through these questions is the gist of the research problem.

Purpose and Objectives of the Thesis

Purpose of this thesis is to find ways to improve the human resource management in the WIHG, Dehradun, Uttarakhand, India. To meet the purpose, this study establishes an enquiry into the HRM aspects of the Institute so as to reveal the barriers relating to HRM aspects of management in achieving the objectives of WIHG and to make suggestions for enhancing the efficiency and effectiveness of the Institute in its core area of activities after bringing out the flaws.

This study examines the influence of core activities of the Institute on its approach to HRM and vice versa. Various indicative elements of HRM such as philosophies, policies and practices are investigated within the Institute. Different Institutes may, however, employ distinctive HRM approaches. The study examines whether the HRM philosophies, with other HRM elements adopted are felt appropriate. The study also examines whether the Institute is operationally sophisticated with an emphasis on harnessing their human resources. Certain objectives of the thesis are listed below:

- to have relevant literature review of the topic of study;
- to study the HRM activities of the Institute;
- to study whether the activities have improved during the last three years;
- to study the effect on time required by the Institute for delivery of services to its employees;
- to study whether the quality of services has improved in the last three years- 2006, 2007, 2008;
- to study the impact of HRM practices on the core aspects of WIHG;
- to study the employees relations and its impact on public services rendered by the Institute;
- to study HR practices of other scientific institutions;
- to carry out SWOT (strength, weakness, opportunity and threat) analysis of HRM in WIHG;
- to assess effectiveness of the human resource activities of WIHG through questionnaire survey in the Institute;
- to identify the areas for improvement based on results of questionnaire survey and SWOT analysis;
- to develop appropriate HR strategies for WIHG to excel in scientific research and development.

Methodology

As aptly illustrated by Rogers (1961, cited by Raimond 1993: 55): 'Scientific methodology needs to be seen for what it truly is, a way of preventing me from deceiving myself in regard to my creatively formed subjective hunches which have developed out of the relationship between me and my material'.

Robson (2002) defines a case study as 'a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple source of evidence'. Robson (2002) further elaborates that data collection methods, employed may be various. They may include questionnaires, interviews, observation, documentary analysis.....

A review of relevant research by Rodwell and Teo (2000) on 'Approaches to HRM on the Pacific Rim....' gives necessary insights into the HRM aspects of WIHG.

To establish an enquiry into the HRM aspects of WIHG, the items are arranged/grouped in terms of whether or not they are indicative of the organization's HRM philosophy, HRM

policies or HRM practices (staffing, appraising, compensating, developing and organising) and the questions assess whether certain methods are currently used by management to communicate with employees at the workplace. The HRM policies of the Institute are assessed by asking whether or not the Institute has a written policy on equal employment opportunities or affirmative action (reservation for scheduled castes/tribes and other backward classes) or against sexual harassment? These policies are also integral to the staffing aspect of the firm's HRM practices. The other HRM practices of the Institute investigated here include questions assessing appraising, compensating and developing aspects of HRM practices.

The case study of the Institute is based on primary data collection and secondary data research. Secondary data such as the research topic of books, journals, WIHG publications, seminar proceedings, internet, hard/soft official records are investigated. Based on the above investigation, a critical analysis is done to get a general overview of HRM effectiveness. Experience of the Director and Registrar of the Institute is also sought by talking to them or by interviews to take advantages of their experiences of managing human resources over a period of time. It is an exploratory study meant to get reasonable understanding of the service delivery mechanism to the employees. Adams and Schvaneveldt (1991) argue that flexibility inherent in exploratory research does not mean absence of direction to the enquiry. What it does mean is that the focus is initially broad and becomes progressively narrower as the research progresses.

The next step is to design a suitable questionnaire (may be with some open ended questions) based on research topic for conducting the Human resource efficacy survey amongst the employees of WIHG. DeVaus (2002) uses questionnaire as a general term to include all techniques of data collection in which each person is asked to respond to the same set of questions in a pre-determined order. The survey helps in understanding how the people at WIHG judge the existing practices and what are their suggestions for improvement. The primary data collection is done to identify the needs of human resources in the Institute.

Examination of secondary data is based on the hard/soft record already available at the Institute. The secondary data research enquires into the issues relating to service to the employees, human resource activities, core activities and employee relations. Observation study is used to assess whether the quality of services delivered measures up to the expectations of the employees and/or they are within the standards fixed by the Institute. Extensive and intensive discussions are also held with the Director and Registrar and some prominent scientists to study the impact of HRM practices on the core aspects of WIHG. These discussions are also used to assess the barriers relating to HRM aspects of management in achieving the objectives of WIHG and to bring out the flaws for correction and enhancing the efficiency and effectiveness of the Institute in its core area of activities.

With a view to understanding the impact of HR practices on the core aspects of the other scientific institutions, the HR practices of these institutions are also sought to be studied to

understand their future strategies for effective and efficient management of human resources and to understand the HRM in WIHG in a wide perspective. This is done with the help of secondary data research i.e. books, seminar papers, and journals available in library as well as by searching on the worldwide web. In house reports, annual reports and in-house journals are also used for collection of data and information. If need be, head of the institutions and other responsible officers are consulted.

The quantitative analysis of the data collected from the above study is done to assess various human resource activities in WIHG. Detailed SWOT analysis of the HRM of the Institute brings out the strategic factors needed to be dealt by the HRM resource imperatives. This analysis coupled with survey/study data helps identify the areas of potential improvement. After identifying gaps between existing and desired state, suitable HR strategies are formulated for implementation in the Institute for enhancing its efficiency and effectiveness in the core areas of activities.

Limitation of the Thesis

This research work is done as a part of MBA program to fulfill the requirement of the University. The research is based both on primary data collection and secondary data research. However, this is more like a cross-sectional study focused on suggesting suitable human resource management strategies for its improvement. The thesis is prepared in a limited time. So more in-depth and wider analysis could not be accomplished. Despite the limitations of time and scope, the study provides concrete suggestions that can be implemented for strategic growth and development of WIHG.

Structure of Chapters

The first chapter consists of a brief about Wadia Institute of Himalayan Geology (WIHG), its vision, its main objective, the research problem, and purpose, objectives of writing the thesis, methodology and limitations of the thesis. The second chapter is devoted to concepts and practices in human resource management as well as effects of HRM on performance of an organization. The issues influencing human resource management in the context of present scientific environment is also discussed in the second chapter. In the third chapter, organization of HRM in WIHG, human resource strategy of WIHG and description of HR activities in WIHG are discussed. The description of HR activities of other renowned scientific institutions of India are done in chapter four with a view to understanding the best practices followed by other scientific institutes for benchmarking purposes. The analysis of questionnaire survey, SWOT analysis of HRM of WIHG and identification of human resource needs based on the above analysis is done in chapter five. Based on the identified HR needs suitable human resource management strategies are suggested for WIHG in chapter six. The chapter seven deals with conclusions of the study.

1 HUMAN RESOURCE MANAGEMENT- CONCEPTS AND PRACTICES

To be successful in today's crisis-intensive world, managerial leaders must develop and nurture new skills – skills that are congruent with the perspective of business organizations as human-based systems that are fundamentally encased in a highly changeable, interactive, systemic working condition, rather than stable, machine-like operations. The basic principles of quantum mechanics and relationships provide meaningful insights into a world that is both objective and subjective, logical and irrational, linear and nonlinear, orderly and chaotic; and a world in which the process of observation somehow affects that which is observed (Shelton & Darling, 2001, pp.45–46).

The administration of HRM in India is informed by the stipulations of the Constitution of India providing for equality before law, prohibition of discrimination on grounds of religion, race, caste, sex or place of birth, equality of opportunity in matters of public employment, affirmative action, just and humane conditions of work and for maternity relief; promotion of harmony and spirit of common brotherhood amongst all people of India transcending religious, linguistic and regional and sectional diversities; and renunciation of practices derogatory to the dignity of women.

1.1 Definition of Human Resource Management

According to Noe et al. (2003, p. 5), HRM refers to the policies, practices and systems that influence employees' behaviour, attitudes, and performance. Wright and McMahan (1992) define strategic human resource management (SHRM) as a pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals. Rodwell and Teo (2004) views that strategic HRM could be achieved through the cultivation of an external orientation to customers' demands and a commitment to employees.

Heathfield (2000) defines human resource management (HRM) as the organizational function that deals with issues related to people such as compensation, hiring, performance management, organization development, safety, wellness, benefits, employee motivation, communication, administration, and training. Human Resource Management is the function within an organization that focuses on recruitment of, management of, and providing direction for the people who work in the organization. Lipovec (1987, p. 35) defines organization as "the system of relationships between members of a social unit, which assures the existence, development and characteristics of the social unit and rational achievement of its goals".

The discipline that concentrates on the management of people in organization has witnessed a great deal of change over the past twenty years. These changes can be discussed as two major transformations. The first is the transformation from being the field of personal management to being the field of human resource management. The second is the transformation from

being the field of human resource management to being the field of strategic human resource management.

The first transformation incorporated the recognition that people are an important asset in organizations that can be managed systematically. Managing them systematically involved co-ordinating the shape and substance of the several traditional personnel policies and practices. The need for this orchestration was based upon the increasing evidence that all these policies and practices substantially affect human behavior and their impact would produce positive results only if they were affecting human behavior in the same way. This required insight and knowledge about the several personnel policies and practices and how they impact human behavior. It also required co-ordination in formulation and implementation of the several personnel policies and practices. Together these events in personnel management required a growing body of knowledge and professionalization among the professionals engaged in dispute of managing people. To give recognition to this transformation in the discipline the field acquired the definition 'human resource management'.

The second transformation is based upon recognition that, in addition to coordinating Human Resource policies and practices with each other, they need to be co-ordinated or linked with the needs of the organization. Given that these needs are reflected in discussions of the major issues and direction of the organization, i.e. the strategy of the firm, the transformation of human resource management came to be known as strategic human resource management (Schuler & Jackson, 1999).

1.2 Strategic Human Resource Management- perceptions and perspectives

There is increasing self-confidence about the potential benefit of intangible assets, notably human resources, contributing to the success of organizations. According to Mabey et al. (1998) SHRM places great emphasis on the capacity-indeed the possibility- of organizational learning: learning about an organization's environment, about its performance, its objectives, its capability, and in the light of this, its capacity to learn from the change. Capability in SHRM is not simply capability to achieve a given strategy, important as it is; it is also, and primarily, capability to develop, and re-develop, strategy in the first place, and thus to design and oversee the necessary systemic change.

On theoretical perspectives of SHRM, researchers are divided on the issue of what is the best way of carrying out the HR activities that is universally applicable. There are three perspectives- best practice; best fit; and resource-based view. Fitz-enz (1997, pp. 97-103) describes 'best practice' as "an enduring commitment to a set of basic beliefs, traits and operating stratagems. These are the constant context of the organization: the driving forces that distinguish it from all others". He argues that best practice is not surface program, process or policy. It is something more basic. The eight best human asset management practices which invariably help in achieving competitive advantage are- values; commitment;

culture; communication; partnering; collaboration; innovation and risk; and competitive passion.

The alternative 'best fit' school suggests that to achieve competitive advantage, the universal solutions cannot be applicable to all the firms. Instead, all is contingent on the particular circumstances of each company. What is needed is HR policies and practices which fit to the needs of organization. What is best for one will not necessarily be right for another. Torrington et al. (2002, pp. 36-37) explain that this approach is based on two critical forms of fit. The first is external fit- that HR strategy fits with the demands of business strategy; the second is internal fit- that all HR policies and activities fit together so that they make a coherent whole, are mutually reinforcing and one applied consistently.

Resource Based View (RBV) of the firm is concerned with the relationships between internal resources (of which human resources are one), strategy and firm performance. It focuses on the promotion of sustained competitive advantage through the development of human capital rather than merely aligning human resources to current strategic goals. Barney (1991, pp. 99-120) argues that a firm will have a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any competitor. On the other hand, a firm will have sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by competitors *and* when the competitors are unable to duplicate the benefits of this strategy. He suggests four empirical indicators of the firm resource to generate sustained competitive advantage. They are value, rareness, limitability, and substitutability. These four qualities can be found only in human capital. Boxall and Purcell (2000, pp. 183-203) argue that human capital advantage is possible if firms employ people with rare knowledge and skills which are embedded by being to some extent firm specific. On the other hand organizational process advantage is a function of hard-to-imitate, highly evolved processes in the firm, such as cross-functional learning and labor management co-operation. Thus human resource advantage can be considered as product of firm's human capital and organizational process advantages. To achieve sustained advantage through people management must nurture resources and processes that bring about high mutuality with talented workers and must similarly invest in employee and team development. The RBV framework has implied the need for developing firm-specific capabilities and competencies to stay ahead, hence the core competency concept.

It is evident that while fit models focus on the means of competitive advantage (HR practices) the resource-based view focuses on the source (human capital). It is argued that while practices are important they are not the source of competitive advantage as they are replicated elsewhere, and they will produce different results in different places because of the differential human capital in different places. This theoretical perspective suggests that human resources are a source of competitive advantage. Hence, they shall be valued as generating strategic capability.

1.3 HRM Practices

Pfeffer (n.d.) identifies a list of seven best HR practices of successful organization i.e. employment security, selective employment, teamwork, high pay linked to performance, extensive training, reducing status differentials and extensive communication. The other best practices include talent management, performance management, competency development, diversity management, knowledge management and relationship building and values and organizational culture. Soft (people) side of best practices aim at achieving employee's high performance and satisfaction and hard (goal) side of best practices aim at maximizing employee's performance.

As quoted by Noe et al. (2003, p.6), the roles and responsibilities to be performed by the HR department are given in the following Table 1.

Table 1: Roles and responsibilities of HR department

Employment and recruiting	Interviewing, recruiting, testing, temporary labor coordination
Training and development	Orientation, performance management skills training, productivity enhancement
Compensation	Wage and salary administration, job descriptions, executive compensation, incentive pay, job evaluation
Benefits	Insurance, vacation leave administration, retirement plans, profit sharing, stock plans
Employee services	Employee assistance programs, relocation services, outplacement services
Employee and community relations	Attitude surveys, labor relations, publications, labor law compliance, discipline
Personal records	Information systems, records
Health and safety	Safety inspection, drug testing, health, wellness
Strategic planning	International human resources, forecasting, planning, mergers and acquisitions
Source: Based on SHRM-BNA Survey No. 66, " Policy and Practice forum: Human Resource Activities, Budgets, and Staffs, 2000-2001. " Bulletin to Management, Bureau of National Affairs Policy and Practice Series, June 28, 2001. Washington, DC: Bureau of National Affairs	

The implementation of HR strategies is done through administration of HR practices. The HRM function includes a variety of activities like recruitment and selection, staffing, performance management, pay structures, employee relations, and training and development systems. Human resource practices represent what people and organizations do and they affect executive thought, action and firm's performance. The HR department should create the practices that are consistently applied in different locations/ offices while also maintaining the various local cultures and practices.

1.3.1 Recruitment and Selection

Recruitment begins with a clear statement of objectives, based on the type of knowledge, skills, abilities, and other characteristics that an organization needs. It involves internal, external or both types of labor markets. Recruiters can tap a variety of sources including current employees, retirees, part-time workers, the unemployed and employees of other firms who feel they are underemployed. Various elements have been suggested in literature (Cascio, 1995, p.188; Harris, 1997, pp.108-110) for successful recruitment program. They are:

- Always view recruitment as long term strategy
- Be responsive to employees needs
- Develop benefits that genuinely appeal to employees being hired
- Promote recruitment benefits to the target audience
- Audit the recruitment program in place
- Carefully train or select recruiters
- Provide realistic information to applicants
- Avoid time delays and offensive practices

Selection is process of choosing qualified professionals who are available to fill positions in an organization. Interviews, reference and background checks, and application blanks are the most common used methods. Pre-employment tests are also effective to identify the candidates who will match the job requirements. The selection method should be practical to use, job related, legally acceptable, and provide sufficient utility.

1.3.2 Performance Management

Lawler and McDermott (2003, pp. 49-60) suggest that it is very difficult to manage human capital without a system that measures performance and performance capability. Companies need a performance management system that can identify the capabilities of its human capital so that they can effectively staff projects, implement strategic initiatives and manage development of their workforce. Measures of performance are also required to deal with performance problems and motivate performance excellence. Firms can choose a wide variety of approaches to performance management. These choices continue to increase because of availability of 360-degree appraisal tools and the growing use of the web to enable firms to do more integrated and comprehensive human capital management. Effective performance management system is the building block of organization's human capital management system. The system is used in decisions regarding performance based pay, employee development (by giving feedback on strengths and weaknesses), and training and development efforts of companies. More over the performance information received from system is used by organizations to correct performance problems and assess the effectiveness of their improvement efforts.

1.3.3 Training and Development

Training aims to change behavior at work place in order to increase efficiency and higher performance standards. It is defined as function that includes all forms of planned learning experiences and activities whose purpose is to effect changes in performance and other behavior through the acquisition of new knowledge, skills, beliefs, values and attitudes (Kyprianou & Kasket, 1998, p. 62). Thus, training reflects activities that are intended to influence the ability and motivation of individual employees. Training includes traditional training, education, vocational education, management development, and organizational development. Benefits and responsibility of training rests with the organization as well as individual. Therefore, commitment to training is required from both.

The training process includes analysis, design, development, implementation and evaluation. Stressing upon the importance of training, Keep (1992, p. 335) argues that training effort is one useful litmus test of reality of adoption of HRM policies in a company. If the training is not seen as a vital component in the realization of business plans, then it is hard to accept that such a company has committed itself to HRM. Training need assessment is the most vigorous and important step in training and development process. Without a clear understanding of needs, organizations' training efforts may completely miss the mark resulting in a total waste of valuable resources. Training needs are assessed by task analysis and competency analysis. Task analysis is a detailed analysis of a job to identify the skills required while competency analysis is study of competency level to identify a deficiency and then correct it with a training program, or some other development intervention. Organizations today are finding competencies to be of great value in their training practices, e.g., a skill and competency-based learning program that affords employees an opportunity to view information such as the skills and competencies needed for positions.

Employee development is the pursuit of any activity that leads to continuous learning and personal growth and contributes to achieving both the individual's and the organization's objectives. A continuous learning process deepens an employee's understanding of his or her values, interests, skills, aptitudes, personality attributes, and competency strengths. Competencies acquired through employee development are usually intended for future application. Employee development is thus a process that continues throughout an individual's life span, regardless of employers or type of employment and individual experiences. What is so interesting about this process is that it evolves and often occurs whether or not employers explicitly support it as an organizational commitment. However, when an employer supports employee development as a business investment, the organization can realize enormous benefits. Development can occur through education, job experiences (job enlargement, job rotation, transfer, and promotion), interpersonal relationship (mentoring), and assessment of employees' knowledge, skills, attitudes and behavior. Companies' involvement in development activities varies according to the business conditions, staffing strategy, and other organizational characteristics.

1.3.4 Compensation and Rewards

Compensation systems are designed to attract, retain, and motivate employees while complying with all legal rules and regulations. Compensation refers not only to extrinsic rewards such as salary and benefits but also to intrinsic rewards such as achieving personal goals, autonomy, and more challenging job opportunities (Carrell et al.,1995, p. 498). Job evaluation is used to evaluate jobs systemically and to assign them to pay grades. Standard methods of evaluation include ranking, classification, point, and factor comparison. Pay systems are usually designed to compensate people for work they produce, the skills they learn and use, or the time they spend on the job. Individual-employee, team-based, and organization wide systems such as profit sharing and gain sharing are replacing automatic pay increases to relate pay to performance. Executive compensation systems normally include four components, including salary, bonuses, long-term incentives and benefits.

According to Noe et al. (2003, p.519), wages, bonuses, and other types of pay have an important influence on an employee's standard of living. This carries at least two important implications. First, pay can be a powerful motivator. An effective pay strategy can substantially promote an organization's success; conversely, a poorly conceived pay strategy can have detrimental effects. Second, the importance of pay means that employees care a great deal about the fairness of the pay process. A recurring theme is that pay programs must be explained and administered in such a way that employees understand their underlying rationale and believe it is fair.

Organizational reward system has a significant impact on the level of employee's job satisfaction. Job satisfaction is an employee's general attitude about the job. The major components of job satisfaction are- attitude toward the work group; general working conditions; attitude toward the company; monetary benefits; and attitude toward supervision. Health, age, level of aspiration, social status, and political and social activities are other factors that contribute to job satisfaction (Byars & Rue, 1994, p. 321).

1.3.5 Employee Relations

The scope of employee relations covers, institutional relations, employee safety, health, employment security, working conditions and assistance with non-work problems. Government law regulates employee safety. Apart from fulfilling the obligations spelled out under law, employers organize safety awareness programs to stress upon the organization's commitment to safety. The components of program are hazard identification, communication and education to those at risk and reinforcement of safe practices. Employee health is taken care by employee assistance programs and employee wellness programs. Disciplinary procedures, compressed workweek, flexi time, job sharing and part-time work fall under the gamut of employment security and working conditions. To help the employees to manage their work and private life both, companies have started family friendly policies, which include childcare, elder care and family leave policy. The purpose of all these programs is to

ensure the workforce's economic and psychological well being. These programs help in enhancing productivity, reducing turnover and making the organization more competitive. Employee relations are meant to cultivate a sense of belonging to and oneness with organization. Employee relations are associated with all the welfare measures of the organization taken in the interest of employees and maintenance of their good health at the work place and also involve giving a constructive feed back to the employees.

The most pressing need is housing. Without assured housing, recruitment of fresh talent and also mobility is becoming increasingly difficult. Scientific institutions should be allowed to deploy the total resources allocated in such a manner that housing needs of the scientists are met, as fulfillment of assigned tasks will demand not only operational buildings, equipment, salaries of staff and revenue budgets, but also assured housing. Provisions for sabbatical leave, liberal study leave and other measures are very necessary to enable the scientists in the scientific institutions to improve their professional competence (http://www.education.nic.in).

1.4 Effect of HRM on Performance of an Organization

Success in a scientific endeavor depends significantly on imaginative and flexible systems of management and administration, which will help in realization of the full potential of the gifted, trained and highly valuable manpower resources, and ensure conditions for the highest level of performance in achieving the objectives that are laid down. It is imperative to have a dynamic and sensitive management, and appropriate working conditions and incentives which will attract, retain and deploy in a patently efficient manner these precious human resources. Scientists and technologists in scientific institutions perform their best under good leadership, when the challenges posed are clear and exciting, and achievements are regularly recognized and rewarded. There is every need now to make careers in Science and Technology highly attractive, exciting and rewarding. Excellence can be fostered only when there is competition and selection. Mobility therefore must be positively encouraged (http://www.education.nic.in).

The primary goal of HRM in any organization is to facilitate organizational performance. Productivity improvement is most common indicator to assess the effect of HRM on company performance. Productivity improvement relates to getting more out of what has been put in, doing better with available resources and working smarter not harder. Firm performance can also be measured in terms of quality of work life and the bottom line.

It is now commonly accepted that employees constitute an important source of competitive advantage for firms (Barney, 1991; Pfeffer, 1994). As a result, it is important for a firm to adopt human resource management (HRM) practices that make the best use of its employees. The above realization has led to increased interest in the impact of HRM on organizational performance, and a number of studies have found a positive relationship between so called "high performance work practices" (Huselid, 1995) and different measures of company performance. Furthermore, some empirical evidence supports the hypothesis that firms that

align their HRM practices with their business strategy will achieve superior outcomes (Fey & Bjbrkman, 2000).

Cascio (1995, pp.187-555) has explained the effects of various HR practices on productivity, quality of life and profits of company. Literature on training evaluation indicates that potential returns from well-conducted training programs are substantial. However, there is considerable variability in the effectiveness with which any given training method or content area is implemented. Continual investment in training and learning is essential as it has direct effect on firm productivity and on the quality of work life of those who work in these firms. When analyzing the effects of performance appraisal on firm performance one should consider that performance appraisal as a feedback process. Research suggests that feedback increases firm performance by 10-30 %. However, feedback programs require sustained commitment and it is managers' responsibility to provide regular feedback to employees. The cost of failure to provide such feedback may result in the loss of talented employees, continuous poor performance of employees who are not meeting performance standards and loss of commitment by all employees.

Bhatnagar (2007, pp. 1782-1811) argues that innovative HRM practices leads to organizational commitment. In systems of "high commitment", HR processes increase organizational effectiveness by creating conditions where employees become highly involved in the organization & work hard to accomplish organizational goals. Research has shown that there is a circular relationship between workers who feel that organization is committed to them, thus have a positive perception of HR practices, and hence committed to the firm. HRM practices promote, reinforce & influence commitment through selection, placement, development, rewards & retention.

1.5 Issues Influencing Human Resource Management

In view of the large number of Science and Technology institutions, laboratories, etc. in the country and their charter, objectives and constitutions, it is recognized that one uniform management structure will not be suitable for all these institutions. It is necessary to ensure that all S & T institutions have real and meaningful autonomy, and should be characterized by pursuit of excellence and functioning of a scientific culture. There should be involvement of scientists at all levels in decision making processes as a scientific culture is characterized by a non-hierarchical approach.

Each institution should have clearly defined objectives and goals, having regard to its charter, and such missions as may be assigned to it. It should be acknowledged that all research may not lead to generation of new know-how; even access to new knowledge should be considered adequate pay-off. All institutions should adapt advanced planning strategies, keeping in mind these features (http://www.education.nic.in).

1.5.1 Talent Management

Drucker (1979, pp. 328-329) explains that one of the strengths, but also one of the weaknesses, of a knowledge worker is to expect satisfaction and stimulation from work. Manual workers whether skilled or unskilled, do not expect the work to challenge, stimulate or develop them. The manual worker expects only a living from the work. The knowledge worker expects a life out of it. Thus, knowledge workers are likely to find themselves in a spiritual crisis. Suddenly their work will not satisfy them. Therefore, it is necessary to find new challenges, new opportunities and new contributions in doing something different or at least in being effective in different surroundings and in a different institution.

In a survey conducted by McKinsey consultancy (Guthridge et al., 2008, pp. 48-59), the top three obstacles for talent management were-senior managers do not spend enough high quality time on talent management; organization does not encourage constructive collaboration and sharing of resources; and line managers are not sufficiently committed to development of people's capabilities and careers. Thus, it is not only important to attract talent but also fostering an environment in which the talented people are inspired to achieve their fullest potential.

Scientists in the scientific institutions should be provided with challenges and given necessary resources at an early age so that they have an opportunity to satisfy their scientific creativity and ambitions, such incentives would raise considerably their performance levels and would ensure their advancement as well as groom them for leadership. The task of identifying promising young scientists and nurturing them should receive high priority. This would include provision of research facilities, administrative back- up as well as support for travel and participation in scientific meetings and symposia in the country and abroad. These should be available on a direct basis rather than through a hierarchical reporting system (http://www.education.nic.in).

1.5.2 Managing Diversity

Human diversity refers to the mix in the workplace of people from different races, cultures, and backgrounds (Wheelen & Hunger, 2006, p. 127). The composition of workforce has changed in context of gender, religion, nationality, and population in last twenty years. More women are employed in the industries traditionally considered the male bastions. The number of foreign nationals in any company has also increased with the globalization and consolidation. In context of India, the composition of young force is increasing. The every segment of this diverse work force has its distinct lifestyles, expectations, moral values, and working styles. The challenge before companies is how to ensure that the talents, experiences, values and perspectives of all employees are utilized in pursuit of attaining sustainable competitive advantage.

Attitudes and aspirations of today's employees are far different from those held by earlier people. Today's workers are better educated, more efficient, ambitious and desirous of self-fulfillment through good performance. Therefore, the managers have to focus on updating and integrating their goals with the organizational objectives and bring about synergy between individuals and team efforts towards organizations excellence. Increasing number of women employees has created a need of formulating women specific policies in the organizations.

1.5.3 Leadership Development

Top management continues to wrestle with understanding the best ways to keep people in the pipeline and develop leaders for future succession planning. Across the globe leadership development has been identified as a critical strategic initiative in ensuring that the right employees are retained, that the culture of the organization supports performance from within to gain market position, and that managers are equipped to take on leadership roles of the future so that the organization can achieve sustained competitive advantage. There is urgent need to develop supervisors into people managers and not just technical specialists.

Another important challenge is selection of most appropriate tool for leadership development suitable to organizational needs and business goals. This challenge could be met by gaining support from executives to develop leaders of the future and engaging senior management in leadership development philosophy and practice. The challenge is how to identify the potential leaders in the organization and how to institutionalize the process of leadership development. Developing leaders with the specific skills at various levels is another area of concern and takes care of replenishment of leadership talent due to departure of people.

Hill (2008, pp. 123-129) opines that increasing diversity within business organizations and the growing interdependence of various stakeholders within a business ecosystem demands for a more inclusive and collaborative leadership style. In today's business environment a team approach to problem-solving is required. This requires a leader who is comfortable sharing power and generous in doing so, is able to see extraordinary potential in ordinary people. The challenge is how to provide the required leadership development tools- the social networks, the fast-track training courses, the stretch assignments-that can prepare the invisible talented people for positions of authority and influence.

Reviews of literature failed to uncover any consistent traits or pattern of traits which characterize leaders. The research in this connection has also failed to demonstrate a consistent, definite relationship between leadership ability and either physical traits, personality characteristics or combination of the two. Intelligence, self-confidence and sensitivity may be useful traits for leaders to have, but they are likely to play a small role in leadership effectiveness when all other factors such as the group and its task are considered. Therefore, we must turn from analyzing the traits of leaders to analyzing leadership behavior (NOP, 1990).

1.5.4 Management of Change

The competency to deal with change management is clearly a common skill needed for today's HR professional. Change management represents a particular challenge for managers, as this expertise has generally not been a consistent area of focus for training and development of managers. An intensified focus on training may be needed to develop added competencies to deal with change management. As more information becomes immediately available from dispersed operations, decisions are made in real time, sending a variety of change messages and expectations into the organization. As a result, the coordination of varied change efforts becomes more and more challenging. This is often confusing and overwhelming, particularly for lower-level managers and employees.

The key task in change management is to mobilize employees towards the organizational goals. Equally, corporate managers must be sensitive to the powerful inertial forces inherent in organizational cultures. They must give as much importance to inculcating a culture of change throughout the organization as to their marketing or investment strategies. In market situations where the flexibility and responsiveness of work organization is crucial to competitive advantage, change management strategies are to be innovative and specific to company needs (McKinlay & Starkey, 1992, p. 121).

More than ever before, a rewarding career in science requires easy transfer between institutions. Technology development and application can be truly realized only when S & T personnel move, with minimum discomfort and disadvantage, to new positions, locations and institutions, carrying with them know-how and know-why, knowledge and skills. Conditions today discourage and indeed preclude mobility. There is urgent need to facilitate mobility by removing related disincentives. Rules should be such that terminal benefits, leave etc. can be moved along with the individual. Systems for scientists and technologists to hold concurrent positions in research institutions/universities/governments/ industry should be introduced (http://www.education.nic.in).

1.5.5 Compensation and Rewards

Compensation and rewards have emerged as one of the top challenges because of factors including mergers and acquisitions (and pay equity among new divisions), the invention of new systems for human capital management (including stock option plans), and global competition (in which attracting and retaining key employees became increasingly important).

Kaplan (2007, pp. 12-19) argues that the HR professionals face a big challenge in identification and implementation of compensation and reward programs that bring an organization further along its strategic path. Alignment of business strategy, HR strategy and total rewards is necessary for success of any compensation scheme. Total rewards encompass everything that employees value in their employment relationship—compensation, benefits,

development and the work environment. In today's business environment, it is imperative for the firms to go beyond just offering competitive compensation and benefits programs (transactional rewards) to compete for talent. This is especially true today where loyalty of the emerging workforce's members is more to themselves than to their employers. Compensation and benefits programs are typically financial in nature and must be at least at a baseline competitive level for companies to attract and retain talent. Competitors easily copy these programs, which typically fail to engage employees enough to stay with an organization. Learning and development programs and a flexible and fun work environment (relational *rewards),* however, provide an opportunity for employers to better differentiate themselves from their competitors and enhance employee commitment to their organization.

The highest grades available in Government should be available to scientists working on scientific tasks. Special attention should be paid to the university system to see that proper career opportunities exist right from the point of entry, and outstanding scientists are on par in respect of opportunities, remuneration and prospects with corresponding personnel in national laboratories. Better salary structures are called for than are available at present (http://www.education.nic.in).

1.5.6 Management Information System

All science and technology institutions should have a Management Information System (MIS) so that the total scientific effort in the institution is suitably reflected; standard UNESCO classifications may be used for this. The MIS should reflect the periodic progress in achieving objectives and should also provide for closure of a project on review, if necessary, development of strategy and direction, and redeployment of total resources, both human and physical. A nationally integrated MIS on projects, resources available, expertise etc. should be developed so as to achieve optimal utilization of human and other resources (http://www.education.nic.in).

1.5.7 Measurement of HR Effectiveness

The survey of global HR challenges conducted by PricewaterhouseCoopers (PwC) on behalf of the World Federation of Personnel Management Associations (WFPMA) identified measuring HR effectiveness amongst the top three challenges for HR; the other being change management and leadership development (cited in the http://www.wfpma.com). This highlights the professionals' need to measure results – not only in terms of transaction management but also in terms of driving the business. HR professionals have been questioned in the past regarding their business acumen. Utilizing metrics to determine effectiveness is the beginning of a shift from perceiving role of HR as purely an administrative function to viewing the HR team as a true strategic partner within the organization. Survey participants believe a critical future issue for HR will be organizational effectiveness. Where HR departments have traditionally focused on measuring their own effectiveness, there is an evolving recognition that they can provide organizational value by measuring the

effectiveness of the entire business organization. The shift is significant as it represents movement from simply counting the numbers hired to determining the return on investment (ROI) of collective and individual hires on a long-term basis. Going beyond measuring turnover, this new approach considers "bad" turnover and "good" turnover along with the overall cost of replacement hires.

1.5.8 Ethical Issues

Ethics has emerged as one of the top most challenges for HR in recent times because of the cutthroat competition. Often in the pursuit of becoming more competitive and deliver results, managers no longer feel a strong obligation to ensure welfare of their workforce. Instead, they are focused on creating wealth, gaining competitive advantage, increasing productivity and keeping a clear eye on outcomes that affect firm performance (Vickers, 2005, pp. 26-32). The axiom "Human resources are most important assets," considers employees as one of the different type of assets whose purpose is to facilitate the achievement of strategic objective. Strategic objectives have assumed pre-eminence and have become vehicle through which productivity and profitability are nurtured, measured and realized. People are valued only to the extent that they generate financially quantifiable outcomes and disposed of as any other asset. However, the tacit knowledge of employees can be neither measured nor stored. The capability to possess tacit knowledge makes the human resources distinct from other type of resources. Moreover, people are human being and it is their moral right to be treated with respect and to have the chance to live a meaningful life. However, it is not only the business environment, which has changed the ethical norms but the advent of internet, rising education rates, and demographic changes in workforce have played a key role.

The challenge for managers is to how to walk the fine line between being employee champion and strategic partner with senior management so that HRM profession could be seen as promoting the basic social need of well being and dignity at work as well as contributing to productive efficiency of business. Cascio (1995, p. 521) argues that ethical choices are rarely easy. The challenge in managing human resources lies not in the mechanical application of moral prescriptions but rather in process of creating and maintaining genuine relationships from which to address ethical dilemmas that cannot be covered by prescription. Another challenge for HRM is how to cultivate an ethics friendly environment so that ethics become a top management priority and ensuring that right programs and polices are in place.

1.6 Dynamic Role of HR

Ulrich (1998, pp. 124-134) suggests to HR managers to focus on outcomes and not on traditional HR activities. HR should not be defined by what it does but what it delivers-results that enrich the organization's value to customers, investors and employees. He presents a framework that clearly shows four key roles that human resources professionals must fulfill in order to add the greatest value to the organization. These are:

- **Strategic partners** translate business strategy into action. They identify the underlying model of the company's way of doing business, accountable for conducting an organizational audit, and take the lead in proposing, creating, and debating best practices to be adopted in the organization.
- **Administrative experts** improve processes, apply the principles of reengineering business processes to human resources processes, rethink value creation, rethink how work is performed, and measure human resources results in terms of efficiency (cost) and effectiveness (quality).
- **Employee champions** listen and respond to employees and find the right balance between demands on employees and resources available to employees. They ensure increased contribution from employees by making them committed to the organization. They are the employees' voice in the management discussions.
- **Change agents** have the job of building the organization's capacity to embrace and capitalize on change. They lead transformation by doing it first within the human resources function. They serve as catalysts for change, facilitators of change, and designers of systems for change.

The new roles of HR are aimed at making it accountable for business results. This way HR function can move from its current positioning as a bureaucratic, controlling cost center to being perceived as an innovative, contributing partner in achieving business success. Banerjee and Singh (2007, pp. 52-60) argue that as the approaches and trends are changing in corporate world, so the HR managers are also required to change their vision and approach towards work. They need to adapt themselves to the changing business environment for which they should have clear understanding of what roles and responsibilities they are expected to perform. As explained in Table 2, earlier role of HR was to focus on traditional areas, however, in future they have to play the role of innovator, change agents and strategy builders, mediator between company and individual and coach to their subordinates.

Table 2: Changing role of HR

	Yesterday	Today	Tomorrow
Organizational style	Paternalistic	Professional	Empowered, Learning, Vibrant
Employees considered as…	Hungry, Naked & Defenseless	Thinking and rational being	Fully evolved, completely satisfied, mature human beings
Motivational methods	Driving people through basic needs	Driving people through social & intellectual needs	People drive themselves
Role of HR	Provide people with basic needs	Motivate by providing fair appraisals and compensation system	Change agent, Innovator, Strategic partner

Source: P. K. Banerjee and S. Singh, Leading for the Future: Role of HR, 2007, p. 58

2 WIHG FROM THE HRM ANGLE

Wadia Institute of Himalayan Geology was established under the Societies Registration Act, an act for the registration of literary, scientific and charitable societies. In the background of increased knowledge base and access to modern analytical facilities, it has become imperative to view the geo-dynamic processes in the state-of-the-art of world research in geosciences to help frame future strategy of research at WIHG. To facilitate it, the Institute constituted a working group to prepare a vision document, highlighting the critical area of research to be pursued at the Institute in the coming decade. The Institute with an active participation of its scientists and opinions obtained from outside geo-scientists has drawn up the road map of research activities at the Institute. The vision document of the Institute lays emphasis on the integrated and multidisciplinary approach on identified themes and emerging areas of research. The Himalaya Mountain being explored by WIHG owes its origin to subduction of Indian plate beneath the Asian plate. An area of paramount significance is the study of natural environment including the hazards that concern the society in the most inhabited mountain belt of the world. Multi-parametric approach in understanding the stress and strain conditions at seismogenic depths needs to be carried out to improve our knowledge on the occurrence of earthquakes in the Himalaya. Similarly, other natural hazards like cloudbursts, flash floods; landslides, etc. need our special attention and investigations for safeguarding the property and human life (Vision HimGeo, 2007).

2.1 Profile of Wadia Institute of Himalayan Geology (WIHG)

The Wadia Institute of Himalayan Geology is an autonomous research Institute of the Department of the Science & Technology, government of India. Established in June, 1968 as a small nucleus in two rooms of the Botany Department, Delhi University, the Institute was shifted to Dehradun during April, 1976. Previously named as the Institute of Himalayan Geology, it was re-named as the Wadia Institute of Himalayan Geology in the memory of its founder- the late Prof. D. N. Wadia, (F.R.S. and National Professor), in appreciation of his contributions to geology of the Himalayas.

The Institute is engaged in geological mapping, structure & tectonic, petrology & geochemistry, geochronology, sedimentology, geomorphology, palaeontology, glaciology, hydrology and geophysical studies to unravel the geological truths related to mountain building – for manifold applications in understanding geodynamic processes, impact on climate, natural resources, evolution of life, and assessment and mitigation of natural hazards. The contributions are widely recognized and the Institute has acclaimed reputation of internationally known center of excellence for research aimed to unravel the orogeny of the world's youngest and loftiest mountain system. The scientific activities during the Year-2008-09 are centered on the following mission mode projects i.e. Himtransects; Climate-Tectonics Interaction; Biodiversity-Environment Linkage; Sustainable Natural Resources; and Real Time Geology for Society: Coping with Natural Hazards.

Keeping in view the previous earthquake history in the form of seismicity, earthquake hazard and seismic gaps for strong earthquake, the first Indian Multi-Parametric Geophysical Observatory (MPGO) was set up in the Garhwal Himalaya. Institute is also operating following field research stations in the remote areas of Himalaya i.e. in a) Naddi-Dharamsala b) Dokriani Bamak ; and c) Itanagar (AR and website of WIHG).

2.2 Present Scientific Scenario and Future Plans

Recognizing the likely impact of global warming on Himalayan glaciers, and its far reaching consequences on Indian economy, the Institute is geared to "mount a co-ordinated research initiative on Himalayan glaciology to understand the factors controlling the effects of climate on glaciers in order to develop strategies for climate change adaptability for sustained growth of the society". A centre for glaciology has been established which will eventually usher the establishment of the dedicated National Institute of Glaciology. The mission is in compliance of the policy decision taken by the council on climate change, under the chairmanship of Hon'ble Prime Minister, government of India, to create research capacity in the field of glaciology.

The two way strategy has been drawn to understand the impact of climate change on the health of glaciers in the Himalaya. Establishment of field stations at representative glaciers equipped with automatic weather stations for basin level mountain metrology, optically sensed water discharge measurement for melt water contribution to hydrology of the region, particle size analyzer and automatic sediment sampler for estimating of sediment transfer, ground penetrating radar for mapping for bed rock geometry, internal structure and thickness of glaciers coupled with GPS (Global positioning system) and total stations will be helpful in characterizing of glacier dynamics and mass balance. Long term horizon for such multidisciplinary high quality data capture would enable quantification of the factors influencing climate-glacier inter-linkage. In the second phase, ice cores, glacier sediments and other proxies will be used for reconstruction of palaeoclimate on various time-scales to answer whether present accentuated rate of glacier recedes are affected by anthropogenic induced global warming or form part of long term transitory behavior.

Research Orientations and Progress of On-going Research Program: With the continuous growth of analytical and field observational facilities as well as in-house expertise for undertaking integrated geo-scientific research, the major scientific programmes being pursued under the 11^{th} Five year plan (2007-2012) are aimed to address special scientific themes in the form of Mission Mode Projects (MMP) as stated above (AR of WIHG).

The Department of Science and Technology is committed to promote science and technology in the country by creating excellent infrastructure for research and development and encouraging scientists and technologists to pursue world class research to respond to the challenges of the society and the nation (AR of DST).

2.3 Organization of HRM in WIHG

Traditionally, the scientific organizations have sought to gain and sustain competitive advantage by acquiring critical intangible resources i.e. human talent and tangible resources like infrastructure such as technologies and easy access to capital. The resource imperatives that influence the human resource management can be examined in the frame work of VRIO i.e. value , rareness, imitability and organization i.e. whether the human resource in a scientific organization can create value for the organization, rareness, inimitability and capacity of the organization to leverage that resources.

WIHG has a pool of human resources. The Institute believes that employee must be at the centre of all activities. The Institute spends significant amount of resources continuously in its effort for human resources management. The fruits of investment in HR are reflected in very low or negligible attrition rate (see Table 3 below).

As per the Constitution of the Society (i.e. Wadia Institute of Himalayan Geology), the authorities and officers of the Society are the Governing Body; the Director; and such other officers of the Institute as may be designated by the Governing Body for specific functions. The President of the Society is the Secretary to the Government of India in the Ministry/Department of Science & Technology or an eminent scientist nominated by the said Ministry/Department.

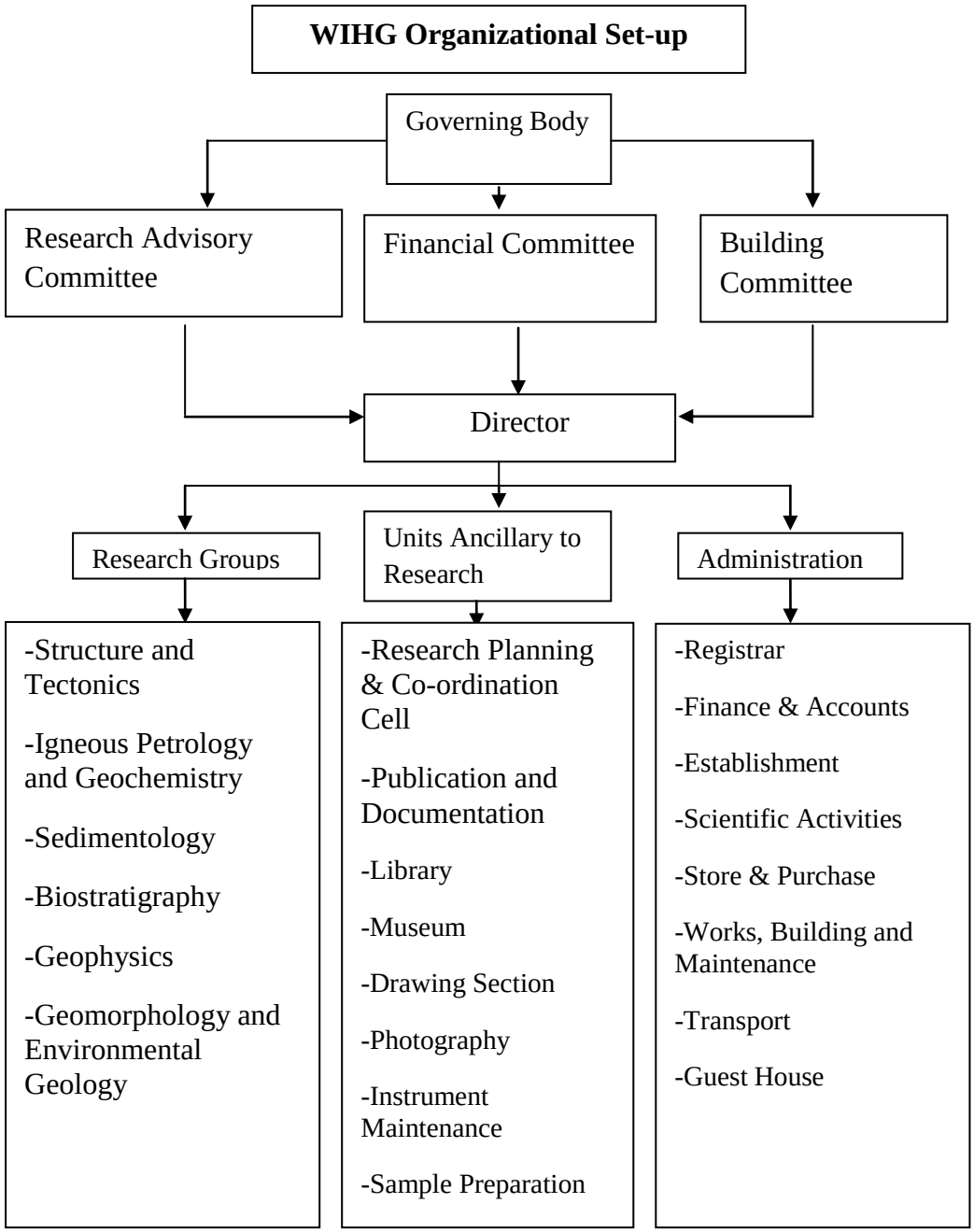
The general superintendence, direction, control and administration of the affairs of the Institute, its income, and its property etc. are vested in the Governing Body. The Governing Body is reconstituted after every three years by the Department of Science & Technology, Government of India. All the financial powers of the Institute are vested in its Governing Body. The Governing Body has powers to frame or amend the bye-laws and get them implemented on their approval by the Government of India.

The Governing Body may, delegate to Director or any of its members and/or any other officer of the Society (i.e. WIHG) such administrative and financial powers and impose such duties as it deems proper and also prescribes limitations within which these powers and duties are to be exercised or discharged.

The Director of the Institute is the member secretary of the Governing Body. He is vested with such executive, administrative and financial authority as delegated to him by the Governing Body from time to time. He is responsible for the proper administration of the affairs and funds of the Institute under the direction and guidance of the Governing Body. Most of the financial powers of the Governing Body have been delegated to the Director to ensure effective management of the activities of the Institute. Registrar and Finance & Accounts officer assist the Director in the smooth functioning of the Institute.

The organizational set-up of the Institute is given in Figure 1 below.

Figure 1: Organizational set up of the Institute



Source: Annual report-2007-08 of WIHG

Size of HR in WIHG is given in Table 3 and Figure 2 below. The table mainly shows the sanctioned strength (SS) of HR and in position (IP) against the given sanctioned strength in the three consecutive years 2006, 2007 and 2008. The table also shows the women work force in the total strength and attrition rate which is negligibly low. From the analysis of the table it is also clear that there is highest percentage of female in the administrative wing and

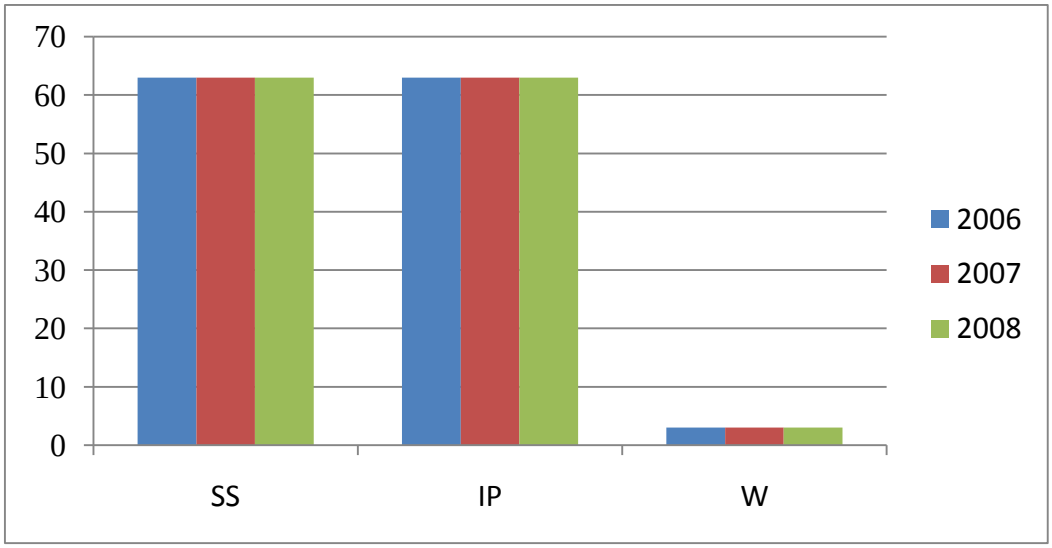
lowest in technical side. The figure also shows that the deployment of scientist is 100% and no post is left vacant in the past three years.

Table 3: Size of human resources in WIHG

Incumbency	Calendar Year-2006			Calendar Year-2007			Calendar Year-2008			Attrition %		
	SS	IP	W	SS	IP	W	SS	IP	W	'06	'07	'08
Scientist	63	63	3	63	63	3	63	63	3	.14	nil	nil
Technical personnel	67	67	1	67	67	1	67	66	1	nil	nil	nil
Administrative	38	38	11	38	37	10	38	36	11	nil	nil	nil
Ancillary	40	36	4	40	34	4	40	32	4	nil	nil	nil
Total	208	204	19	208	201	18	208	197	19	nil	nil	nil

Legend: SS-Sanctioned Strength; IP-in position; W-Women workforce in the total strength
Source: WIHG records, 2009

Figure 2: HR analysis of WIHG scientists



Legend: SS-Sanctioned Strength; IP-in position; W-Women workforce in the total strength
Source: WIHG records, 2009

Table 4 shows the age profile of scientists in WIHG in the year 2004 and 2008. In 2004, the scientists in the age-range of 51-55 are nearly 24% of the total number of scientists, whereas this number in 2008 has increased to nearly 32%. In the year 2004, the scientists in the age group of 56-60 are about 3% whereas this number swells to about 11% in the year 2008. The age of retirement of scientist is 60 years. Average age of the scientist is 46 years. This clearly

shows that scientists are aging in the Institute and there is an urgent need to infuse fresh blood to continue and strengthen the legacy and tradition of research.

Table 4: Age profile of scientists in WIHG in years 2004 and 2008

	Age group of scientists						
No. of scientists in the given age group with their % share	25-30	31-35	36-40	41-45	46-50	51-55	56-60
Year 2004	3 (4.8%)	1 (1.6%)	3 (4.8%)	15 (23.8%)	23 (36.5%)	15 (23.8%)	2 (3.2%)
Year 2008	2 (3.2%)	9 (14.3%)	5 (7.9%)	3 (4.8%)	17 (27.0%)	20 (31.7%)	7 (11.1%)

Note. Total strength of scientists is 63.

Source: WIHG records, 2009

The average age of the entire Organization is 48 years. This shows that the Institute is aging and young people need to be inducted to make it more vibrant and dynamic. I was informed that there is a ban on fresh recruitment under the government policy due to financial constraints but the aging organization is a matter of concern. Particularly the aging scientists need to be supplemented with young scientists to carry on the legacy of scientific tradition in the Institute.

The development of appropriate systems and nurturing the scientists to their fullest potential helps in extracting the best out of people. The role of HRM gains further significance keeping in view of the changing environment with respect to continuously updating technologies, skills, attitudinal changes, growth strategies and future plans.

2.4 Human Resources Strategy

According to Pucko (n.d), strategy is any business orientation that promises if it is implemented to achieve objectives of a business or an organization. The essence of strategy is choosing to perform activities differently than rivals do (Harvard Business Review, Nov.-Dec. 1996). Inkpen (2002) quoted Herb Kelleher (former CEO, south West Airlnes, USA) summing up the Southwest culture and commitment to the employees: 'We don't use things like TQM (total quality management). It is just a lot of people taking pride in what they are doing….You have to recognize that people are still the most important. How you treat them determines how they treat people on the outside….I give people the license to be themselves and motivate others in that way. We give people the opportunity to be a maverick. You don't have to fit in a containing mold at work- you have a good time. People respond to that.'

I came to know that the Director of the Institute is always a scientist of repute. Leadership of a scientist in a scientific organization can better understand the difficulties of the scientists and can better organize them towards realization of the Institute's goals.

In my discussions with the top management and some of the scientists we marked that the strategies should follow certain critical areas in HRM. To achieve the targets, the strategies should take care of critical areas which may include preparing employees to work with state-of-the-art technology; identifying competencies of its employees and bridging the skill gap through various training and development initiatives; ensuring availability of a committed and motivated workforce of scientists to meet the challenges of the scientific environment and progressive rightsizing of manpower for supporting existing/enhanced levels of scientific research. Focus of human resource strategy in the Institute is more on informal rules and institutions and the approach is not strait-jacketed. Flexibility is inherent in such strategy.

It was observed in my interactions with the top management that the Institute is conscious of the occupational health and safety of its employees. Some time scientists' stay in the remote, inhospitable and treacherous area of Himalayas is for a period up to two months. They even go up to Karakoram Pass, Leh and Laddakh region, Badri–Kedarnath side even upto the height of 5000 meters or more. Some time they take with them ice tent. In some of the remote regions pre-fabricated huts/hutments, ice (alpine) tents are fixed almost permanently. The scientists or their group proceeding to field duties are provided in advance the requisite movement order with the living allowance, sleeping bags, ice/ alpine tents (if necessary), gas, etc . They are covered with requisite insurance for such hazardous duties. They are given expenses for procurement of common medicines (skin protecting cream etc.). In most of the cases, they are also provided with vehicles with drivers. For conducting research in certain very sensitive border areas, permission is sought from the Ministry of Defense, through the DST. They are also provided with topographical sheet to identify the areas within India's territorial jurisdiction. In emergent cases, the scientists are airlifted by helicopter of army/Indo Tibet Border Police from the sites of sample collection. They can contact their families after walking to the location which is near to some mobile company's tower. If their vehicle develops some snag, it is towed to some workshop nearby to get it repaired. Scientists in the field duties are also allowed to hire driver (if not provided by the Institute), porters to carry the luggage, etc. The tasks of the scientists are to collect the samples and geological mapping. Some time, even internet connectivity is not there at their field site.

While talking/interviewing with the Director, he informs that research work in WIHG is based on specialization of subjects. Tasks are divided into several subgroups (specialized working groups) out of six broad groups. Scientists are inducted even after their retirement as emeritus scientists/consultants in the interest of continuity of research and research scholars are also inducted and groomed to be subsequently considered for absorption into the strength whenever the position is available. This is the way the Institute could find a right employee.

The Director further informed that HR strategy in the Institute is focused on team work. In this Institute only team-work could succeed and not the individualistic performance. More and more exposure of scientists in the international arena is given due importance. Their exposure in the international seminar is considered essential. Almost all best HR practices are being followed. The Director further elaborated that in any organization, for whatsoever reasons, a few persons become stagnant or individualistic and lack motivation. The Institute tries to use their services in administrative sense i.e. for carrying out geo-technical services/defense clearances (consultancy) in sensitive areas. All efforts are made to interact with them and involve them in the team work until all hope is lost. The Director also opined that people may have their individual egos but as long as the interest of science is served they are partially ignored and they are allowed to grow and develop. But this is not allowed to blow into creating a crisis.

Specific thrust has been put on HRM in projects area because of investments planned for research. Core for strategy implementation are people. Therefore, to implement the strategies in true spirit, WIHG ensures that right and competent people are placed in key positions. In addition, strategy is also dynamic to incorporate changes based on realities of scientific environment.

2.5 Human Resource Activities in WIHG

Implementation of strategy is done through HR practices. Noe et al. (1994, p. 31) suggest that compensation, staffing, training and development, performance management, and other practices are investments. These investments directly affect employees' motivation and ability to provide products and services that are valued by customers. The HR activities of WIHG have been designed to achieve the set goals.

2.5.1 Recruitment, Selection and Placement

A right employee is one who fits the job requirement; is compatible with his co-workers; shares organizational core values; is highly motivated and has desire to learn and is willing and capable of sharing knowledge.

Recruitment is the process through which the organization seeks applicants for potential employment. Selection is a process in which applicants are identified with necessary knowledge, skills, abilities, and other characteristics that will help the company to achieve its goals. Placement refers to posting of selected candidates to the place suited as per the skills and knowledge they possess. The policy objective is to attract, select, and retain the best talent available keeping in view the changing needs of the organization and provide suitable induction points for intake and thereby achieve the desired level of qualification, skill, and age mix to strengthen the human resource of the organization. There are recruitment rules notified for scientific and administrative staff in WIHG. Recruitment rules for the administrative staff are notified with the approval of the Governing Body and that of scientist

and Director are notified by the Department of Science and Technology. The rules are strictly followed. There is an open tender system to notify the vacancies to give the people equal opportunities to enter the job. However, the reservation in job policy of the government in the form of affirmative action to reverse the discrimination against the SC/ST people and people of socially and economically backward classes is fully honored and implemented. Recruitment is done after analyzing the organizational needs with respect to skill and competency requirement. Transparency is maintained in recruitment and selection process. The aim of placement policy is to position right person for the right job.

2.5.2 Performance Appraisal System

The growing importance of human capital, because work requires more knowledge and skills, the organizations depend more and more on the performance of human capital. This has created a lot of focus on performance measurement and evaluation. The objectives of performance appraisal system of WIHG are to integrate the Institute's and individual goals through a process of performance assessment linked to achievement of organizational objectives, to increase awareness of tasks/targets and the responsibility of employees to ensure fulfillment of Institute's objectives. In my interaction with the scientists, I was informed that the performance appraisal of scientists is done through quantification of qualitative performance. The minimum requirement for promotion to higher grade is publication of papers in the SCI (Scientific Citation Index) journal. Adequate evidence of original work and leadership is required to get the higher post. The WIHG recruitment rules explain that system aims to ensure an objective assessment of performance and potential, to distinguish between differing levels of performance on relative basis, to identify the developmental actions to be taken to enhance the performance of individuals, and to facilitate the process of employee development through performance planning, self review, performance analysis and two-way communication between appraised and appraiser. Under the rules of the government of India, also applicable to the grantee autonomous institutions like WIHG, the negative reporting of a subordinate has to be invariably shown to the person reported upon to seek his views on the adverse remarks of the reporting officer.

At the end of the financial year, in April, a scientist/ executive writes his tasks and targets in self-appraisal form and assesses himself with respect to the task and targets set at the start of the appraisal calendar and highlights his achievements during the year. The reporting officer at the time of evaluation is required to conduct performance review discussion and give feedback about the performance of the individual, his strengths and weakness, his achievements, failures, etc. The system uses certain grading method in evaluation. According to the assessment promotion scheme of the scientist, they are first screened on the basis of grading in annual performance appraisal report (APAR) which would reflect their achievement in research and development (R&D) for consideration of promotion under flexible complementing scheme (FCS). The annual confidential report should be assessed on a 10 point scale giving 10 marks for 'outstanding', 8 marks for 'very good', 6 marks for 'good', 4 marks for 'average' and 0 for 'poor' and only those scientists who satisfy the

minimum residency period linked to their performance are screened in. However, a superb or outstanding grading also needs to be properly justified. The annual confidential report (now to be known as annual performance assessment report consequent upon the Supreme Court of India judgment of May, 2008) form for the scientist is placed at appendix-IV.

2.5.3 Training

A number of skills can be developed and sharpened in the employees through training and development. Training refers to a planned effort to facilitate the learning of job-related knowledge, skills, and behavior by employees. WIHG believes that training facilitates the development of employee knowledge and skills so that the resultant growth of competence contributes towards attainment of organization's goals and objectives. Distinguished visitors from India and abroad visit the Institute for greater interaction and co-operations in the field of research. Participation in seminars/symposia/workshops and training courses in India and abroad of the scientists is always encouraged. Scientists are members of national and international committees giving them a wide exposure and a greater sense of responsibility. Accordingly, the Institute takes training and development initiatives for its people.

The focus of training hinges upon an integrated approach to performance enhancement through people. This involves aspects of communication of vision, feedback from the grassroots, learning initiatives having direct interface with problems on the ground and leveraging of knowledge of the workforce through sharing and learning from each other supplemented by fresh infusion of new ideas and practices from contemporary global trends both in management and technology.

2.5.4 Motivation

Improvement in organizational performance through motivation of its employees is one of the utmost concerns of the management. Scientists are promoted to higher grade/scale after every three years under flexible complimenting scheme subject to production of qualitative performance. Major among these are production and performance based incentive scheme aimed at motivating the employees towards organizational goals for publication of high quality research papers through improvement in quality levels. Other financial motivation includes retention of highly competent scientists even after retirement as consultants, emeritus scientist as recognition of their outstanding work in their service life. Suggestions of scientists are always welcome. And they have freedom of choice and action in their fields.

Their scientific and technical work is in itself a big motivation for them. They have the opportunities of working as consultant and providing their intelligent inputs to various public/private sector organizations pertaining to cement, mineral or construction industries. Their services are also useful in the construction industry, particularly construction of buildings in the quake prone areas. They can also render useful services in other useful areas, like recession of glaciers, climate changes, and societal awakening. Sometimes satisfaction of

sense of craftsmanship in institutional performance is an important feature of emotional motivation.

2.5.5 Communication

Communication is the process of transmitting ideas or thought from one person to another for the purpose of creating understanding in the thinking of the person receiving the communication (NOP, 1990).

Drucker (1979, p.398) underlines the importance of managerial communication by commenting that the effectiveness of information process will depend increasingly on our ability to communicate. In the absence of effective communication, the information revolution cannot really produce information. All it can produce is data. The information explosion is the most compelling reason to go to work on effective communication.

To facilitate internal communication within the scientists, six scientific groups have been formed. Every month they meet over a cup of tea. They share their knowledge and experience and they apprise others with the developments in their respective area. They also share their problems and difficulties in the inter-sub-group and intra subgroup discussions and interactions with others in pursuit of research. Sub-group is a functional group dedicated to a particular theme. Keeping in view the urgency of the situation, they even sit earlier and discuss about the progress of their project. They have interactions where they share their knowledge and experience. WIHG utilizes multiple channels of communication to facilitate faster, effective and timely communication. Use of electronic media, internet, and intranet is done for communication and dissemination of information. Employee can check his personal details at any time by contacting the administrative staff. Almost all the time during office hours, Registrar has access to the employees through person or telephone. Within the scientists in the same group/subgroup, there is always free flow of information through the net or otherwise.

2.5.6 Employee Development

Organization identifies and develops employees' skills and competencies to make them suitable for managing future challenges successfully through the process of employee development. WIHG believes that it is a win- win situation for both the organization and the employees.

Job rotation, job enlargement, transfers, and promotions are other methods to ensure employee development in WIHG. 18 scientists of the Institute visited abroad during the period from 1.4.2008 to 31.03.2009. Eight scientists are the members of national international committees. Six Ph.Ds were awarded under the supervision and guidance of 12 scientists of the Institute during the above period. A substantial number of scientists participated in 38 events i.e. seminars/symposia/ workshop/training courses during the above period. 29

scientists delivered lectures on various research topics on national and international forums. There are excellent state-of-the-art central facility laboratories imparting analytical services, management, instrument, operations and maintenance activities and this facility is one of the most advanced research facility in the Institute in the field of earth sciences in terms of its collection and services. Publication and Documentation section is involved in bringing out the journal of Himalayan Geology and publishing annual reports of the Institute. Additionally, services for scanning and color printing of maps diagrams and figures as requisitioned by the Institute scientists were provided by the Section.

2.5.7 Compensation

The aim of pay policy in WIHG is to attract and retain employees and to encourage their effort and cooperation as well as a willingness to learn new skills and to adapt to change. Pay structure is revised after a reasonable period and, so far, after every 10 years. There are different wage structures for scientific and non-scientific employees. Scientists are in the officers' grade. They are considered for next promotion after every three years under the flexible complementing scheme. However, the non scientific/administrative staff is considered for promotion only after availability of vacancies.

While working out the pension benefits for the employees, utmost care is taken that the employee is not put to harassment for not being able to produce some obsolete item once issued to him. Petty amounts due from the employees are written off. This kind and sympathetic gesture gives a good message to others about the management of HR in the Institute. It was informed by the Registrar, that on the day of retirement of an employee, apart from giving him his due on the very day of retirement he ensures that either he himself or some senior functionary in the management accompanies the retired person to his home so that he may feel how caring his management is about him till the date of his retirement.

2.5.8 Employee Benefit Schemes

WIHG provides many employee benefit schemes such as Contributory Provident fund, Gratuity, superannuation benefit fund, group insurance schemes, subsidized accommodation, education and health care facilities, accident insurance and social security measures. Soft loans/advances for purchase of vehicles and construction of house or meeting other requirements are provided in the shortest possible time. The Institute has the family benefit scheme in India in case of unfortunate demise of an employee in which the survivor of the employee gets the full salary of the deceased till the notional retirement age of departed employee. The Institute actively involves itself with various professional organizations in organizing workshops and seminars on regular basis to help professional and intellectual development of its employees. Some of the social security measures offered by the Institute, in tune with Government of India schemes are:

- Medical facility for self and spouse after retirement

- Life cover schemes
- Employees welfare association: ready help in accident and death cases
- Employment on compassionate ground in fatal accident cases

2.5.9 Institutional relations

It was revealed in the discussion with the top management that the administrative staff in the Institute is a bit anguished due to lack of promotional opportunities. Whereas the scientific and technical staff is getting time bound promotion (this way their performance is going to be managed to their satisfaction), there is lack of opportunities for the administrative staff for promotion. The widening of gap between the technical and non-technical staff is going to create undesirable inter-relativities which could adversely affect the overall performance of the Institute towards achievement of its objectives (which basically relate to research and development in the basic sciences). Administrative staff is responsible for proper upkeep of the service records of the scientists/technical staff. It takes care of their compensation and benefits, facilitates purchase of equipments, considers grant of allowance for their travels, etc. One of the most important aspects of HRM in such an Institute is delicate balancing of emotions of administrative staff vis-à-vis the scientific staff. Some time even the solutions are not forthcoming. Then we have to manage the problem. There is a saying that 'Make most out of which you still have.' Some time we have the potential problems which could create a crisis if not handled properly. Making all out efforts to improve the service conditions of the employees and harnessing them towards realization of institutional goals is an important feature of HR in WIHG.

The HRM system in WIHG has a bottom-up approach. Suggestions of the scientists and other employees regarding their service matters are always taken in a positive spirit to help them out**.** The management ensures that scientists feel comfortable and are free from any hassles. This motivates them to concentrate on their research work better towards realization of institutional goals.

Management also took a sympathetic view of the critical illness of the wife of one of the scientists. She was nearly in death-bed. Management showed the flexibility in the interpretation of rules and decided to provide him the necessary funds for treatment of his wife.

The top management personally takes care in the disposal of employees' requests regarding HBA, GPF advances/withdrawals/ medical re-imbursements, etc. or any other requests for funds when in need. I observed the top management saying 'my personal involvement gets the things move faster.' The involvement of top management in the welfare measures of employees and such kind of sympathetic gestures wins the heart of the employees. However, for disciplining the employees the Institute applies the well-established system of disciplinary action in accordance with the rules of government of India.

There is also a delightful togetherness on foundation day celebration, national technology day, founder's day and national science day celebration when the employees of the organization meet at one place to have open interactions, and this develops a sense of belonging to the Institute.

3 COMPARATIVE ANALYSIS WITH OTHER SCIENTIFIC INSTITUTIONS

Analysis of HR activities of various other scientific institutions is important from the point of view of appreciating the significant characteristics of these institutions vis-à-vis WIHG. In all these institutions, scientists are the important part of human resources. In general the HR activities of other scientific institutions under the government of India are more or less the same so far as institution based view is concerned. In all these institutions there is policy to take care of sexual harassment of women, equal employment opportunities and affirmative action policy and harnessing human resources through analysis combined with manifest reward and in-situ promotion of scientists under the FCS that is based on the minimum residency period linked to performance. However the informal rules like work culture/environment may be different depending upon the core competencies. Success of the HRM in an organization depends on the engaging managing style of the managers. It depends on the bond of loyalty between the employees and the organization. According to Inkpen et al. (2002) intense organizational communication and camaraderie is highly valued and essential to maintaining the esprit-de-corps.

In a limited period I sought to analyze the HR philosophy, policy and practices of other three institutions i.e. DST (Department of Science and Technology), ARCI (International Advanced Research Centre for Powder Metallurgy and New Materials and BSIP (Birbal Sahni Institute of Palaeobotany). DST is the department of government of India, the mother institution/parent department of ARCI, BSIP and WIHG. The highest official functionary of DST is the secretary who is seated in the department located at New Mehrauli Road, New Delhi. The Secretary is the administrative head of the department and is also its chief accounts officer in respect of all delegated financial powers. I received the information regarding the HRM of these institutions from the literatures like annual reports, etc of the respective institutions, and I also sought clarification from their top management either on person or on telephones. So far as the policies of the government of India are concerned, they are equally applicable on all the government institutions. Therefore, the HRM policy of equal opportunity to all eligible people (irrespective of caste, creed, region, religion, gender, place of birth) and affirmative action in public employment (reservation policy) to reverse the discrimination in society is equally applicable to all the institutions. DST is also following the policy of gender budgeting with a view to identifying particular funds/facilities for women scientists/employees.

The HRM philosophies of these institutions mainly emphasize on informal institutions like work culture, informal interactions with the management. In all these institutions work evaluation through annual assessment report is done once a year.

3.1 Department of Science and Technology

Advancement of science and technology is a prime requisite to the building of a modern economy and society. Development of human resources to support advancement of science and technology is therefore of paramount importance. Special emphasis is laid on promoting the required human resource base by organizing short-term schools/ training programmes/ awareness camps, workshops, contact programmes; supporting young scientists/ technologists with attractive fellowships or grants; and providing travel assistance for attending international workshops/ conferences, etc. During the year-2007-08, a special thrust has been given to exposing school children to advanced scientific tools and technologies in order that the human talent is captured young and adequately nurtured to address the emerging challenges with the help of science and technology (AR of DST 2007-08).

The Recruitment Cell is vested with the responsibility of making recruitment to Group 'A' scientific and technical posts as recruitment to these posts is exempted from the purview of UPSC (Union Public Service Commission). The recruitment to these posts is made by the method of direct recruitment or deputation (including short term contract) or absorption as per the Recruitment Rules for the relevant posts. The Recruitment Cell is also vested with the responsibility of in-situ promotions of departmental Scientists under the Flexible Complementing Scheme (FCS) as contained in the Department of Science and Technology Group 'A' gazetted posts (non-ministerial, scientific and technical) Rules, 2004. In-situ promotions under FCS are considered twice before 1st January and 1st July every year.

However, the recruitment and selection of non-scientific (officers level) staff in the DST is governed by the union public service commission and department of personal and training. And that of non-scientific clerical staff is governed by Staff Selection Commission (SSC) and ancillary staff is done through an open tender. UPSC is a constitutional commission. SSC is the commission established by the executive order of the central government. The work of scientist in DST is more like an executive than that of a scientist in the laboratories of WIHG, ARCI and BSIP. Scientists in DST, however, co-ordinate various scientific projects running across the country involving various ministries/departments/NGOs/ pubic sector/ private sector organizations. The responsibilities assigned to WIHG, BSIP and ARCI are more specific and they have their defined mandate. DST's role is more of co-ordination and co-operation, guidance and inculcation of team spirit amongst its various scientific institutions. Besides, the Recruitment Cell also deals with the proposals regarding recognition of institutions / organizations under various Ministries / Departments as scientific and technical for the purpose of introduction of Flexible Complementing Scheme (FCS).

Welfare Cell of the Department looks after the welfare of DST Employees. 'DST/DSIR benevolent fund' has been established in the department and a large number of employees have become members. Assistance is provided to the members and their families to relieve distress. A crèche with requisite facilities is also being run within the premises of the department for the benefit of its employees. The 'Sports and Recreation Club' promotes various indoor and outdoor activities. The club regularly takes part in inter-ministerial

tournaments and organizes cultural programmes and excursion tours.

DST Library continued building up its collection by acquisition of new books/ journals as per the requirements of the officers/staff members of the department. During the period under review (2007-08), the library procured, processed and made available 614 books/ monographs. The total number of books available in the library has risen to over 22,000. Besides this, the library subscribed to around 110 national/ international scientific and technical journals and around 100 such journals were received on gratis. The Online catalogue of books available in the library was updated continuously and the total number of machine-readable records now stands at over 13,000.

Besides making available books/monographs to its users, the library continued meeting the day-to-day information requirements of the officers/ staff members of DST/DSIR by providing a number of documentation services such as current awareness service, newspaper clipping service, photocopying service, and conducting literature surveys on topics of special interest to users etc. In addition to meeting the information requirements of its users from its own resources, the library tapped the resources of other libraries by cooperating with them through inter-library lending. The information services were also provided to the users by conducting information searches on the internet search facility available in the library.

Women constitute an important section of the workforce. However, the present situation of a large number of well-qualified women scientists who due to various circumstances have been left out of the S&T activities needs to be addressed. The problems faced are several but; significantly, most often the "break in their careers" arises out of motherhood and family responsibilities. The option for revival of their profession is presently unavailable due to restrictions in age and qualification and no system at present addresses these issues.

The "Women scientist scheme" has been evolved in this context, by the DST for providing opportunities to women scientists and technologists between the age group of 30-50 years who desire to return to mainstream science and work as bench-level scientists. Through this endeavor of the department, a concerted effort would be made to give women a strong foothold into the scientific profession, help them re-enter into the mainstream and provide a launch pad for further forays into the field of science and technology, both from the point of view of pure science and its application to societal development.

Under this scheme, women scientists are being encouraged to pursue research in frontier areas of science and engineering, on problems of societal relevance and to take up S&T-based internship followed by self-employment.

3.2 International Advanced Research Centre for Powder Metallurgy and New Materials

The International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI, website-http://www.arci.res.in) is an autonomous R&D (research and development) centre of Government of India (GOI), DST. This centre is located in Hyderabad in the state of Andhra Pradesh of India. ARCI has been setup with a mission to develop unique, novel and techno-commercially viable technologies in the area of advanced materials and subsequently transfer them to Indian industries. Though the seed, which later led to the genesis of ARCI, was sown way back in 1985-86, ARCI became a full-fledged, autonomous R&D Centre of DST only in 1997. During the past decade, ARCI has witnessed explosive growth and made rapid strides to establish itself as a premiere centre of world repute for development, demonstration and transfer of materials related technologies. Certain HR related measures taken by ARCI are:

- **Medical facilities:** During the year 2007-2008, ARCI conducted an annual medical examination for its employees. Employees were divided into two categories i.e. age below 45 years and above 45 years for annual medical examination. A medical investigation room is also being maintained by the centre for first aid purposes in case of any casualty.

- **Sports:** A recreation room with full-fledged facilities as well as a cricket ground was being provided for use of the staff.

- **Canteen:** A canteen is being maintained by the centre in its premises for the benefit of its employees. All food items for breakfast, lunch, snacks and other refreshments are prepared under hygienic conditions at subsidized rates. A separate room is provided for the employees to read newspapers, magazines etc., during the lunch hour.

- **Welfare measures:** The year 2007-08 saw a number of welfare measures being taken for ARCI staff. A welfare committee is constituted under the chairmanship of Associate Director. Several employees were sanctioned computer, vehicle advance and house building advances.

As per 2007-08 annual report, the Institute has been granted 5 patents, 3 patents are in the final stage of processing and 7 patents have been recently filed. During the period, 39 Journal publications have been published, 14 are reportedly in press, nine conference publications have been published and four conference publications are reported to be in press.

ARCI is also supplying Nano water filters (free of cost) to the villages through the NGOs (an exercise in developing citizen brand and social capital). This is for the benefit of the society. ARCI is engaged in basic research in powder metallurgy and new materials. They engage in public private participation and also cater to the defense requirement in its technology. ARCI sells to private sector its technology, technical know-how. They also do the job work for

private sector. They sell the technology as direct one time sale or charge royalty for imparting the technical know how.

3.3 Birbal Sahni Institute of Palaeobotany (BSIP)

The Birbal Sahni Institute of Palaeobotany (BSIP, website-http://www.bsip.res.in), Lucknow, an autonomous institution under the DST, GOI is dedicated to promote research on basic as well as applied aspects of palaeobotany and allied earth system sciences.

The research activities at BSIP focus on five major thrust areas— 1) Precambrian biotic events, 2) Gondwana floristics, palaeoclimate and palaeoecology: relevance to breakup of Gondwanaland, 3) Biopetrology of coals and its relevance to coal bed methane, 4) Palaeobiology of Phanerozoic Basins and its bearing on hydrocarbon potential, and 5) Quaternary vegetation, eustatic sea level changes, global climate change and anthropogenic impact, besides certain special activities. The main research work is concerned with the understanding of plant evolution through geological time, and their distribution in space. Emphasis had been laid to derive knowledge about the diversification of Precambrian life; developing Gondwana and Tertiary mega- and microfossils database for biostratigraphy and palaeoenvironment; coal/ lignite quality; and to understand the interaction between the climate and vegetational change in the Quaternary period. Multidisciplinary and multi-institutional research activities with Institutions in India and abroad were continued in several spheres.

During the year-2007-08, the academic activities of the Institute included publication of 105 research papers, 104 conference/symposia abstracts, and 25 reports/articles, besides 44 research papers accepted for publication. Two scientists visited abroad (UK & Germany) under INSA (Indian National Science Academy) Exchange Programme. Seventy-eight scientific papers were presented in various National and International Meetings. Eight scientists participated in International Conferences abroad (held in China, Czech Republic, Germany, Spain and USA). Twenty-five scientists and one technical personnel were deputed to various conferences/seminars held within the country. Twenty-seven scientists and one administrative officer were deputed for attending various training programs and study/consultancy visits. Two scientists participated in the 26th Indian Scientific Expedition to Antarctica, and other two participated in the 27th Expedition (returned to India in 2008). Three scientists of the Institute were scheduled to visit abroad (Czech Republic, Poland and UK) under INSA Exchange Programme for study.

The Institute gifted fossil specimens to several educational institutions in the country. The researchers from other organizations made use of the library and herbarium facilities. Herbarium has been enriched with a variety of plant specimens collected from central India. Library is disseminating the information about the latest acquisition of palaeobotanical literature through a bi-monthly bulletin— the ‘Current Awareness Service’ and is well connected through Internet. Institute journal “The Palaeobotanist” Volume 56 and Newsletter

(November-2007) were published. The Institute renders consultancy services to various organizations in plant fossil, palynology, coal petrology, carbon dating, etc. The Institute has also disseminated requisite information in its website under the 'right to information Act. 2005'.

There is also a welfare committee constituted by the Institute to take care of the welfare of the employees at the time of retirement. The committee arranges to give some durable gifts to the retiring employees as a token of love and affection and as a remembrance of their services to the Institute. There is no employee union as such but the grievances relating to the service or otherwise are redressed through their easy access to the top management. There is also some kind of medical coverage to the employees.

3.4 Comparison with Other Institutions

In **DST**, located in New Delhi, there is no laboratory for research. This institution mainly looks into the policy formulation aspect of science and technology for the entire country. Apart from formulating and monitoring the execution of S&T policy for the country, the scientists are engaged in the administration of projects being run by the NGOs, individuals, or states to promote the scientific work in the field of research or for societal purposes. They evaluate or organize the projects and consider further finances to them if the projects are found to be viable. Other Institutes are well equipped with laboratories where the scientists are doing researches in basic and applied sciences. Manpower development is an integral part of various programmes of the DST. Innovative human resource development programmes were initiated/continued. Many of the continuing projects and programmes like the Kishore Vaigyanik Prothsahan Yojana (KVPY) to encourage the young generation to take up a career in science , Integrated Science Olympiad Programme etc. are promoted. The department also encourages programmes supporting young scientists to take up challenging R&D activities as a career. In a way DST through its training programmes prepares the requiste HR for other scientific institutions of the country. Promotional bottlenecks for the administrative staff are no more there as the staffing on clerical level is done on all secretariat basis. In DST employees are getting health care facilities under the CGHS (Central government health scheme) even after their retirement. Retirement benefits are available under the central govt. rules. There is pension scheme also.

In **ARCI** there is no pension scheme, however there is employee provident fund for which a certain amount is contributed both by the Institute and the employee. And the employee gets a lump sum at the time of retirement. The fund is administered by the commissioner of the EPF (Employees Provident Fund). There is only nominal pension. However, the Institute charges some kind of medical insurance premium to reimburse the medical expenses. In ARCI there is employee union which is democratically elected. There is meeting of workers with the top managements once a year to discuss matters of employees common interests like service matters, water, sanitation, and other social issues. There is SC/ST association. It acts as a watch dog to safeguard SC/ST service interests. There is a credit society. There is a

welfare committee governed by the Institute. There is FCS in ARCI for scientific and technical staff. As ARCI is young organizations (regular appointments have been made since 1996), there are still promotional avenues for administrative staff as all the vacancies have so far not been filled up. In ARCI technical personal could also be considered for promotion as scientist on the basis of limited departmental examination (whereas in WIHG there is no such facility) though the technical personnel if they are otherwise eligible could be considered for promotion in the appropriate scientific posts along with other aspirants. There are open channels in both the organizations for technical personnel becoming scientists by additional qualification. Performance management mechanism is almost the same in all the Institutes based on GOI guidelines and practices. There are currently 40 research scholars in ARCI getting trained in the related areas of technology. The technology is globally competitive and high level of competency is required. Research scholars could also be considered for filling up the requisite vacancies of the scientists, if found suitable.

BSIP is engaged in basic and applied sciences both. In applied sciences they are doing research in fossil fuel exploration. One of the prominent fields of engagement of Oil and Natural Gas Commission (ONGC) (a PSU of India) is fossil fuel exploration. The linkage between the fuel exploration beneath the earth surface and the applied research in the Institute could be better understood by the fact that the present Director of BSIP was earlier serving as an executive in ONGC. The Institute has a works and building section to hear the general problems of the employees regarding water, sanitation, etc. There is also a women forum to hear the complaints of women regarding sexual harassment, gender bias, etc. I was informed by the top management of the Institute that there has not been any compliant to this effect for years. There is also an SC/ST committee of the Institute appropriately represented by the SC/ST members that safeguard and promote the genuine interests of SC/ST employees. The training is imparted to the employees through the central government sponsored training programmes. Promotion of employees in the administrative wing is considered after five years subject to availability of vacancy. However, there are promotional bottlenecks in the promotion of administrative staff. Performance management of scientists is done through their annual assessment report and their publication in the SCI journal. BSIP has Instituted a medals/awards scheme to honor the meritorious scientists. There is a committee of eminent scientists to scrutinize the proposals of awards/medals to the scientists.

Apart from observing the principles of sound HRM laid down by the constitution, legislature and the courts, administration of WIHG is informed by certain HR practice which is very rare. I was informed in my interaction with the scientists that, at every step, there is transparency in the management of administration, for example in the construction of residential houses, scientists are involved to ensure the quality of raw material to be used in the construction was upto the mark. Quality is checked by those scientists in their laboratories and if the quality is not found to be standard the contract is liable to be cancelled. This builds confidence and such measures ensure that administration has nothing to hide and the scientists can repose full trust on it. This is an example of extensive communication with the scientists and using Institute's scientific resources to investigate the raw-material to be used

in the construction. The Institute has constituted numerous committees and participation of scientists enables them to see that their requirement is adequately met towards realization of Institute's goals. There are retirement benefits in line with the other central government employees. The Institute has also devised the medical scheme for its employees, serving and retired ones.

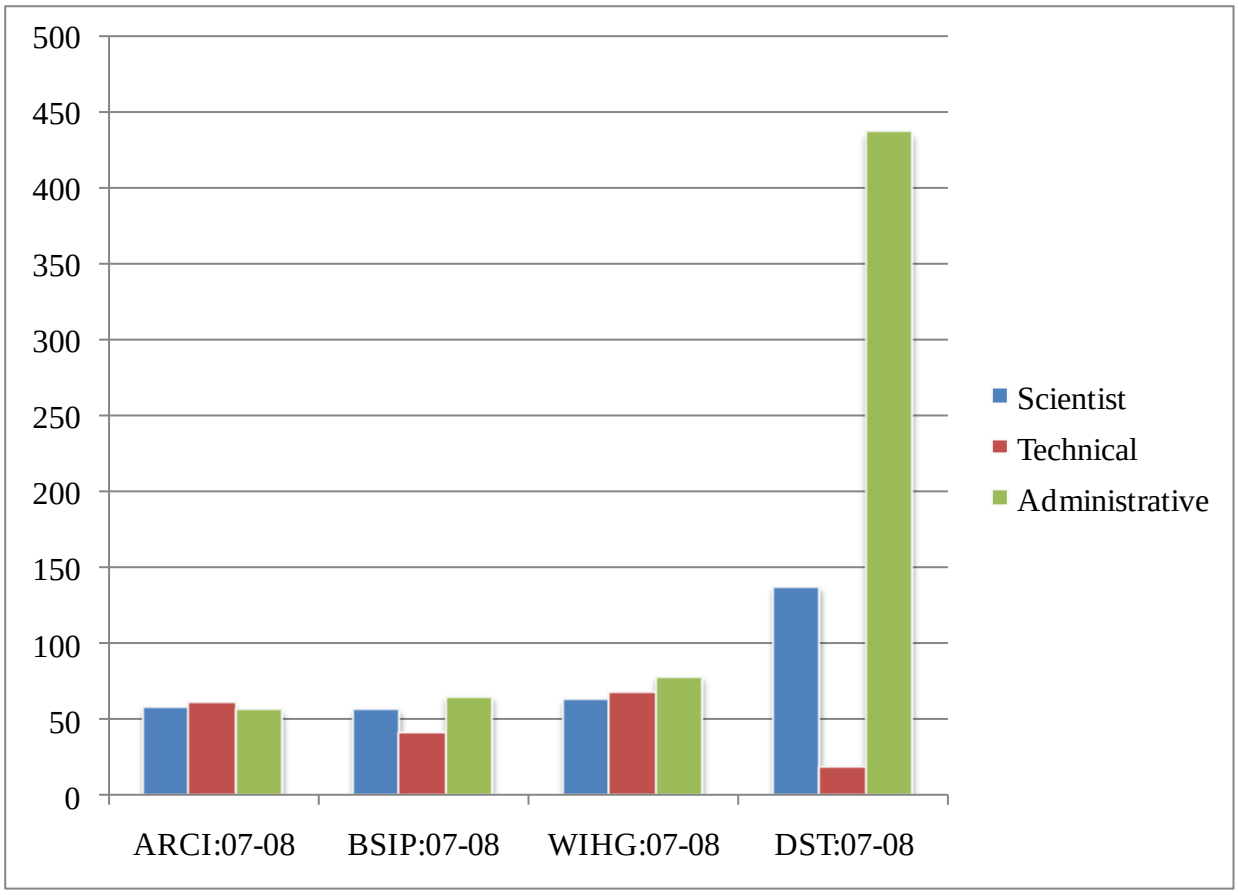
What is not so good about WIHG compared to others is its promotional bottlenecks for its administrative staff. In WIHG the administrative staff is facing acute promotional bottlenecks leading to frustration and disgruntlement whereas in ARCI there is no such case for the present. Table 5 and Figure 3 show a comparative study of human resources in ARCI, BSIP and WIHG. Both table and figure show that the scientists, technical and administrative staff of ARCI, BSIP and WIHG are comparable whereas in DST the administrative and ancillary staff is much higher than that of other institutions, probably because the DST is a nodal scientific organization looking after the policy formulation, finance, general administration and training and development aspects of all the scientific institutions functioning under it across the country.

Table 5: A comparison of HR in DST, ARCI, BSIP and WIHG in the year 2007-08

	DST	**ARCI**	**BSIP**	**WIHG**
Scientists	137	62	64	63
Technical personnel	18	61	45	67
Administrative (and ancillary staff)	437	51	62	78

Source: Analysis of records of DST, ARCI, BSIP and WIHG

Figure 3: A comparison of HR in the year 2007-08



Source: Analysis of records of DST, ARCI, BSIP and WIHG, 2009

4. EFFECTIVENESS OF HUMAN RESOURCES IN WIHG

Purpose of this thesis is to find ways to improve the human resource management in the WIHG, Dehradun, Uttarakhand, India. Effectiveness of HRM could be measured in terms of how far the Institute is able to provide a conductive intellectual environment to the scientists to conduct their quality research and how they enjoy and take pride in working for the Institute. Opinion/attitudes of the HR of the Institute on various HRM aspects of the Institute, a SWOT analysis of the HRM of the Institute and talks/interviews with the top management throw various issues for assessment and resolution to improve the effectiveness of HRM in the Institute for realization of its vision.

4.1 Methodology

Webster dictionary defines methodology as the analysis of the principles or procedures of inquiry in a particular field. It is a documented approach for performing activities in a coherent, consistent, accountable, and repeatable manner and uses measurable, objective measures like questionnaires, observation and interviews and statistical/ non-statistical analyses in order to come to conclusions about the topic under investigation. Since questionnaire survey and SWOT analysis are used for analytical purposes, methodology for these two techniques has been explained. On secondary data research, some papers relevant

to the Institute are perused to get some data already on the records to analyze if some improvement is there in the working of WIHG so far as HRM is concerned.

4.1.1 Methodology for Questionnaire Survey

It has been described in literature that questionnaires are used for descriptive research, such as that undertaken using attitude and opinion questionnaires and questionnaires of organizational practices, which enables in identifying and describing the variability in different phenomenon (Saunders et al., 2003, p. 281). Based on this technical input questionnaire survey is selected as the medium to collect primary data.

The survey conducted is titled as "Human Resource Efficacy Survey 2009 in WIHG". The purpose of the survey is to collect primary data from the employees of WIHG to assess its HR effectiveness. Based on this, analysis of the human resource activities of the Institute is done. The questionnaire was self-administered and both e-mail and personal contacts were established to deliver it to the respondents. The questions are designed with theoretical inputs taken from printed material, online questionnaires, and discussion with the Director, Registrar, other officers and scientists. The list of references taken for designing the questions is in Appendix III.

There were total 55 questions covering various aspects to assess human resource efficacy in WIHG. The questions are both open-ended and closed. Questions numbered 1 to 49 were closed while those numbered from 50 to 55 were open ended. Five point Likert-style rating scale has been used for closed questions. Pre-coding of the questions is done to ensure ease for respondents in answering as well as to facilitate data analysis. The questionnaire is pilot tested to refine the questions so that respondents did not have problems in answering them and recording the data. It is pilot-tested amongst my officers, colleagues and friends to check for ambiguities and for time required in completing the questionnaire. Necessary modifications are carried out in questions based on their feedback. The format of questionnaire is in Appendix II. The questionnaire consists of covering letter (Appendix I), which explains the purpose of survey as well as guidelines for answering the questions. The covering letter also assures the respondents about the confidentiality of their responses.

The Institute has a regular strength of 63 scientists, 67 technical staff (Technical Assistant, Senior Technical Assistant, Technical Officer, Lab attendant and Lab Assistant), 38 administrative staff and 40 ancillary staff. The administrative staff includes Registrar, Finance and Accounts officer, Office superintendent, Stenographers, Assistants, Upper divisional clerks and Lower divisional clerk; the ancillary staff consists of gardeners, drivers, bearers, security guards, cleaners, etc. Out of the above strength, 63 scientists, 66 technical staff, 68 administrative and ancillary staff are in position. The entire population is proposed to be covered for the data collection. It was informed that, some employees were on leave and some had proceeded to their filed duties. However, the then existing population of the Institute at the time of administering the questionnaire is taken into account. The

questionnaire was administered through e-mail to all the e-mail addressees regardless their presence in the Institute. The Questionnaire was administered to 130 employees by e-mail on 21.07.2009 during my stay in the Institute for five days from 20.07.2009 to 24.07.2009. I also met the majority of the scientists personally to see if they had any clarification to seek in the matter. Out of the above e-mail addressees, responses were received from 20 people by e-mail and five people personally handed over the print-out/hard copy as their systems were stated to have got stuck-up because of some technical problems. Therefore, the total responses from the e-mail addressees are 25. I was also informed by the Registrar that this is a good season (from May to September) for the scientists to proceed on field duties, 1/3rd scientists were away during this season. Instant connection with them is not established. Internet connectivity is also not there in some cases. Questionnaire was personally handed over to the rest of the employees. Only 55 out of 67 were available as 12 were out on the field duties or on leave. Out of 55 who were served the questionnaire, only 19 have responded (see Table 6).

Table 6: Analysis of e-mail and other responses

Q. sent on e-mail	Resp. of e-mail	% Resp.	Hand delivered	Resp. to hand delivery	% Resp.	Total population	Total resp.	% resp. in totality
A	B	C	D	E	F	G=A+D	H=B+E	
130	25	19.23	55	19	34.55	185	44	23.78

Legend: Q-Questionnaire; resp.-response

Source: Questionnaire analysis

The response rate is high in case of questions delivered by hand where as the responses of e-mail is a bit lower. Response rate of scientists is much higher than the average (see Table-7 below).

Table 7: Details of response rate from scientists of WIHG on HR efficacy survey-2009

Questions administered to scientific staff	Response received from the scientists	Percentage Response
63	21	33.33

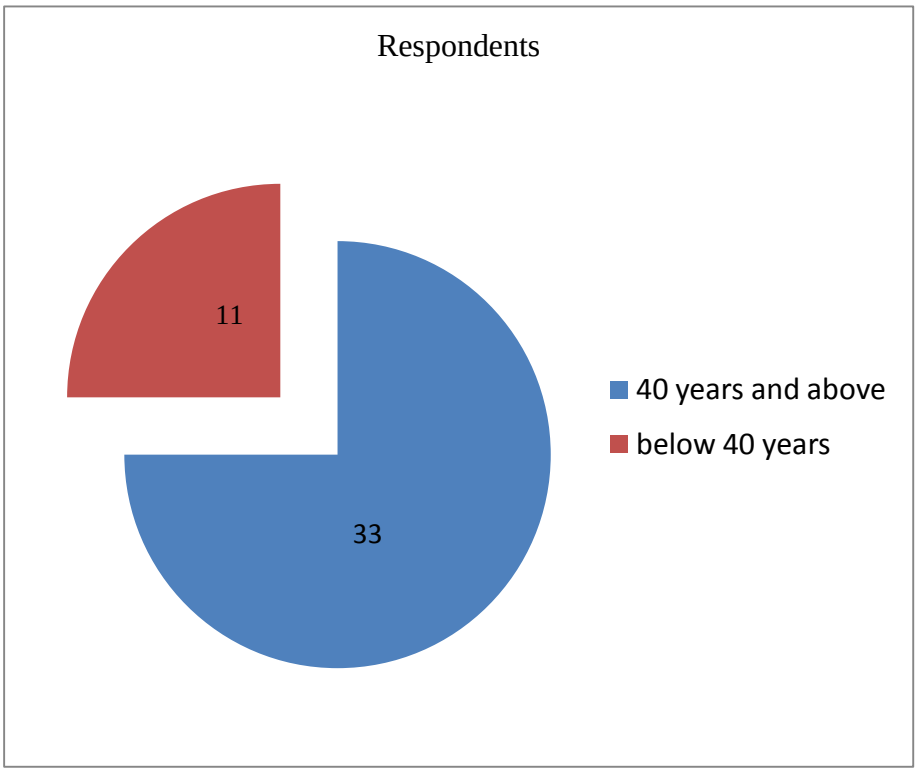
Source: Questionnaire analysis

It shows that the scientists have taken more interest in the questionnaire than the other employees. Interest shown by the scientists in these surveys is a good sign keeping in view the fact that scientists are the backbone of a scientific organization. Two women scientists out of a total of 21 scientists also responded to the questionnaire. Scientists representing all the six research groups of the Institute have responded to the questionnaire.

The other employees who responded the questionnaire are from the establishment, finance and accounts, library and documentation sections and stores and purchase divisions. Out of 44 respondents of the questionnaire 23 belong to their native state of Uttarakhand (the Indian state where the Institute is situated) and 21 hail from outside this state.

Shown in Figure 4 below representation in the pie-chart of two age-group of respondents across the board, 33 respondents are 40 years and above and 11 are below forty.

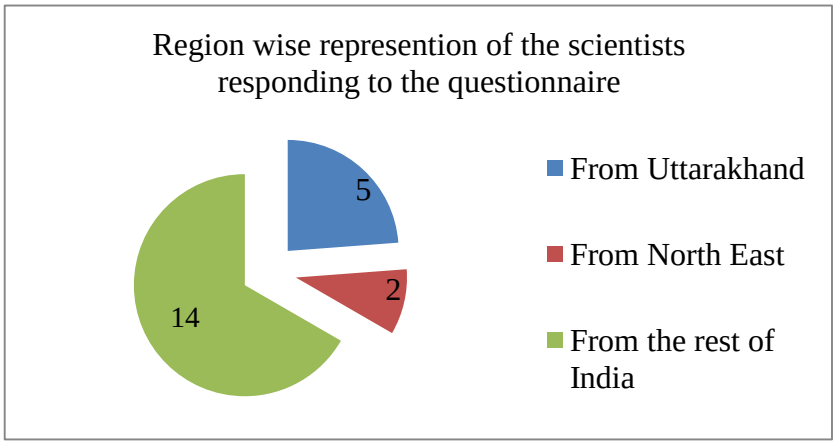
Figure 4: Representation of two age-groups of respondents of questionnaire-survey



Source: Questionnaire analysis

Out of 21 scientists, 5 scientists are from their native state of Uttarakhand and 16 from out side including two from the North East. Figure 5 represents the scientists responding to the questionnaire representing three different regions/ parts of India.

Figure 5: Scientists representing the different regions responding to the questionnaire



Source: Questionnaire analysis

Table 8 shows the number of scientists belonging to three different regions of India on the basis of questionnaire survey. It means the Institute accommodates a substantial regional diversity. Out of total 44 respondents five are women which are in tune with the overall low female percentage in the organization.

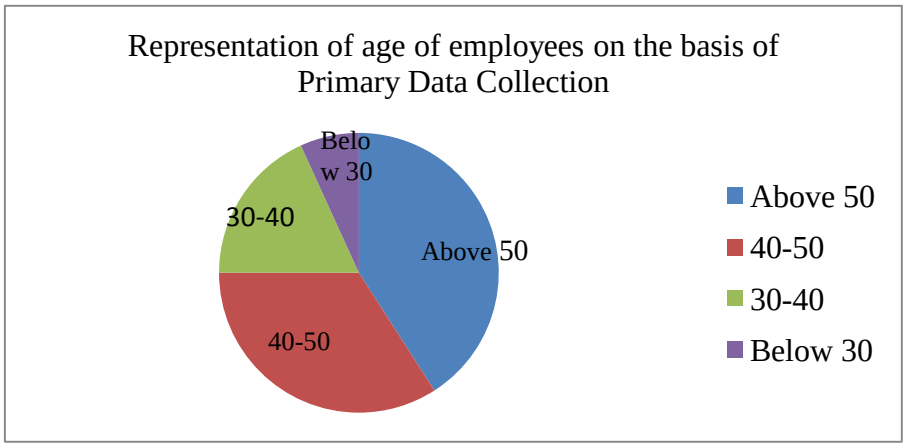
Table 8: Scientists belonging to different regions of India on the basis of questionnaire survey

	Scientists who responded the questionnaire	Scientists belonging to Uttarakhand	Scientists belonging to North East	Scientists belonging to the rest of India
Men	19	4	1	14
Women	2	1	1	0
Total	21	5	2	14

Source: Questionnaire analysis

The graphical representation of age of employees (see Figure 6) is based on the survey results that there are 18 employees above 50 years, 15 between 40 to 50, 8 between 30 to 40 and 3 below 30.

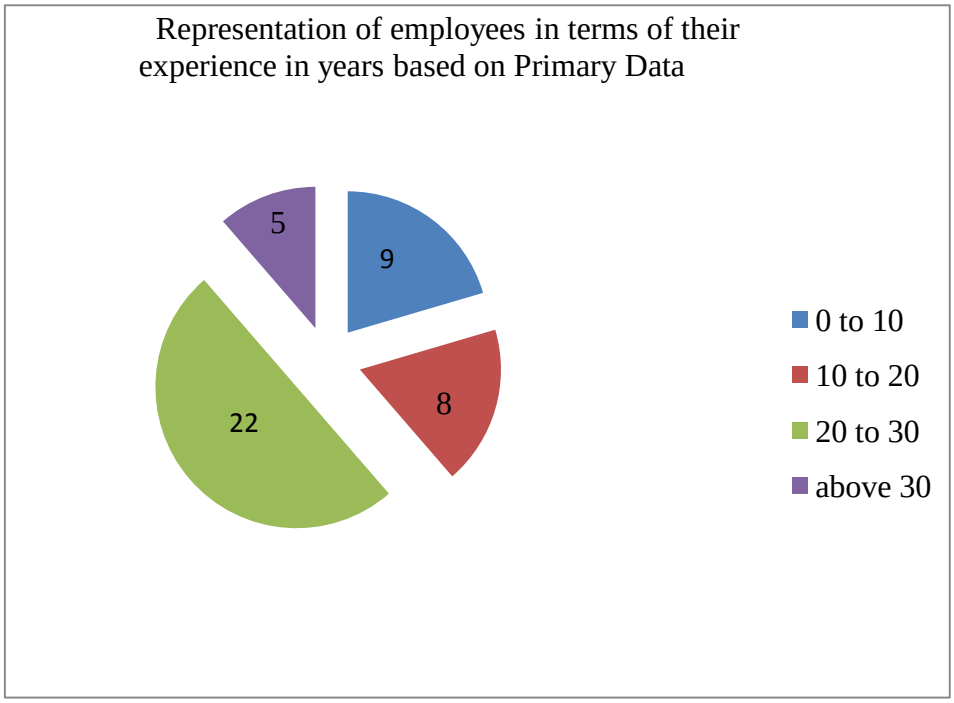
Figure 6: Pie chart representing age of employees



Source: Questionnaire analysis

Employees' representation in terms of their service experience in WIHG based on primary data is shown in Figure 7.

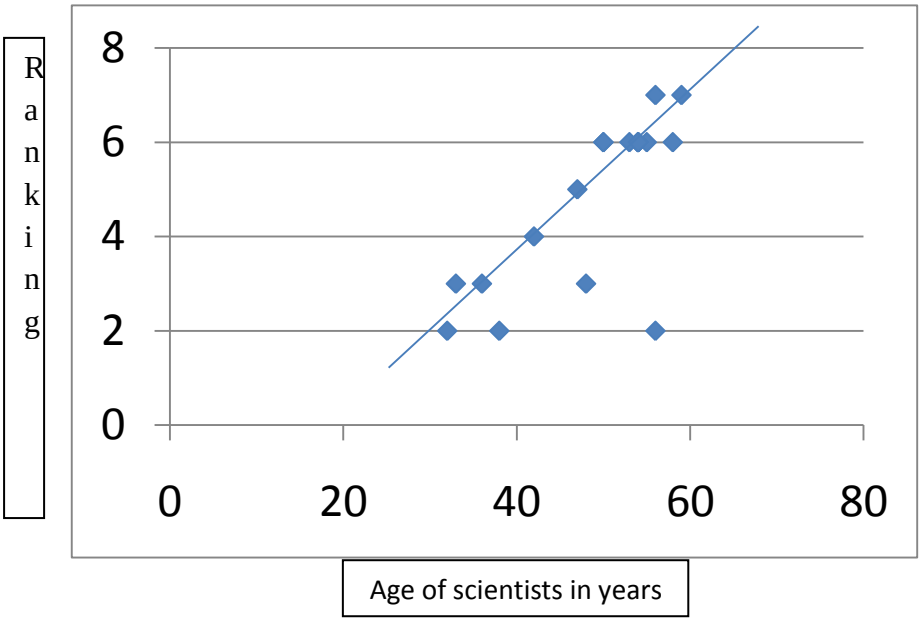
Figure 7: Pie-chart representing employees in terms of their experience



Source: Questionnaire analysis

A very strong co-relation between the age and the rank of the scientist (higher the age of scientist, higher the rank) is also established in Figure 8 on the basis of primary data.

Figure 8: Co-relation between the age and the rank of the scientist based on primary data



Source: Questionnaire analysis

4.1.2 Methodology for SWOT analysis

SWOT analysis is used to determine Institute's strategic problems. It delineates firm's strengths, weaknesses, opportunities, and threats. The institution-based view deals with external opportunities and threats, enabled and constrained by formal and informal rules. The resource-based view builds on the SWOT analysis (Dess, et al., 2007) and concentrates on the internal strength and weakness to identify and leverage sustainable competitive advantage (Acedo, et al., 2007). I had interactions with the Director of the Institute who helped identify these attributes in the HRM of the Institute. Incidentally, Director of WIHG was earlier Director of IIG, Mumbai another scientific Institute dedicated to the research in the earth's health/history.

4.2 General Overview of HRM Effectiveness in WIHG

The Institute was visited in the third week of July, 2009 to have an assessment of efficacy of human resources. Apart from the informal discussion with the Director and Registrar separately, certain questions were put before them to have an understanding of theoretical framework of HRM in WIHG. Director of WIHG was requested to inform how he manages his human resources towards achieving his scientific objective as he is the head of an Institute which carries out basic research in Himalayan Geology, mountain building processes, geo-environment and mineral resources. His reply was that research work in WIHG is based on specialization of subject. It is divided into several subgroups. There are six groups- structure & tectonics, igneous petrology & geochemistry, sedimentology, geomorphology, palaeontology, and geophysical studies. Out of this several specialized working groups

(subgroups) have been formed. Lateral induction of scientists is done even after their retirement (as emeritus scientist or consultant) to utilize their services, and expertise in some field of research for the sake of continuity. To take up research in the new emerging areas becomes critical. A trade off between the positions available and requirement of scientists is there. Research scholars are also inducted and groomed to be subsequently absorbed into the strength whenever the position is available. To meet the above challenge, the Institute takes up research scholars and grooms them and this way the Institute could find a right employee. To another question of what HR practices he is following in his Institute, he replied that his focus is on the team work. In this Institute only team-work could succeed and not the individualistic performance. Because the complexity of research in geodynamic evolution only warrants perfect team work based on sharing of knowledge, understanding, application.

A question put up to the Registrar was that as he has to establish a co-ordination between the scientific and non-scientific staff, what measures he takes for an effective co-ordination and how he ensures harmony and synergy in the working of the Institute and whether he also shows some kind of flexibility to help out the employees of their genuine difficulties. However, he was also requested to share his experiences/advice concerning HRM in his Institute.

In his detailed reply to all these queries he stated that during various meetings with the subordinates, it is emphasized that being an integral part of the Institute, the administration has to provide effective services to all its employees, especially to the scientific and technical staff. They are advised not only to provide satisfactory services promptly but also to be courteous to the employees. As a result, the administration has succeeded in minimizing the time in delivery of services and building an atmosphere of trust in the scientific and technical staff. To further improve the effectiveness of the organization, consistent efforts are made to reduce the administrative lead time in disposal of cases pertaining to grant of advances/funds (pertaining to festival, conveyance, GPF and house building, etc.) issue of necessary movement order and travel allowance to the field going officers. This has resulted in improving the employee satisfaction. There are umpteen number of cases where keeping in view the urgency in payment of advances to the field going officers, arrangement of departmental vehicles with drivers and payment of GPF advances and /withdrawals in genuine cases are made to the employees on the day of receipt of request.

He further stated that to ensure transparency in the functioning, the scientific and technical staff is included in various committees constituted for effective management of activities of the Institute. Involvement of the scientific or technical staff in the administrative functions of the organization not only ensures transparency in the system but also inculcates among the various categories of employees the sense of responsibility and belongingness to the Institute. Involvement of a large number of people in various processes and promptly attending to the problems of the employees also help reducing the grievances of the employees to a great extent. This is evident from the facts that no complaints or cases are received either by the

committee constituted to look into the grievances or any complaints of gender bias are reported during the last five years.

He further explained that the employees of the Institute can meet either its Director or Registrar to discuss any problem any time. This enables the management to find out prompt and satisfactory solutions to the problem. Barring exceptional cases, most of the issues are promptly sorted out. Efforts to minimize the purchase lead time in acquisition of inventories have helped promptly meet the requirement of the field- going scientists/staff. Timely execution of renovation- work pertaining to various laboratories and replacement of old/unserviceable equipments/instruments has resulted into development of state-of-the-art laboratory facilities for the scientists in the Institute. With the construction of a guest house-cum-hostel in the year 2003-04, the Institute is providing accommodation to the research scholars at least for some period till they get accommodation outside.

Construction of staff quarters for the scientists and other officers for the first time in the year 2007-2008 has helped the young scientists and officers a lot and as a result of this, now they can devote more time to their work in office/ laboratories or in the field. The administration also shows flexibility in genuine cases. In emergent circumstances, the administration tries to help the employees to the maximum extent. For example, one of the employees of the Institute, on reference by the medical authorities at Dehradun of the case of his son's illness to a super specialty hospital in Delhi, had to take his son suffering from blood cancer to that hospital in Delhi. On the request of the employee, the advance demanded by the hospital in Delhi was given and approval of competent authority in the Government was taken subsequently to incur the expenditure to enable the patient to get the treatment in time.

4.3 Understanding Philosophy, Policies and Practices of HRM in WIHG

It is observed and felt after the exhaustive interactions with the Registrar, finance officer and some scientists in the Institute, that there are scarce promotional avenues for the administrative/ non-technical staff. It was revealed in the discussion that the administrative staff in the Institute is a bit anguished due to lack of promotional avenues. The scientists and the technical staff in the Institute get assessment promotion after the prescribed period; the promotions to the employees in the administration are vacancy linked only. The widening of gap between the scientific and administrative staff is going to create undesirable inter-relativities which could adversely affect the overall performance of the Institute towards achievement of its objectives (which basically relate to research and development in the basic sciences concerning geo-dynamic evolution of Himalayas).

HRM is not only the management of existing employees, it has also substantially to do with the policies of the organization that take care of employees even at the time of retirement and thereafter. Sometime humanistic view needs to be taken above the rigorous and archaic rules and policy of the organization. Such view often boosts the morale of the serving employees and work as a catalyst in their efforts and endeavor towards realization of organizational

goals. Human resource management should be capable of distinguishing between the honest intentions and malafide motives. Subjecting a person to rigorous discipline and harassment when a clean confession could serve the purpose sends to all the employees a message which is counter-productive for the whole organization. Understanding the nuances of the issues with its intricate details and individual differences could make a big break through in so many instances. Such instances always motivate the serving employees to work without fear because they know even if some inadvertent error is committed; their job/pension benefits are secured and the scientists can work with more innovative thinking.

For Antarctica expedition, some kind of a spare of scientific equipment was required by a scientist going on that expedition for scientific investigation in that region. The requisition for that spare was made by the above scientist in a short notice (25 days notice). The management lost no time to import and deliver the spare to the scientist before his leaving for Antarctica. This is an excellent example of how and to what extent the management is interested in facilitating the research activities of the scientists. These examples define and describe the philosophy of HRM in WIHG.

The top management informs about the inter-institutional disparities in compensation that some of the administrative staff is getting the higher pay scale than their counter-parts in other scientific institutions/academies. This disparity relating to compensation is really disturbing when the nature of duties is the same for the administrative staff in other scientific institutions in that the same set of government rules i.e. general financial Rules (GFRs), delegation of financial power rules (DFPR), etc. are administered in all the scientific institutions.

Total transparency is observed in relation to building of residential quarters for the employees. Transparency is the hall mark of functioning of WIHG. This fact was also endorsed by two other scientists.

An HR manager has to be an excellent delegator. He has to ensure participation/ involvement of employees in the activities of the Institute. More delegation and decentralization of authority brings about more transparency in the system which builds faith in the institution. Building of faith/trust of the employees in the administration of institution develops a spirit of team work and a sense of belonging to the institution and employees sometimes go even beyond the call of duty, beat the dead lines and measures upto the expectations of all concerned and delight them all. This adds value to the organization, sometime makes an organization rare, inimitable and capable to leverage the organizational resources.

The management of WIHG never tries to impose itself on the employees. Rather, it always adopts a bottom-up approach and invites suggestions from the employees to improve upon its working on how best the employee's interest could be served. Management listens patiently to any request of the employee. Administration never tries to avoid the people with problems but rather welcomes them and tries to sort out their problem in co-operation with them.

Therefore, they nurture no grudge against administration and rather repose a great deal of faith/trust on them. Anything due to an employee is given to him in due date/ time and almost there is no situation where an employee is requesting for something due to him.

There is pattern of improvement of services in the advances sanctioned to the employees for the years 2006, 2007 and 2008. This indicates that the management is sensitive to the financial needs of its employees and makes all out efforts to give the employee the requisite funds as early as possible with the least hassles. Past three year data relating to disbursement of funds is given in Table 9.

Table 9: Past three year data relating to disbursement of funds to employees

Sl. No.	Year	Nos. of employees to whom the advance was sanctioned	Average time (in days) taken in granting the advance
1. House Building Advance	2006	NIL	NIL
	2007	1	20
	2008	NIL	NIL
2. Car Advance	2006	2	10
	2007	1	7
	2008	1	3
3. Motor-cycle advance	2006	3	6
	2007	3	7
	2008	2	4
4. Computer advance	2006	10	12
	2007	12	11
	2008	19	7
5. Moped advance	2006	7	9
	2007	6	7
	2008	NIL	NIL
6. Festival advance	2006	40	2
	2007	50	1
	2008	75	2
7.GPF advance/withdrawal	2006	20/133	4/7
	2007	31/146	2/10
	2008	32/131	2/8

Source: WIHG records

Top management also informs that the average time taken in granting the advance is far below the prescribed standard which is 30 days in House Building Advance (HBA) sanction and 15 days in other cases.

Status of RTI (Right to information) cases, employees' complaints against harassment of fair sex and grievances of the employees in certain cases are given in Table 10.

Table 10: RTI cases, complaints against harassment of fair sex and grievances of the employees

	Requests received under RTI Act	Number of requests received	Average time (in days) taken in disposal of requests
1.	Year-2006	16	13
	Year-2007	6	18
	Year-2008	12	20
2.	Complaints against harassment of fair sex during the year 2006, 2007 and 2008	NIL	NIL
3.	Employees grievances against unfair treatment because of diversity consideration (i.e. diversity of region, religion, cast, etc.)	NIL	NIL

Source: WIHG records

Neither any grievance nor any gender bias compliant has ever been reported to the management in the last three years. The management informed me that there is no such record in the last five years. Under the Right to Information Act, 2005, passed by the Indian Parliament, every citizen has the statutory right to seek any information from the Institute permissible under the Act. Employees of the Institute have also the statutory right to seek any information under this Act. This brings more transparency and accountability in the management of administration in the Institute.

To further analyze and suggest strategies, it is necessary to develop clear understanding of the status of human resource management activities in WIHG. I, therefore, decided to use questionnaire survey to assess the effectiveness of human resource function in WIHG. In addition, questionnaire survey helps in getting primary data to meet some objectives of thesis. Some secondary data is also researched to meet certain other objectives. SWOT analysis of WIHG is also carried out to get further insights into the HR aspects of the Institute. Both these analysis have formed the basis for identification of human resource need of the Institute and based on the identified needs as well as keeping in mind the best practices being practiced/adopted by other scientific Institutes, suitable HR strategies for WIHG are suggested.

4.4 Results of the Survey on HR Effectiveness in WIHG

Statistical analysis of results of the questions 1 to 49 (as given in Appendix-II) determines maximum, minimum, average, standard deviation of frequency to understand the opinions of all the respondents, across the board, i.e. scientific (including technical) and administrative (including ancillary). The frequency in absolute terms has also been converted into percentage form to facilitate comparison. The data is reported up to decimal one place.

Standard deviations are usually found on higher side. This is because of certain responses from the administrative staff whose career growth is found to be stunted as their promotions are vacancy linked and there are severe promotional bottlenecks in the hierarchy resulting in generally higher dispersion on opinions by the administrative employees. Registrar of the Institute also admits a feeling of anguish amongst the employees of the administration whereas the scientific and the technical staff in the Institute get assessment promotions after the prescribed period and are, therefore, better satisfied.

4.4.1 HR effectiveness- an analysis of primary data

After receiving the filled in questionnaires, the data of results of all the fifty-five questions are analyzed by using excel spreadsheet. To facilitate in-depth analysis, the respondents are classified mainly into two categories- scientific (including technical) with a total of 23 (21 scientists +2 technical personnel) and administrative (including ancillary) with a total of 21 (13 administrative + 8 ancillary staff) respondents. The question wise data in percentage from all the respondents to the questionnaire with the average (weighted) and corresponding standard deviation received from all the respondents is given in various tables (i.e. Table 11 to Table 22) below. The question-wise data with average (weighted) and corresponding standard deviations from the scientific (including technical) and administrative (including ancillary) staff is given in two separate extensive tables contained in Appendix-VI (pp. 18-20) and VII (pp. 21-23) respectively for assessment of results, scientific and administrative category wise. However, this classification is for questions numbering from one to 49 (closed). Questions No. 50-55 (open ended) are analyzed based on responses of all the respondents. The results of questionnaire survey are analyzed to assess the effectiveness of various HR activities/functions in WIHG based on the opinion of respondents who participated in the survey.

Recruitment and Selection*:* The analysis of responses reveals that respondents across the board are satisfied with the recruitment and selection system of Institute and consider it effective and suitable for organizational needs (see Table 11). More than fifty percent of the respondents think that competencies and skills required for the different job positions are well defined and used in recruitment process, however in this case standard deviation is high. This implies that further exploration is needed in this area and definite conclusions cannot be drawn solely based on the survey data. The opinion is equally divided between agreement and disagreement on the effectiveness of internal recruitment system to identify best people

for the job. The respondents in the administrative side seem to be a bit disgruntled and therefore believe that system is ineffective.

Table 11 analyzes the questionnaire responses on recruitment and selection system.

Table 11: Analysis of recruitment and selection system in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
1. Recruitment and selection system of WIHG is effective and suitable for organizational needs	40.9	34.8	4.5	9.1	11.4	2.2	1.4
2. Competencies and skills required for different job positions are well defined and used in recruitment process	25.0	45.5	13.6	11.4	4.5	2.3	1.1
3. The placement of new entrants is done as per the organizational needs	38.6	25.0	22.7	18.2	13.6	3.0	1.3
4. Regarding internal recruitment and assessment I find the process is effective in identifying the best people for the job	22.7	38.6	4.5	18.2	15.9	2.7	1.4

Source: Questionnaire analysis, 2009

Talent Management and Leadership: Analysis of the results of survey reveals that more than 60% of the respondents agree that management recognizes and makes good use of their abilities and skills (see Table 12). They feel that they have freedom to experiment with the new ways to do their work. Almost 65% of respondents believe that they have opportunity for personal development in WIHG. These responses are indicative of the fact that there are sufficient opportunities to develop leadership skills and improvise the work. 84% respondents opine that they are able to balance their house hold responsibilities with the job requirements without any hindrance in their career growth. This implies that people are less stressed and lead a peaceful family life. The Institute needs to capitalize on this strength, as these factors are becoming important parameters for working in a particular Institute. If the scientists feel secured and have no many issues about their families, they can better concentrate on their work in the interest of the Institute and the nation. These strengths should be highlighted during hiring of new recruits. However, response is not that encouraging on the issue of talent management. This further drops amongst the respondents from the non-scientific staff. In

WIHG the talent management in respect of non-scientific staff may not be to the extent prevalent in the scientific staff because of very low promotional avenues.

Table12: Analysis of effectiveness of talent management and leadership development in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
36. Management recognizes and makes good use of my abilities and skills	40.9	22.7	15.9	13.6	6.8	2.2	1.3
37. I am encouraged to develop new and more efficient ways to do my work	31.8	34.1	15.9	4.5	13.6	2.3	1.3
38. I believe I have opportunity for personal development in WIHG	45.5	20.5	6.8	9.1	18.2	2.3	1.6
39. I feel WIHG manages the talent of its people well	31.8	20.5	9.1	20.5	18.2	2.7	1.5
40. I am able to balance my house hold responsibilities with the job requirement without any hindrance in my career growth	40.9	43.2	2.3	9.1	4.5	1.9	1.1

Source: Questionnaire analysis, 2009

Performance Appraisal: A sizable chunk of employees say on question No. 11 that the performance appraisal system lacks transparency (see Table 13). The problem in performance appraisal system is that the scientific staff gets promoted on the basis of their appraisal whereas as the non-scientific staff does not get promoted even when they are getting excellent reports. Registrar also informs that some proposal has already been sent to the central government for consideration to open up promotion avenues to the administrative staff. Creation of posts is very difficult in the government now-a-days in view of its approach of keeping an agile work force. A sizeable chunk feels that the performance appraisal system lacks transparency. The Honorable Supreme Court of India has recently allowed disclosure of assessment reports to the employees concerned. This would avoid subjective assessment and propensities and bring about more objectivity in the assessment of employees performance**.** The respondents generally feel that present system lacks transparency, does not help in identification of personal development opportunities and not enough opportunities are available for career development through performance appraisal. It is worth mentioning that standard deviation is high on the questions related to performance appraisal and further

analysis may reveal that dissatisfaction level is much higher than what is reported in survey. There is high and urgent need to develop new performance appraisal system that is effective and in accordance with the recent ruling of the Supreme Court of India.

Table 13: Analysis of performance appraisal system in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std Dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
10. The current performance appraisal system is capable of encouraging the good performers vis a vis non-performers	22.7	34.1	11.4	20.5	11.4	2.6	1.3
11. The performance appraisal system lacks transparency	27.3	20.5	6.8	22.7	22.7	2.9	1.6
12. Performance appraisal review helps in identifying my personal development opportunities	27.3	29.5	9.1	25.0	9.1	2.6	1.4
13. I get enough opportunities for career development through performance appraisal	18.2	27.3	9.1	11.4	34.1	3.2	1.6

Source: Questionnaire analysis, 2009

Training: All the categories of respondents express their opinion that knowledge and skills acquired from training can be applied at workplace. Results indicate that employees are not satisfied with the training and development activities of WIHG, with non-scientific staff more dissatisfied than the scientific staff. The opinion is not very clear on the issue of training based on identified needs, with one fourth of respondents remaining neutral across the board.

Results of Questionnaire analysis also shows that 32% employees are unable to say anything if the Institute has a well established system of feedback to know the effectiveness of the training imparted. It raises a question about the Institute's efficacy to develop such a system to evaluate the effects of the training programmes on the individual trainees. The Institute needs to ponder on this.

The Director in his interactions also emphasizes that training is an essential element of development of a scientist. He/she could be trained by giving exposure to the international seminar/symposia/conference/training. Training of joint scientific teams of various Institutes

dedicated to the earth's health and history may be co-ordinated for better results in scientific research. Non scientific staff should also be trained in creating a good repository of service records by developing HRMIS of the employees for dissemination and facilitation of employees. Organization of periodic training programmes is necessary to meet the in-house need for trained human resource and for the overall human resource development of the Institute.

Table 14 shows the analysis of effectiveness of training in WIHG, across the board.

Table 14: Analysis of effectiveness of training in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
26. Training is provided to enable me to do my job effectively and efficiently	40.9	27.3	9.1	11.4	9.1	2.1	1.3
27. Training and development activities of WIHG are satisfactory as compared to other scientific Institutes	27.3	29.5	25.0	15.9	2.3	2.4	1.1
28. The knowledge/skills acquired from training can be applied at workplace	61.4	18.2	6.8	6.8	6.8	1.8	1.2
29. WIHG has well established system of feedback to know the effectiveness of training imparted	13.6	25.0	31.8	11.4	15.9	2.8	1.3
30. Training is imparted based on training need identification	22.7	34.1	25.0	13.6	4.5	2.4	1.1

Source: Questionnaire analysis, 2009

Employee Development: The respondents across all categories think that job rotation and job enlargement, the two important components of employee development, are utilized to some extent by the Institute. The opinion is again divided among the scientific and non-scientific staff with more scientists agreeing to the question.

About one third respondents across the board disagree with the statement that each employee has well defined development plan that is based on inputs from organizational needs, superiors and employee himself. Opinion is fragmented in the response to question that

competencies and skills required for job positions are well defined and used for employee development with category of non-scientific staff not in agreement.

The survey results indicate that status of employee development activities in WIHG are not up to the level of employee expectations and corrective steps need to be taken on urgent basis to bridge the gap. However, the high standard deviation needs further investigation of the matter.

Table 15 shows the analysis of employee development activities in WIHG, across the board.

Table15: Analysis of employee development activities in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
41. Competencies and skills required for job positions are well defined and used for employee development	29.5	27.3	15.9	11.4	15.9	2.6	1.4
42. Each employee has well defined development plan that is based on inputs from organizational needs, superiors and employee himself	34.1	20.5	13.6	2.3	29.5	2.7	1.7
43. WIHG shows a little interest for employee development	22.7	22.7	6.8	27.3	20.5	3.0	1.5
44. Job rotation and Job enlargement are utilized effectively for employee development	18.2	25.0	15.9	20.5	13.6	2.7	1.4

Source: Questionnaire analysis, 2009

Compensation Package: About 30 percent of respondents believe that their pay package is fair when compared with identical Institutes. Respondents are generally aware of what their pay and benefit package consists of. The important finding that emerged from this survey is that respondents across the board overwhelmingly agreeing to the fact that compensation package should be linked with the performance. The results indicate that more than thirty percent of respondents believe that Institute does not make good use of compensation and reward system to encourage good performance. This requires attention from the organization.

The responses on the issue of compensation and reward clearly indicate that WIHG shall rework its compensation package with more emphasis on performance linked pay package. It calls for the management of employees through manifest (monetary) involvement. The HR practice should appear to emphasize the compensation of employees. An analysis of compensation package (across the board) is shown in Table 16 below. It is also an irony that some people are not even clear of the constituents of their pay and benefit package.

Table 16: Analysis of compensation package (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
31. Compared with people in similar jobs in other Institutes, I feel my pay package is fair	31.8	29.5	11.4	4.5	22.7	2.6	1.6
32. WIHG makes adequate use of recognition and rewards other than money to encourage good performance	34.1	20.5	13.6	18.2	13.6	2.6	1.5
33. I will be rewarded financially or otherwise if I go beyond what is expected of me in my job	25.0	18.2	18.2	4.5	34.1	3.0	1.6
34. I am unclear as to what my pay and benefits package consists of	11.4	25.0	9.1	27.3	25.0	3.2	1.4
35. I feel compensation package should be linked with performance of employees	63.6	22.7	4.5	9.1	0.0	1.6	0.9

Source: Questionnaire analysis, 2009

Employee Benefits: More than fifty percent of the respondents across all the categories think that the Institute's benefit program is competitive with that of other scientific Institutes. However, the non-scientific lot has given fragmented opinion distributed between agreement and disagreement. This is due to the reason that expectation level of this staff from the employer is much more than the scientific staff, may be for want of good promotion opportunities. The respondents are fragmented in their opinion that employee benefit plans are one of the important reasons for working in WIHG with only about 27 percent strongly agreeing and one tenth remaining neutral. It can be inferred that employees are satisfied with the Institute's retirement benefit plans. Standard deviation is high on this issue (particularly question no. 22, 23 and 25) so conclusions derived on the basis of survey can go otherwise as

well after further analysis. Further improvement in the employee benefits may be considered because only a happy and healthy employee can serve the Institute better and can work towards realization of Institute's goals. Prima facie, it is, however, interesting to note that about 55% of the employees are of the opinion (strongly or mildly agreeing) that employee benefit plans are one of the important reasons for working in WIHG and none is disagreeing with the Institute's retirement benefit plan for the employees. An analysis of employee benefits in WIHG (across the board) is given in Table 17 below. Normal expectations of the employees during the course of their service need to be appreciated in the right spirit.

Table 17: Analysis of employee benefits in WIHG (across the board)

Question (22-25 *seriatim*)	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
22. The benefit programs of the Institute is competitive with that of other scientific Institutes	27.3	36.4	20.5	4.5	11.4	2.4	1.3
23. WIHG`s benefit program takes care of my needs during service	40.9	27.3	11.4	13.6	6.8	2.2	1.3
24. I am satisfied with the WIHG`s retirement benefit plan	65.9	25.0	9.1	0.0	0.0	1.4	0.7
25. Employee benefit plans are one of the important reasons for working in WIHG	27.3	27.3	11.4	18.2	15.9	2.7	1.5

Source: Questionnaire analysis, 2009

Communication: On communication front also, the difference of opinion exists between administrative and scientific staff. This again is related to difference in perception of the groups. As in the first two questions the standard deviation is quite high nothing could be said with certainty. The Institute, however, needs to improve its communication system so that all the employees feel that they get the relevant and correct information at the right time and place. However, respondents were in full agreement that e-mail and other on-line communication systems have improved the communication and feedback system in WIHG (see Table 18). This information is useful for WIHG in devising strategies to strengthen the electronic communication systems. Results indicate that almost ninety percent of the respondents comment that they understand the vision/mission/values/objectives of the Institute. This denotes that management has been able to communicate its vision to its employees. Vision/mission/values/objectives constitute the soul of any Institute and if the employees are clear about them, it becomes easier to chalk out the strategies for better HRM

towards realization of its goals. Free flow of information between the management and employees is a pre-requisite for an effective HRM. A positive feedback system also helps a lot to improve the HRM by creating a conducive working environment in the Institute. Information about organizational plans, progress and problems when exchanged effectively with subordinates, associates, superiors and others enhances mutual understanding and trust.

Table 18 shows the analysis of effectiveness of communication system in WIHG, across the board.

Table 18: Analysis of effectiveness of communication system (across the board)

Question No.	Frequency in %					Wt. Avg	Std Dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
18. WIHG does an excellent job of keeping employees informed about the matters affecting them	22.7	29.5	13.6	18.2	15.9	2.8	1.4
19. WIHG is able to provide the relevant information at right time and place.	38.6	34.1	9.1	9.1	9.1	2.2	1.3
20. Use of E-mail & other online communication methods have improved communication & feedback system	81.8	13.6	2.3	0.0	2.3	1.3	0.7
21. I understand the statement of vision/mission/values/objectives of WIHG	72.7	18.2	0.0	9.1	0.0	1.5	0.9

Source: Questionnaire analysis, 2009

Teamwork: Teamwork and work culture are the main strengths of the Institute based on data of survey. As evident from Table 19, more than 80% of people across the board believe that there is a feeling of teamwork and cooperation in WIHG and often people help each other, even if it means doing something outside their usual activities. The Institute should capitalize theses strengths to gain competitive advantage in the scientific achievement. In this area also administrative staff people do not seem to be much oriented to team work. However, the scientists overwhelmingly support the team work questions. It is vey good for the scientific research which is the core area activity of the Institute.

A team of highly qualified, sincere and dedicated scientists with a unique research theme on mountain building with a focus mandate- development of concepts and models on geo-dynamic evolution of Himalaya could produce results of unsurpassable importance. In a scientific institution it is imperative that scientists work together as a one whole, share their knowledge and experience and contribute collectively towards scientific research and development.

Table 19 shows the analysis of team work in WIHG, across the board.

Table 19: Analysis of team-work in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std Dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
14. The people I work with are willing to help each other, even if it means doing something outside their usual activities	34.1	45.5	9.1	9.1	2.3	2.0	1.0
15. At WIHG there is a feeling of teamwork and cooperation	29.5	47.7	15.9	4.5	2.3	2.0	1.0
16. I often volunteer to participate in work that are not directly related to my job	47.7	36.4	11.4	2.3	2.3	1.8	1.0
17. Management and non management employees work together	27.3	29.5	20.5	13.6	9.1	2.5	1.3

Source: Questionnaire analysis, 2009

Employee Relations: Respondents across the board are generally satisfied with the issues related to employee relations like cordial work council - management relationship (see Table 20). Registrar also informs that administrative and ancillary staff has access to the top management at every point of time and efforts are made to address their grievances at the earliest possible. Health and safety of the employees (particularly those on field duties at high altitudes) is also taken due care of as is also reflected in the questionnaire survey. However, disagreement by the administrative and ancillary staff especially on questions 7, 8 and 9 could be understood by the fact that these people are not happy with the stunted career growth and this may be a manifestation of their frustration. Scientists more or less agree with the questions at Sl. No. 5-9. However, the results of questionnaire analysis reflecting, to some

extent, the management's indifference to the well being of its employees should enable the management to pursue further the interest of the disgruntled employees for better promotional avenues with the higher authorities or take some kind of decisive step in the matter. It appears that Scientists (including technical staff) in this scientific organization are better placed than the non-scientific staff. They feel very positive about the Institute. The administrative staff looking after administration and accounts is not happy with the situation. On question 8, the technical staff other than scientists feels that they do not have a voice in decision making. This is an area where the management needs to improve.

Table 20 shows the analysis of employee relations in WIHG, across the board.

Table 20: Analysis of employee relations in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std Dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
5. I feel occupational safety and health are given due importance in WIHG	43.2	29.5	9.1	11.4	6.8	2.1	1.3
6. I feel management is interested in well being of the employees	34.1	20.5	20.5	18.2	6.8	2.4	1.3
7. The working condition at workplace is satisfactory (e.g. ventilation, work space, temperature etc)	30.8	29.5	2.3	22.7	13.6	2.6	1.5
8. Employees have a voice in decisions regarding changes in work environment	20.5	31.8	9.1	20.5	18.2	2.8	1.4
9. I believe work council-management relations are cordial in WIHG	29.5	36.4	9.1	15.9	9.1	2.4	1.3

Source: Questionnaire analysis, 2009

Job Satisfaction: Results in Table 21 reflect that about 57% of respondents strongly agree that they would recommend others to work for WIHG with the percentage going to about 90% in case of scientists. This is indicative of the fact that scientists are satisfied with their work in WIHG. This is a very good sign. However, for an integrated development of the Institute towards better realization of its goal, the career growth of the non-scientific staff should also be considered by the government to enable it to realize its full potential. For about 23% employees, job satisfaction is not there. This is attributed to the non-scientific staff's low career prospects. The Institute has to try hard to measure up to the expectations of

the deserving employees to enable them to contribute their best in its interest. More than 60% people are of the opinion that sudden exit of key people has minimal impact on working of WIHG. It shows to some extent vibrancy and viability of the Institute as a whole.

Table 21: Analysis of job satisfaction in WIHG (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
45. I would recommend others to work for WIHG	56.8	25.0	6.8	4.5	6.8	1.8	1.2
46. Sudden exit of key people has minimal impact on working of WIHG	27.3	36.4	18.2	15.9	2.3	2.3	1.1
47. Attrition rate is low and people are satisfied in their jobs	29.5	34.1	13.6	9.1	13.6	2.4	1.4

Source: Questionnaire analysis, 2009

Use of Technology in HR: Almost all the respondents across the board agree that the use of information technology (IT) in human resource management is beneficial to employees and the Institute both (see Table 22). Application of human resource information technology can pave the way to a very effective HRM in the Institute.

Table 22: Analysis of effectiveness of use of technology in HR (across the board)

Question No.	Frequency in %					Wt. Avg.	Std dev
	Strongly agree	Mildly agree	Can't say	Mildly disagree	Strongly disagree		
48. The use of Information Technology in HR is win-win situation for both employees and managers.	45.5	29.5	22.7	0.0	2.3	1.8	0.9
49. I understand Human Resources Information System (HRIS) is an important tool in increasing human resource effectiveness in the Institute	56.8	31.8	6.8	4.5	0.0	1.2	0.8

Source: Questionnaire analysis, 2009

On the overall basis, the survey suggests that major improvements are needed in the areas of performance appraisal, transparency, compensation and reward, employee development,

talent management and training to improve competencies and skills. On the other hand requirement and selection, teamwork, work culture, employee relations are working well/satisfactory. The Institute needs to capitalize on these strengths by devising suitable strategies.

Analysis of best aspect of WIHG: In response to the question that "what do you like best about WIHG" respondents have given many factors, which they like most in WIHG. The top four factors in order of priority are: team spirit, good working environment, research facilities and freedom of action.

The top two factors, namely- Team spirit and a good working environment represent a strong positive organization and provide a conducive atmosphere for scientists to do their research work. As WIHG is a public institution entirely funded by the government, there is less fear of losing the job and the scientists can work with more freedom.

4.4.2 Analysis of major HR challenges for WIHG

The respondents were asked in order of priority to rank three HR functions that need improvement. Out of many functions that were prioritized, the top three HR functions, which need improvements, are transparency, recruitment and placement, and training.

In response to list the main issues in order of priority to increase one's effectiveness in job and changes required to improve HR effectiveness in WIHG, it was overwhelmingly argued that the time bound promotion is the requisite for being effective in the job and opening up such opportunities is also one of the measures to be taken to improve the effectiveness. Career promotion acts like a catalyst in the performance of the employees. That apart, a good research environment and an overall good working environment is also essential to make an employee more effective and for improving HR effectiveness. Administrative and managerial practices and those pertaining to scientific administration are informed by a set of attitudes, behaviors and performances. Team spirit, freedom of action, moral support and guidance, co-operation, understanding and sympathies, rationalization of workload, training and motivations are also considered important. Provision of research scholars, decentralization, delegation of power, simplification of rules and procedures are also some of the areas to improve upon HR effectiveness. The new areas that emerged for increasing HR effectiveness in the department are-multi tasking abilities and interpersonal relationships. This is very logical because effective management of human resources at departmental level is more influenced by interpersonal relationships and skills to perform the job effectively and smoothly.

The respondents were asked to prioritize HR functions that they thought pose most significant challenge for them. They were asked to prioritize present and future challenges separately from a list of eight challenges, namely- change management, compensation and rewards, leadership development, employee retention and talent management, learning and

development, recruitment and availability of quality manpower, institutional relations, and outsourcing of HR activities (Appendix II, question 55). Based on responses, the present and future challenges are determined.

Present and Future Challenges: The analysis shows that recruitment and availability of quality man power is the biggest challenge for today and for future in this scientific Institute. To provide continuity, lateral induction of scientists is resorted to even after their retirement (as emeritus scientist or consultant) to utilize their services, and expertise in some field of research as taking up research in the new emerging areas becomes critical and a trade off between the positions available and requirement of scientists is there.

Research scholars are also inducted and groomed to be subsequently absorbed into the strength whenever the position is available subsequently. Because the ban on creation of new posts, the fresh blood is not going to be infused at the pace it should have been. Therefore the need for recruitment and availability of quality manpower is increasingly going to be felt. Leadership development is another big challenge for today. An inspiring and motivating leadership has to be generated from within. In fact the organization is ageing as the average age of the scientists here is 46 years. In order to create a vibrant and dynamic organization an in-built system needs to be created where the old scientist should act as coach, mentor or delegator to the new scientists/research scholars.

Besides learning and development and institutional relations, compensation and rewards are the other issues for today and future. Outsourcing is not a significant challenge either for today or for tomorrow.

4.5 SWOT analysis of HRM in WIHG

SWOT analysis is a framework for analyzing the Institute's strengths and weaknesses, and the opportunities and threats it faces. This will help the Institute focus on its strengths, minimize weaknesses, and take the greatest possible advantage of opportunities available. Strengths, weaknesses, opportunities and threats can be ascertained by finding the answers respectively to the broad questions of what we do well; what is wrong now; what possibilities exist and what can go wrong. Strengths and weaknesses are the internal focus whereas opportunities and threats are the external focus of an organization.

SWOT analysis of WIHG is based on information gathered from internet and printed material about the Institute such as annual report, brochures, etc. The information has also been collected through telephonic and face to face conversations with Director, Registrar and scientists of the Institute.

Strengths and weaknesses that are strategic to HRM of WIHG are those that can be controlled by the Institute while strategic opportunities and threats are external factors that are not in its

control. Strength-Opportunity(S-O), Weakness-Opportunity (W-O), Strength-Threat(S-T), and Weakness-Threat (W-T) strategies are detailed in Table 23.

Table 23: SWOT Matrix of HRM in WIHG

SWOT Matrix of HRM in WIHG	Strength	Weakness
	-highly qualified, sincere and dedicated scientists with strong teamwork amongst them. -time-bound promotion of competent scientists under FCS. -easy access to computer on-line systems and technological sophistication. -free and unhindered interaction with the top management/central government.	-scarce promotion avenues for administrative staff. -lack of training facilities to administrative staff. -ban on fresh recruitment/ infusion on fresh blood. -lack of timely exposure to the scientific/technical staff to the latest technology.
Opportunities	S-O strategies	W-O Strategies
-better interaction and co-operation (on-line or otherwise) with the world scientists, their training and development opportunities for collaborative research with sister institutions and corporate sector. -better technology to the scientists/employees to manage learning and change.	-strong teamwork of scientists with better interaction and co-operation with the scientists of national/international repute would lead to wonderful competency management. -easy access to technological sophistication and on-line training facilities would lead to employee's learning and development in WIHG's interest -closer monitoring of Himalayan glaciers could help understand the impact of global warming in co-ordination with the western scientists leading to better talent management.	-easy access to computer on-line systems and technological sophistication can minimize time-lag in implementing the modern lab technology due to lack of exposure leading to better HR utilization. -career growth issues are taken up with the central government and financial implications are taken care of. -by appropriate savings in non-desirable areas, expansion of present HR of competent scientists.

(table continues)

(continued)

Threats	S-T strategies	W-T strategies
-The corporate sector may grab the talent if the interests of the scientists are not taken due care. -lack of new equipment and their know how will show the poor competency management.	-rapport with management could help achieve the technical know how of sophisticated instruments by finding budgetary support for the on-site visit of complicated instruments. -Identification of areas where the funds could be saved and their diversion to the field of scientific research. Also to harness the potential of scientists, appropriate training and development is required.	-Thrust on appropriate training and development of scientists; competence mapping and skill gap identification. - Devise specific policy for talent management by suitable exposure with larger publics and significant worldly wisdom to encourage innovative thinking.

Source: Own analysis, 2009

4.6 Identifying HRM Needs in the Existing HR Activities

Human resource need of WIHG is identified on the basis of analysis of survey on human resource efficacy in WIHG and SWOT analysis of HR of WIHG. The need is classified into three categories-high, moderate and low as detailed in the Table 24 below.

Table 24: Human resource need of WIHG

Strong HR need	Moderate HR need	Low HR need
-Recruitment and availability of quality manpower -Better work environment -Leadership development -Employee development -Compensation and rewards -Institutional relations -Training for knowledge up-gradation, skill and competency enhancement	-Transparency -Change management -Rationalization of workforce and workload	-Employee retention -Communication -Team work -Use of IT in HR activities -Diversity management

Source: Own analysis, 2009

The high need category represents those HR systems/functions, which need to be stronger in WIHG to achieve competitive advantage. These functions require tremendous improvements to make it a global institution of repute to face the challenges of the day. The

moderate HR needs are those that require some modification in the existing ones to make them more effective in the present business environment. The low HR need category consists of those functions that are strong in WIHG, and the Institute needs to nurture them continuously to sustain competitive advantage in those fields.

As shown in the above table, Recruitment and availability of quality man-power is found to be the need of the hour. It does not mean that the scientists are less capable but means without the quality man power the scientific activities cannot be carried on upto the international standards. In scientific research, the highest level of IQ (intelligent quotient) is needed. And only highly talented scientists need to be inducted who could contribute significantly to the global issues concerning the climate change and disastrous consequences of quakes. Better work environment constitutes of formal and informal institutions. The scientist has to be given a fair deal and he should be made comfortable from unnecessary hassles.

Leadership development is another area where the Institute has to work a lot. Vision and responsibilities of the Institute are expanding and in order to take up new challenges, it is imperative to have leadership development at every level. The ban on creation of post is posing a threat to this aspect of HRM and improvement in this situation is strongly felt. Transparency and change management are other areas requiring HR improvement. Employee retention (Retrenchment is very rare in the government sector), communication and diversity management (India is known for this specific attribute of unity in diversity, it is inherent in Indian culture and so is the case with the Institute) are quite strong and need to be further nurtured for formation of human capital to be leveraged to achieve institutional objectives.

5 HUMAN RESOURCE MANAGEMENT- PROPOSED STRATEGIES

The suggested human resource management strategies are based on the identified human resource needs, my experience and inputs from literature and discussions with the Director, Registrar and scientists in WIHG and other organizations. The needs are identified based on HR efficacy survey conducted by me and the SWOT analysis. Following HR strategies for the growth of the Institute are proposed to building up sustainable competitive advantage.

5.1 Selective Employment

Erickson and Gratton (2007, pp. 104-112) have categorized workers in six segments on the basis of why and how they like to work. Some care deeply about the social connections and friendships formed in the workplace. Some have appetite for risk while some crave the steadiness of a well-structured, long-term climb up the career ladder. Hence, companies should recognize that individuals work for different reasons and accomplish tasks in different ways and their recruitment policy should be structured accordingly. In WIHG, there is a distinctive culture of team spirit, collaboration and freedom to experiment and try new methods at workplace. This system needs to be communicated to potential job seekers. We do

not need to be all things to all people; we must strive for those who fit into our culture and our recruitment policy is to be framed accordingly. This will result in deeply engaged employees in their work. These people will find ways to satisfy their own preferences and aspirations while meeting the organization's need to come up with creative and productive solutions. Their commitment will be contagious which will infect prospective employees and WIHG will be able to attract quality manpower.

The three scientific institutions of the Department of Science and Technology namely: BSIP, IIG (Indian Institute of Geo-magnetism) and WIHG are devoted to the global history and health. It is, therefore, suggested to formulate a comprehensive strategy to attract retired employees to the Institute by pooling of talent in these Institutes. Talented, capable and competent and experienced people of these Institutes can share their knowledge and better co-ordination and understanding among them could start initiatives in the field of common interest. In a survey of retired people of Canada (Armstrong-Stassen, 2006, pp. 38-44), the highest rated top three HR practices were- recognizing the role that mature employees can play like serving as mentors; recognizing their experience, knowledge, skill and expertise; showing appreciation for a job well done. HR practices dealing with valuing and respecting mature employees are the most important factor in their decision to return to workforce. Thus, HR practices must be specifically tailored to needs and preferences of retired employees. The suggested strategies are:

- Flexible working options, including adaptable work days and schedules, reduced hours
- Training and development practices targeting mature employees for skill up-gradation, as well as educating managers on the effective utilization of mature employees
- Job design practices that provide mature employees with challenging and meaningful tasks and assignments and create new roles , such as mentoring
- Recognition and respect practices that recognize the contributions of mature employees and ensure that mature employees are treated with respect

It is also suggested that publicity campaign should be launched to promote the Institute as a career choice for young people. Real time geology for the society for coping with natural hazards is an idea which could be developed to attract the young scientists to work on it. More posts of scientists should be created to infuse the young blood in this scientific Institute.

The Institute is ageing as the average age of the scientist is 46 years now. It is therefore imperative to think about creation of new posts to create a vibrant and dynamic system for the sake of continuity and for the growth of scientific research. The Institute should also promote technological sophistication as well as the quality of life it offers.

5.2 Talent Management

Talent management refers to the process of developing and integrating new workers, developing and retaining current workers, and attracting highly skilled workers to work for the company (Wikipedia).

Successful talent management requires a sustained, three-pronged effort to recruit, engage and retain the best talent available and they are interdependent. Doing any one with excellence has positive spillover effects while doing one badly can be fatal to overall leadership efforts.

Although it is important to make talented people feel independent and special, it is equally important to make sure that they recognize their interdependence with others in the organization. It is necessary to streamline rules and promote a caring and supportive culture where clear goals are set, performance is measured and rewarded, and employees are given the ample support they need to succeed. Talented people want a high degree of organizational protection and recognition that their ideas are important. They also demand the freedom to explore and fail. They expect their leaders to be intellectually on their plane–but they do not want a leader's talent and skills to outshine their own.

Another important aspect is that communication in the organization should be so structured as to inform, emphasize and reaffirm to employees that their work place contributions are having great impact. Loyalty of scientists to organization is an earned response to the trust, respect and commitment shown to the individuals in the organization.

Mentoring is another strategy that can be applied in WIHG for retaining and developing the talent. The young professionals look for the mentors who can give them advice, encouragement and space to grow. However, mentoring cannot have a standardized approach, as young officers want personal treatment. Based on the research, DeLong et al. (2008, pp. 115-121) have described the qualities of good mentor. He is one who is someone absolutely credible; tells the things one may not want to hear but conveys a feeling that one has been heard; interacts with in a way that makes one to aim high; makes one feel secure enough to take risks; gives confidence to rise above inner doubts and fears; supports attempts to set stretch goals; presents opportunities and highlights challenges one might not have seen on his own. WIHG is fortunate enough to have senior scientists of this caliber. These officers can be requested to become mentors of the young scientists. However, this should be purely voluntarily and mentorship should not be thrust upon.

The biggest instrument of science is the scientist. Let us give him a fair deal and make him feel comfortable from unnecessary hassles. We must create an atmosphere where good scientists are produced. Effective talent management practices result in a happy, engaged and more productive workforce. The great poet R.W. Emerson has said "Not gold but only men can make a people great and strong." Therefore, attracting talent should be the top most

priority in an Institute because its success will ultimate depends on its ability to attract, develop and retain employees who can drive the organization towards fulfilling its long-term goals. Scientist should be given a free hand and as far as possible finance-constraints should not be allowed to come in their way.

5.3 Development of Creative Leadership

A creative leader is one that motivates. A creative leader manifests confidence when delegating i.e. he helps building mutual trust. He opens communication i.e. he increases mutual understanding and respect. He has a tolerance for failure of his subordinates i.e. he develops creativity. He involves project participants i.e. he increases acceptance and commitment. He values the efforts and recognizes good performance i.e. he rewards those who deserve it. He aligns project objectives to individual objectives (i.e. people are eager to satisfy their needs). He trusts his team members and is trustworthy and this is vital for motivation. He empowers project team members appropriately, especially for decision making and implementation. All organizations need to ensure a succession of motivated employees capable of progressing up the organizational ladder. It is becoming increasingly important that organizations have a diverse and highly skilled workforce to meet increasing organizational needs on a global basis. WIHG should strive to improve management and leadership capabilities from within and create opportunities for those employees who strive to reach their potential through professional and personal growth. This means providing inspiring and effective leadership, open, transparent communication and excellent learning and development opportunities. It is necessary to nurture a culture that values, recognizes and rewards excellent performance, where people's individual objectives are aligned to company's goals and to developing their own personal abilities. A creative leader is essentially a crisis manager. He is emotionally intelligent. He should have a genuine emotion for his organization and he should be imaginative. He should essentially be a team worker.

The creative leadership lies in exercising the task to change the traditional role from commander to coach, manager to mentor, from director to delegator and from one who demands respect to one who facilitates self respect. Leadership development is emerged as one of the most important challenges amongst WIHG scientists/officers in the HR effectiveness survey conducted by me. Therefore, leadership development is high in priority list. It is a process that gives results in long term only but with great benefits. The need of the hour is to develop a systematic approach for identifying future leaders in the company and providing them job opportunities and assignments to harness their leadership skills. It is important to tap high potential individuals early in their careers and provide them with core skills by which they will be able to identify new opportunities, develop innovative solutions and deliver results as leaders. An important aspect is that past performance should not be criteria for selection of people for leadership development rather; the qualities that they require for future positions.

5.4 Team-work

WIHG has collaborative culture and this can be leveraged to make collaborative teams. People want to collaborate but they do not know how to work together in teams. The skills required are appreciating others, being able to engage in purposeful conversation, productively and creatively resolving conflicts, and program management. By imparting training to develop theses skills, team performance can be increased substantially. In addition, the Institute should provide its support to build informal communities of employees based on shared interests. This promotes collaborative team behavior and provides valuable help in problem solving. In WIHG, the best way to get the things done is through informal networks. Senior scientists use these informal networks in a variety of situations ranging from decision-making, knowledge sharing to problem solving. This collaboration and knowledge sharing help in attaining organizational goals and success. The training on requisite skills, building informal networks, supporting a strong sense of community and relationship building are key drivers for successful team working. It is also imperative to promote team work amongst the scientists of the various Institutes engaged in global history and health.

Team spirit is identified as one of the major strengths of WIHG in HR effectiveness survey conducted by me. Thus, strategy of collaborative team building should give rich dividends to the Institute and because of this reason it is given high priority for implementation. A comprehensive organizational framework for strengthening and developing of informal networks and increased interactions between employees of sister scientific organizations like BSIP need be developed as early as possible. However, implementation should start only after imparting training on behavioral aspects of team working to identified people. A system of recognizing the contributions of those who demonstrate effective collaboration in the work place should start at the earliest. Team work is very important in such a scientific organization like this. The complexities of geo-dynamic evolution in the Himalayan region could be better understood by rigorous research processes and a very strong team work. Nuances of geodynamics, intricate details and individual differences in the samples can be better analyzed by a well knit team.

5.5 Performance Management

Performance management is defined as the process through which managers ensure that employees' activities and outputs are congruent with the organizational goals. Performance management is central to gaining competitive advantage (Noe, et al. 2003, p.327).

Lawler and McDermott (2003, pp. 49-60) have suggested that practices concerned with goal setting, communication, competency models, reward system practices, behavior of managers and training all have potential effects on effectiveness of Performance Management System (PMS). The PMS is not a stand-alone item. It needs to interface effectively with the HRIS system, the salary system etc. In addition, the pieces of PMS need to fit with each other like the type of data that is gathered need to be appropriate for promotion purposes.

In WIHG, performance management of the scientists is done through their publications in SCI journals. This is like quantification of qualitative performance of the Institute. If the research paper of the scientists is published in the highly reputed scientific journal of the world, he is favorably considered for promotion after evaluation of their assessment reports.

There are scarce career growth opportunities for administrative staff. Improvement of their career prospects is beyond the powers of the Institute. The Institute has vigorously taken up the matter with the central government for opening up some opportunities for their career growth. This is major stumbling block in the way of excellent performance management.

Improvement in performance management is, however, a continuous process. The recent ruling of the Supreme Court of India about the disclosure to the employee of his/her annual assessment report would prove to be the land mark in reforming performance management system in public administration in India.

The essential ingredient of performance management in the scientific institution is flexible complementing scheme. Under the scheme the scientists are promoted after every three years subject to their service records. Quantification of their qualitative performance is done by their research publication in the reputed scientific journals of the world. As scientists are the backbone of this Institute, giving them exposure in the national and international fields, in the national/international seminars, symposia, and conferences is considered utmost essential. The need of the hour is to adapt to the challenge of change. That is management of change. In order that performance management results into innovative thinking in the scientific field, the scientists should get almost unhindered access to all kinds of resources in the form of men, money and material. They should also be capable to do more in fewer resources.

5.6 Training and Development

Training is the primary means to transfer programmed organizational knowledge and know-how to employees. The normal training system includes analysis, design, development, implementation and evaluation. Like any other resource, training resources are limited, a systematic approach to training is required.

It is suggested to strengthen the training need identification system in WIHG. The involvement of employees in need identification will be a good move in this direction. In addition, continual improvements need to be done in training curriculums, infrastructure, course contents, and faculty based on feedback received from participants. Training for scientific positions should be a continuing priority for WIHG.

It is suggested that the Institute should place strong reliance on increasing the flexibility of the scientific work force in order to build a wider array of skills into a given work order. Cross training, multi-skilling, job rotations are some of the techniques that can be used.

Redeployment training will also be required to make the workforce suitable for the new state-of- -the-art facilities coming under modernization programmes.

Identifying and developing core competencies are a viable approach to build competitive resources. Lado and Wilson (1994, pp. 699-727) defined organizational competencies as "firm-specific resources and capabilities that enable the organization to develop, choose, and implement value-enhancing strategies." These resources and capabilities "include all firm-specific assets, knowledge, skills, and capabilities embedded in the organization's structure, technology, processes, and interpersonal relationships." They are referred to as "core competencies" as they are basic to firm survival. Firms can buy core competencies but to maintain sustainable competitive advantage it is better to develop them internally.

To make the suggested strategies work effectively, it is of utmost importance that training should be of high quality and in tandem with requirement of other suggested strategies for talent management, leadership development, team work and performance management. Thus, the aim of training programs should be to strengthen the overall capabilities of each employee and motivate them towards realization of their goals. Competency-based training should be a long-term strategy. The suggested model for need assessment can be a great help in this regard. In medium term, the process of competency mapping should be institutionalized. Heads of the training of each group/subgroup/section should be made responsible for competency mapping. The use of retired employees as trainers for training on specific skills is another short-term strategy.

5.7 Compensation and Rewards

The aim of Compensation and Reward strategy should be to:

- Motivate employees toward achieving firm's goals, increasing effectiveness and realizing growth opportunities
- Encourage continuous development of skills and competencies needed to help achieve WIHG's desired goals
- Retain individuals who consistently perform at expected levels of performance and contribute to the success of the organization and its changes
- Effective system to communicate benefits regularly to all employees

Compensation in WIHG is in line with the employees of the Department of Science and Technology, meaning thereby that the Scientists in the Institutes are considered for promotion at par with other scientists in the department under the Flexible Complementing Scheme (FCS). Very good promotional opportunities are given to the scientists after every three years and they rise upto the level of Joint Secretary to the Government of India. The Institute has no in-built mechanism for rewards as such. But the competent scientists whose many papers

have been published get the opportunity to visit abroad to the institutions of international repute to broaden their scientific perspectives and to satisfy their self actualization needs.

It is one of the important challenges for the Institute and effective compensation and reward strategy is necessary for attracting, recruiting and managing the talent as well as effective performance management. Suitable compensation and reward policy is necessary to encourage the scientists and other work force. If the workforce is anguished, disgruntled or frustrated they would not give their 100% to the organization. The process of *sensitization* of workforce towards performance based compensation package should be taken up on priority. Employees are to be educated that pay for performance has become standard practice worldwide and WIHG can not remain immune to it. Obviously the promotion or other rewards for the scientists are considered on the basis of quantification of some qualitative performance. There is a need to open up promotional channels to the administrative and technical staff (other than scientists).

5.8 Technology to facilitate human resource management

One of the most significant changes for HR in recent years has been the availability of new technologies to enhance the HR function. HR is flooded with solutions to improve processes such as recruitment, career planning, and appraisal management. This takes away much of the transactional activity, leaving HR with more time to spend on strategic processes, such as lowering absence rates and implementing talent management programs.

The building of human resource information system is all the more necessary and even critical for the Institute in order to maintain its competitive advantage. Implemented correctly, these solutions can have a huge impact on the organization as a whole. It will enable the HR function to move away from its traditionally administrative role and to make it more employees oriented.

It is suggested to have an HR management information system for gathering, selecting, storing and retrieving employee related data. A standardized set of automated tools should be made available within the organization and integrated into a system. Integrated software need be developed in consultation with the Department of Science and technology. Lack of proper e-information system in HRM is a big disadvantage and this issue should be addressed sooner than later. Following essential steps are required for successful implementation of e-HR in WIHG:

- Developing a roadmap and examining the resources
- Examining which processes can be improved with e-HR
- Developing the business case for scientific research and development
- Setting of benchmarks
- Assessment of level of strategic skills within HR

- Communicating the changes

A proper HRMIS is a win-win situation for every one in the Institute.

CONCLUSIONS

The Constitution of India, the legislations and the Supreme Court of India have already laid down principles of sound HRM in the government institutions and otherwise. All the institutions are bound by these pillars of HRM either enshrined in the Constitution or erected by the law or the Supreme Court of India.

Under article 311 of the constitution of India, any person employed in civil capacity under the union or state cannot be dismissed from service by an authority subordinate to that by which he was appointed. He can be dismissed only after an enquiry in which he has been informed of the charges against him and given a reasonable opportunity of being heard in respect of these charges. The cardinal principles of jurisprudence are observed in the conduct of a disciplinary enquiry against an employee. Natural justice relieves legal justice from unnecessary technicality, grammatical pedantry or logical prevarication. It supplies the omissions of a formulated law (Supreme court of India, 2005).There is a mechanism of fair justice system in the institutions of government based on the above article of the constitution of India.

In the fundamental rights enshrined in the Constitution of India, there is equality before law (Article 14), prohibition of discrimination on the grounds of religion, race, caste, sex or place of birth (Art. 15) and equality of opportunity in matters of public employment (Art. 16) and there are also provisions to reverse the discrimination in the society by affirmative action in the matters of public employment. The Supreme Court of India (1989) also holds the employee's right to be considered for promotion subject to his fulfilling the conditions laid down in the rules.

Right to information act, 2005 enacted by the parliament of India provides for disclosure of the documents with the public authority, unless they fall within the exception for non-disclosure, again in public interest. The Supreme Court of India (1997) has laid down guidelines and norms to be observed to prevent sexual harassment of working women. Certain rights are also available to the citizens under the Protection of Human Rights Act, 1993.

In a landmark judgment, the Supreme Court of India (2008) ushered in transparency in the annual performance evaluation of employees by ordering that every annual confidential report (ACR) entry made against the government servant be mandatorily communicated to him. The government of India has further clarified vide their orders of May, 2009 that the full annual performance assessment report (APAR) would be communicated to the officer concerned.

Therefore, the recently introduced 'right to information' and 'discourse of annual assessment report to the employee' along with other constitutional, legislative and judicial measures would go a long way in improving HRM in the government institutions in general and WIHG in particular as the subject matter of study. They are likely to bring about transparency and accountability in the public institutions towards its employees which are the founding pillars of excellent HRM and would work towards relationship building and enhancing values and organizational culture.

WIHG is focusing on enhancing quality of basic research in Himalayan Geology and developing work ethics for high level of employee involvement in the achievement of the organizational goal to become a scientific institution of world repute. The goal of the Institute can be achieved by aligning human resource strategies with the Institute's scientific objectives. The gaps need to be addressed to achieve complete fit between organization's scientific priorities and its people, processes, systems and relationships. To do so, WIHG must do a more effective job of sourcing talent, allocating resources across scientific initiatives, measuring performance and building key capabilities and skills. The suggested strategies are aimed towards achieving these purposes. However, as it is not possible to implement all the suggested strategies simultaneously due to resource constraints and difficulties in implementation, therefore the strategies are prioritized for implementation. The prioritization is based on the identified HR need of organization taking into consideration the current scientific environment. Moreover, short-term, medium term and long term plans are suggested, wherever applicable.

In view of the inter-disciplinary nature of the research proposed in the vision document of WIHG, inter-linkages and interaction with researchers specialized in mathematics, physics, chemistry, biochemistry and life sciences are time honored requisite. This demands close linkages with national and international institutions. To meet in-house need for trained human resource, it would be necessary to continue the periodic organization of training programmes. It is also conceived that the Institute should induct engineers and IT professional for more efficient management of the state-of-the art instrumental and computational centers.

A successful scientific organization has to continuously strive to increase its competitiveness and value creation ability, especially in the face of advancement in the field of scientific research. The legendary HR Guru Dave Ulrich has rightly commented that successful organizations will be those that are able to quickly turn strategy into action; to maximize employee contribution and commitment; and to create the conditions for seamless change. In the long- run, the only sustainable source of competitive advantage is an organization's ability to learn faster than its competitors, which in turn depends on human endeavor. Sustainable competitive advantage in the field of basic research will result from relative superiority in knowledge, skills and resources that WIHG possesses in form of human resources. It is the competence and commitment of 63 scientists among 200 odd strong workforce that would ultimately give the Institute a competitive edge. The implementation of

suggested strategies will result in increase in productivity, creation and retention of formidable talent pool, development of effective and progressive leaders, high employee morale and collaborative team working and rationalization of manpower. The WIHG, an important constituent member of the extended family of the DST, has registered steady and substantial progress since the inception in 1968. A balance in the focus between the pursuit of science for discovery and application of knowledge in the geodynamics for the benefit of society has been arrived at. The Institute, while remaining unique through its dedication to the orogeny of the world's important mountain range, has also attempted to unravel general phenomena in geology and geodynamics. There have been several important contributions emanating from WIHG during the period 2002-2007. Successes of the past need to guide the path of the future. The HRM in WIHG should be a trend setter for other scientific Institutes in India. An atmosphere needs to be built where the scientists enjoy working for the Institute and for the society at large and still in the larger interest of the nation with more simplified administrative procedures and time-bound disposal of their service matter, e-governance and refurbishing better promotional avenues for all.

REFERENCES

1. Acedo F., Barrosso, C.& Galan, J.(2006). Cited in Peng, M. W. (2007). Leveraging Capabilities Globally, *Global Business*, p. 88.
2. Adams, G. and Schvaneveldt, J. (1991) Understanding Research Methods (2nd edn), New York, Longman. Cited in Saunders, M., Lewis, P. And Thornhill, A. (2003), *Research Methods for Business Students*, Third edition, Prentice Hall, Financial Times, p.97.
3. *Annual report of ARCI.*
4. *Annual report of BSIP.*
5. *Annual Report of DST.*
6. *Annual Report of WIHG.*
7. Armstrong-Stassen, M. (2006). Encouraging retirees to return to the workforce. HR. *Human Resource Planning*, 29(4), 38-44
8. Baird, L. & Meshoulam, I. (1988). Managing the two fits of strategic human resource management. *Academy of Management Review*, 13, 116-128. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
9. Banerjee, P.K. & Singh, S. (2007). Leading for the future: Role of HR. *SAIL Journal Growth*, 35 (1), 52-60
10. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.
11. Barney, J.B. and Wright P.M. On becoming a strategic partner: *The role of human resources in gaining competitive advantage*. Retrieved January 1, 2009, from http://www3.interscience.wiley.com/journal/32256/abstract?CRETRY=1&SRETRY=0
12. Baron, J.N. & Kreps, D.M. (1999). Consistent human resource practices. *California Management Review*, 41, 29-53. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html

13. Bechet, T.P. & Walker, L.W. (1993). Aligning staffing with business strategy. *Human Resource Planning, 16,* 1-16. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
14. Bhatnagar, J. (2007). Predictors of organizational commitment in India: Strategic HR roles, organizational learning capability and psychological empowerment. *The International Journal of Human Resource Management, 18*(10), 1782-1811.
15. Boxall, p., & Purcell, J. (2000). Strategic human resource management: Where have we come from and where should we be going? *International Journal of management Reviews,* 2(2), 183-203.
16. Byars, L. L., & Rue, L. W. (1994). *Human Resource Management*. Illinois: IRWIN.
17. Carrell, M. R., Elbert, N. F., & Hatfield, R. D. (1995). *Human Resource Management-Global Strategies for Managing a Diverse Workforce*. New Jersey: Prentice-Hall, International, INC.
18. Cascio, W. F. (1995). *Managing Human Resources: Productivity, Quality of Work Life, Profits*. New York: McGraw- Hill, Inc.
19. Chang, E. (2006). Individual pay for performance and commitment: HR practices in South Korea, JWB, 41: 368-381; DeVaro, J., 2006. strategic promotion tournaments and worker performance, SMJ, 27: 721-740. Cited in Peng, M. W. (2007). Human Resource Management. *Global Business*, p. 372.
20. Cheng, A. & Brown, A. (1998). HRM strategies and labour turnover in the hotel industry: A comparative study of Australia and Singapore. *International Journal of Human Resource Management*, 9, 136-154. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
21. *Concise Oxford Dictionary.*
22. *Constitution of India* (2007).
23. Danijel Pucko (n.d.), ICPE International master in Business Administration School year 2008/09, *Strategic Management Slides.*
24. DeLong, T.J., Gabarro, J.J., & Lees, R.J. (2008). Why mentoring matters in a hypercompetitive world. *Harvard Business Review*: Special HBS Centennial Issue, 86 (1), 115-121.
25. Dess, G., Lumpkin, T. & Eisner, M. (2007). Strategic Management, 3rd ed. (p.78), Chicago: McGraw-Hill. Cited in Peng, M. W. (2007). Leveraging Capabilities Globally, *Global Business*, p.88.
26. Drucker, P. F. (1979). *Management: Tasks, Responsibilities, Practices*. London: Pan Books.
27. Erickson, T.J. & Grattan. L. (2007). What it means to work here. *Harward Business Review,* 85(3), 104-112
28. Fey, C.F. & Bjbrkma, I. (2000). The Effect of Human Resource Management Practices on MNC Subsidiary Performance in Russia. Retrieved August 31, 2009 from http://www.sseru.org/materials/wp/wp99-105.pdf
29. Fitz-enz, J. (1997). The truth about best practices: What they are and how to apply them. *Human Resource Management, 36*(1), 97-103.
30. Frietchie, R. (1988). *BBC Training Videos*, 1988

31. Geringer, J.M., Frayne & Milliman, J. (2002), In search of "best practices" in international HRM, HRM, 41:5-30; Glinow M.V., Drost, E.& Teargarden, M.,2002,Converging on HRM best practices, HRM, 41:123-140. Cited in Peng, M. W. (2007). Human Resource Management. *Global Business*, p.382.
32. Guthridge, M., Komm, A. B., & Lawson, E. (2008). Making talent a strategic priority. *The McKinsey Quarterly*,(1), 48-59.
33. *Harvard Business Review*, Nov.-Dec. 1996
34. Heathfield, S.M. (2000). About. com, What is Human Reosurce Management? retrieved March 04, 2009 from http://humanresources.about.com/od/glossaryh/f/hr_management.htm
35. http://en.wikipedia.org/wiki/Talent_management. Retrieved 09 August, 2009
36. http://www.arci.res.in
37. http://www.bsip.res.in
38. http://www.dst.gov.in/
39. http://www.education.nic.in/cd50years/15/8P/84/8P840H05.htm; (Website of Ministry of Human Resource Development, GOI). Retrieved August 09, 2009.
40. http://www.wfpma.com/PDFs/hrglobalchallenges.pdf
41. http://www.wihg.res.in
42. Huselid, M.A., Jackson, S.E. & Schuler, R.S. (1997). Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal*, 40, 171-188. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
43. Inkpen, A.C., DeGroot, V., Wagner A. & Tan C.W. (2002). Southwest Airlines 2002, *The American Graduate School of International Management*, Thunderbird, Case. 28
44. Kaplan, S. (2007). Business strategy, people strategy and total rewards- Connecting the dots. *Benefits & Compensation Digest*, *44*(9), 1-19.
45. Keep, E. (1992). Corporate training strategies: The vital component?. In G. Salman, S. Cameron, H. Hamblin, P. Iles, C. Mabey, & K. Thompson (Eds.), *Human Resource Strategies* (pp. 320-336), Bristol, Great Britain: SAGE Publications.
46. Kyprianou, A., & Kasket, J. (1998). Training: The essential ingredient. In A. Cowling & C. Mailer (Eds.), *Managing Human Resources* (pp. 59-76), 3rd ed., London: Arnold.
47. Lado, A. A., & Wilson, M. C. (1994). Human resource systems and sustained competitive advantage: A competency-based perspective. *The Academy of Management Review*, *19*(4), 699-727.
48. Lawler, E. E., & McDermott, M. (2003). Current performance management practices-Examining the varying impacts. *Worldat Work Journal*, 12(2), 49-60.
49. Lipovec, Filip: Razvita teorija organizacije (the Developed Theory of Organization), Obzorja, Maribor, 1987. Cited in Rozman, R. (2008), *Management and Organization*.
50. Mabey, C., Salaman, G. & Storey, J. (1998). *Human resource management: a strategic introduction*. Retrieved August 24, 2009 from http://books.google.com/books?id=bnAiaXdzbRwC&printsec=frontcover&source=gbs_navlinks_s#v=onepage&q=&f=false

51. McKinlay, A., & Starkey, K. (1992). Competitive startegies and organizational change. In G. Salman, S. Cameron, H. Hamblin, P. Iles, C. Mabey, & K. Thompson (Eds.), *Human Resource Strategies* (pp. 107-123), Bristol, Great Britain: SAGE Publications
52. Noe, R.A., Hollenbeck, J. R., Gerhart, B. & Wright, P.M. (2003). *Human Resource Management, Gaining a Competitive Advantage*, McGraw-Hill, Irwin, pp.5-6, p.218, p.330, p.498, p.327, p.519.
53. NOP (*Notes on Office Procedure*) (1990). ISTM, DOP&T, GOI
54. Peng, M.W. (2007). Human Resource Management. *Global Business*, pp.366 &382
55. Pfeffer J. (n.d.). Quoted from HRM Lecture by Zupan N. for MBA students (2008-09), ICPE, Ljubljana
56. Pfeffer, J., & Veiga, J.F. (1999). Putting people first for organizational success, *Academy of Management Executive*, 13(2).
57. Ployhart, 2006, Staffing in the 21st Century, JM, 32: 868-897. Cited in Peng, M. W. (2007). Human Resource Management. *Global Business*, p.366.
58. Poole, M. & Jenkins, G. (1996). Competitiveness and human resource management policies. *Journal of General Management*, 22, 1-19. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
59. Ramasami, T. (2008). *Vision HimGeo*, Foreword.
60. Robbins (2000). Management Today, pp. 236-256. Cited in Rozman, R. (2008). *Management and Organization*.
61. Robson, C. (2002). Real World Research (2nd edn), Oxford, Blackwell. Cited in Saunders, M., Lewis, P. And Thornhill, A. (2003), *Research Methods for Business Students*, Third edition, Prentice Hall, Financial Times, p.93.
62. Rodwell, J.J. & Teo, S.T.T. (2000). Approaches to HRM on the Pacific Rim: A Comparison across Ownership Categories in the Australian Hospitality Industry, *Research and Practice in Human Resource Management*, 8(1), 135-151. Retrieved March 05, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
63. Rodwell, J.J. & Teo, S.T.T. (2004). Strategic HRM in for-profit and non-profit organizations in a knowledge-intensive industry. *Public Management Review, Vol.6*, issue-3, pp. 311-331. Retrieved March 06, 2009 from http://www.informaworld.com/smpp/content~content=a 71394998
64. Rogers, C.R. (1961) On becoming a Person, Constable, London. Cited in Saunders, M., Lewis, P. And Thornhill, A. (2003), *Research Methods for Business Students*, Third edition, Prentice Hall, Financial Times, p.100.
65. Rozman, R. (2006). Relationships dynamics: Organizational conflicts and coordination process, Subtheme 27: *Dynamic Relationships Between People as the Connecting Fabric of Organizations*, 22nd EGOS colloquium, Bergen, p.16.
66. Saunders, M., Lewis, P., & Thornhill, A. (2003). *Research Methods for Business Students*. Essex, England: Pearson/ Prentice Hall.
67. Schuler, R.S. (1992). Strategic human resources management: Linking the people with the strategic needs of the business. *Organizational Dynamics*, 21, 18-32. Retrieved January 10, 2009 from http://www.rphrm.curtin.edu.au/2000/issue1/australia.html

68. Schuler, R.S., & Jackson, S.E. (1999). *Strategic Human Resource Management*. Retrieved January 10, 2009, from http://books.google.com/books?hl=en&lr=&id=mVP8wILJRO8C&oi=fnd&pg=PR8&dq=+%22The+first+transformation+incorporated%22&ots=deYlBTY7U_&sig=MfigQZnYYQ3WoAdz4d1hgnrNJf4#PPR13,M1
69. Scully, J.A., Kirkpatrick, S.A. & Locke, E.A. (1995). Locus of knowledge as a determinant of the effects of participation on performance, affect and perceptions. *Organizational Behavior & Human Decision Processes*, 61, 276-289. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
70. Shelton, C.K. & Darling, J. R. (2001), "Entrepreneurship in the Quantum Age: A New Set of Organizational Development Skills," *The Academy of Entrepreneurship Journal*, (Winter, pp. 45–59). Retrieved January 10, 2009, from http://Ita.hse.fi/2005/3/Ita_2005_03_a1.pdf
71. Spa P., Schuler, P.S. & Jackson, S.E. (1994). Convergence or divergence: Human resource practices and policies for competitive advantage worldwide. *International Journal of Human Resource Management*, 5, 267-299. Retrieved January 08, 2009 from http://rphrm.curtin.edu.au/2000/issue1/australia.html
72. Supreme Court of India (1989). CSIR Vs. KGS Bhatt. 1989(4) SCC 635
73. Supreme Court of India (1997). Vishaka and Ors Vs. State of Rajasthan and Ors. JT 1997 (7) SC 384.
74. Supreme Court of India (2008). Between Dev Dutt and the Union. Civil appeal No. 7631 of 2002.
75. *The Constitution of India* (2007).
76. Torrington, D., Hall, L., & Taylor, S. (2002). *Human Resource Management*. Essex, England: Pearson/ Prentice Hall.
77. Ulrich, D. (1998). A new mandate for human resources. *Harvard Business Review*, *76*(1), 124-134.
78. deVaus, D.A.(2002) Surveys in Social Research (5th edn), London, routeledge. Cited in Saunders, M., Lewis, P. And Thornhill, A. (2003), *Research Methods for Business Students*, Third edition, Prentice Hall, Financial Times, p.280.
79. Vickers, M. R. (2005). Business ethics and the HR Role: Past, present, and future. *HR. Human Resource Planning*, *28*(1), 26-32.
80. *Vision HimGeo* (2007). Vision Document of WIHG
81. Wheelen, T. L., & Hunger, J. D. (2006). *Strategic Management and Business Policy-Concepts*. New Jersey: Pearson/ Prentice Hall.
82. Wright, P. & McMahan, G. (1992). Theoretical Perspectives for Human Resource Management. *Journal of Management* 18(1992), pp. 295-320.
83. Zupan, N. & Kase, R. (2005). Strategic human resource management in European transition economies: building conceptual model on the case of Slovenia. *Int. J. of Human Resource Management*, 882-906.

APPENDICES

LIST OF APPENDICES

		PAGE
Appendix I	Letter of human resource efficacy survey-2009	1
Appendix II	Questionnaire of human resource efficacy in WIHG-2009	2
Appendix III	Sources used for preparation of questionnaire for survey	7
Appendix IV	Annual confidential report form for scientist	8
Appendix V	Acronyms	16
Appendix VI	Analysis of response from the scientific (including technical) staff on the basis of primary data	18
Appendix VII	Analysis of response from the administrative (including ancillary staff) on the basis of primary data	21

APPENDIX-I

Letter of human resource efficacy survey-2009 in WIHG

To

WIHG Scientists/Officers/Staff

Subject-Human resource efficacy survey in WIHG-Writing thesis on Human Resource Management in WIHG-

Sir,

I have been sponsored by the Government of India, Department of Personnel and Training to do MBA (2008-'09) at International Center for Promotion of Enterprises (ICPE), Ljubljana, Slovenia. This MBA programme is being conducted under the co-operation and guidance of the Faculty of Economics, University of Ljubljana, Ljubljana, Slovenia. In the concluding part of this programme, I have to write a Master's thesis and submit it to the University. The master's thesis is the result of students' independent research work, through which they prove that they have mastered both their research area and academic research methods. With a view to collecting primary data on my research topic of "Human Resource Management in WIHG", I am conducting a human resource efficacy survey in WIHG. The attached questionnaire proposes to serve as a data collection method belonging to the survey strategy included in this case study of HRM in WIHG.

The questionnaire may take you 20 minutes to complete. Answers may kindly be given in the space provided. You have to give your independent and objective opinion free from any bias. Your responses are kept confidential and they are used exclusively for Master's thesis. Kindly answer the question in the space provided. I request you to answer the questions freely. Also, do not spend too long on any one question. Response forthcoming in the spur of moment may be the best one!

Even if you feel the items covered may not apply directly to your working life, kindly do not ignore them. Your answers are essential for evaluation of issues that are important to improve the efficacy of HRM in WIHG.

I hope you enjoy reading and completing the questionnaire. I must thank you for your kind co-operation. For any queries or clarification, kindly feel free to contact me in person or write to me on E-mail at girish.chandra62@ gmail.com

Yours faithfully,

Girish Chandra
Under Secretary, Department of Science and Technology
New Delhi and presently pursuing MBA (2008-09) with ICPE, Ljubljana (Slovenia)

APPENDIX-II

Questionnaire of human resource efficacy survey in WIHG-2009

INTRODUCTION

Welcome to Human Resource Efficacy Survey: 2009!

This questionnaire-survey is intended to be used as primary data for master's thesis project of my MBA course being pursued at International Centre for Promotion of Enterprises (ICPE), Ljubljana under the guidance and co-operation of the Faculty of Economics, University of Ljubljana, Slovenia. It should take you not more than 20 minutes to complete the questionnaire. Kindly note that your individual responses are strictly confidential and will not be used for any other purpose than stated above.

How to complete the questionnaire-

To ensure that your responses are correctly recorded, kindly note that the questionnaire is e-mailed or handed out to the employees of WIHG in the printed form. After filling up the form, kindly send it back to me at my e-mail ID or hand it over to me. Write your answer in the place provided as explained in the following example:

EXAMPLE:

Please give following ranking for your options-

Strongly agree	Mildly agree	Can't say	Mildly Disagree	Strongly disagree
1	2	3	4	5

Question	Your ranking
The goal of this survey is to assess the Human Resource Efficacy in WIHG	**4**

- However, in questions Nos. 50-54, you are requested to write your opinion in brief (not more than 50 words) on the questions asked.
- It is important that you give only one answer for each question (from 1 to 49) by writing the option that most closely reflects your own opinion based on your personal experience.
- There is no right or wrong answer.

Looking forward to our continued and fruitful co-operation and association,

Yours faithfully,

Girish Chandra
Under Secretary , Department of Science and Technology, New Delhi
Presently MBA Student (2008-09) ICPE, Dunajska, 104, Ljubljana, 1000, Slovenia

ABOUT YOU

1	Section/Unit/Group	
2	Designation	
3	Native State	
4	Age (in completed years)	
5	Gender	
6	Level of Education	
7	Experience in WIHG (in years)	
8	Previous experience, if any (in years)	

Questionnaire

Scale						
	Strongly agree	Mildly agree	Can't say	Mildly Disagree	Strongly disagree	
	1	2	3	4	5	

Sl	Questionnaire	Ranking
1	Recruitment and selection system of WIHG is effective and suitable for organizational needs	
2	Competencies and skills required for the different job positions are well defined and used in recruitment process	
3	The placement of new entrants is done as per the organizational needs	
4	Regarding internal recruitment and assessment I find the process is effective in identifying the best people for the job	
5	I feel occupational safety and health are given due importance in WIHG	
6	I feel management is interested in well being of the employees	
7	The working condition at workplace is satisfactory (e.g. ventilation, temperature, space for work etc)	
8	Employees have a voice in decision making regarding changes in work environment	
9	I believe work council-management relations are cordial in WIHG	
10	The current performance appraisal system is capable of encouraging the good performers vis-a- vis non-performers	
11	The performance appraisal system lacks transparency	
12	Performance appraisal review helps in identifying my personal development opportunities	
13	I get enough opportunities for career development through performance appraisal	

	Scale					Ranking
	Strongly agree	Mildly agree	Can't say	Mildly Disagree	Strongly disagree	
	1	2	3	4	5	
14	The people I work with are willing to help each other, even if it means doing something outside their usual activities					
15	At WIHG there is a feeling of teamwork and cooperation					
16	I often volunteer to participate in work that are not directly related to my job					
17	Management and non management employees work together					
18	WIHG does an excellent job of keeping employees informed about the matters affecting them					
19	WIHG is able to provide the relevant information at right time and place.					
20	Use of e-mail and other online communication methods have improved the communication and feedback system in WIHG					
21	I understand the statement of vision/mission/values/objectives of WIHG					
22	The benefit programs of the institute is competitive with that of other scientific institutes					
23	WIHG's benefit program takes care of my needs during service					
24	I am satisfied with the WIHG's retirement benefit plan					
25	Employee benefit plans are one of the important reasons for working in WIHG					
26	Training is provided to enable me to do my job effectively and efficiently					
27	Training and development activities of WIHG are satisfactory as compared to other scientific institutes					
28	The knowledge/skills acquired from training can be applied at workplace					
29	WIHG has an established system of feedback to know the effectiveness of training imparted					
30	Training is imparted based on training need identification					
31	Compared with people in similar jobs in other institutes, I feel my pay package is fair					
32	WIHG makes adequate use of recognition and rewards other than money to encourage good performance					
33	I will be rewarded financially or otherwise if I go beyond what is expected of me in my job					
34	I am unclear as to what my pay and benefits package consists of					
35	I feel compensation package should be linked with performance of employee					
36	Management recognizes and makes good use of my abilities and skills					

	Scale					Ranking
	Strongly agree	Mildly agree	Can't say	Mildly Disagree	Strongly disagree	
	1	2	3	4	5	
37	I am encouraged to develop new and more efficient ways to do my work					
38	I believe I have opportunity for personal development in WIHG					
39	I feel WIHG manages the talent of its people well					
40	I am able to balance my house hold responsibilities with the job requirements without any hindrance in my career growth					
41	Competencies and skills required for job positions are well defined and used for employee development					
42	Each employee has well defined development plan that is based on inputs from organizational needs, superiors and employee himself					
43	WIHG shows a little interest in employee development					
44	Job rotation and job enlargement are utilized effectively for employee development					
45	I would recommend others to work for WIHG					
46	Sudden exit of key people has minimal impact on working of WIHG					
47	Attrition rate is low and people are satisfied in their jobs					
48	The use of Information Technology in HR is a win-win situation for both employees and managers					
49	I understand Human Resources Information System (HRIS) is an important tool in increasing human resource effectiveness in the institute					
50	What will enable you to be most effective in your job?					
51	What changes do you need to make in WIHG to improve HR effectiveness?					
52	What changes do you need to make in your section/unit/group to improve HR effectiveness?					

53	What do you like best about WIHG?	
54	What functions of HR need improvement in your opinion?(Name at least three in priority)	
(i)		
(ii)		
(iii)		
55	Please choose from the following list which poses significant challenge for you –a) **today** and b) in **future**	
	(a) Change management	(b) Compensation and rewards
	(c) Leadership development	(d) Employee retention & Talent management
	(e) Learning and development	(f) Recruitment and availability of quality manpower
	(g) Institutional relations	(h) Outsourcing of HR activities
	Your priority of significant challenges for **today** (list in order of priority, most important to be at number one and the least important at last)	
(I)		
(II)		
(III)		
(IV)	Any other area which you feel important, but not included in above list	
	Your priority of significant challenges for **future** (list in order of priority, the most important should be at number one, and the least important at last)	
(i)		
(ii)		
(iii)		
(iv)	Any other area which you feel important , but not included in above list-	

****

APPENDIX-III

Sources used for preparation of questionnaire for survey

1 http://www28.sap.com/mk/get/TC_SEA61?SOURCEID=45&campaigncode=CRM-US09-ONL-TC_SEA3&source=msibdkwus01&kw=Workforce+Homepage+and+ROS+b&KW_ID=p203219363. Retrieved August 09, 2009.

2 Notes on Office Procedure, Institute of Secretariat Training and Management, Department of Personnel and Training, Government of India, 1990.

3 http://www.surveyshare.com/templates/employeehumanresources.html. Retrieved August 09, 2009

4 http://www.executiveedgeinc.com/pages/leadership.html. Retrieved August 09, 2009

5 Likert scale of surveys-best practices, http://intelligentmeasurement.wordpress.com/2007/11/20/likert-scale-surveys-best-practices/

APPENDIX-IV

Annual confidential report form for scientist

Wadia Institute of Himalayan Geology, Dehradun
Annual confidential report
Period: from ……. to……
Personal data (to be filled by the administration)

1. Name (in Block Letters)
2. Date of Birth
3. Qualifications
4. Whether belonging to SC/ST/OBC
5. Date of joining WIHG
6. Group/Area/Section/ Project
7. Present Post
   a. Designation
   b. Group and Grade
   c. Date of appointment to the present post:
8. Period of absence from duty
   - E.L. (Earned Leave):
   - Training:
   - Others:

Part-I

PERFORMANCE APPRAISAL

(To be filled by the scientist)

Please inset additional sheets, if required.

In case of your activity being zero in the following heads, please write NIL.

1. Research : (Please give details)

a) Institute Project (Your status in the project)

i. Title

ii. Names of the team members

iii. Area of Research

iv. Disciplines covered

v. Brief report (Give only salient points not exceeding 500 words)

b) Sponsored Research programmes (Your status in the project):

i. Title

ii. Names of the team members

iii. Grant sanctioned and sponsoring Agency

iv. Duration of Project

v. Brief report (Give only salient points not exceeding 500 words)

2. Publications (Please give details of authors, year, title, volume, pages etc. in separate sheet, if required, in the same sequence):

i) Published

a)

b)

c)

ii) Accepted for publication

a)

b)

c)

iii) Submitted for publication

a)

b)

c)

iv) Published in conference/Symposia volume

a)

b)

c)

3. Technical Reports (please give details)

a)

b)

c)

4. In-house Interaction

i) In–house Seminars/lectures (titles and dates)

ii) In-house discussions (topics and dates)

5. Seminar/symposia/Workshop attended and papers presented

i) Name and Venue

ii) Title of paper (oral/Poster) presented

6. Other visits/activities

i) Meetings/Group discussions (name, venue, dates)

ii) Invited lectures (title, place, dates)

iii) Others

7. Interaction with other institutions (Give details including visits and purpose)

8. Organizational Responsibilities (Give details of your contributions)

i) Laboratory/ planning/development/maintenance

ii) Administrative

iii) Scientific meetings

iv) Training/Refresher Course

v) Others

9. Other Activities

a) Consultancy Services

i) Project Title

ii) Sponsoring Agency

iii) Amount contracted

iv) Your contribution

b) International Participation

i) Conference (Venue, title, dates)

ii) Research programme/Fellowships (Give brief details)

iii) Training (Give brief details)

iv) Whether responsible for concretizing any international collaboration

c) *Ph.D./other thesis supervised* (give details)

i) Ph. D. awarded

ii) Ph. D. thesis supervised/submitted

iii) Other thesis

d) Additional qualifications acquired/Training undertaken

e) Honours/awards/distinctions

10. Your own assessment

Item	Maximum	Your own assessment
1. Research program including publications and/or technical report	65%	
2. i. *Scientific Interactions* a. In-house seminar etc. b. Conference attended and papers presented c. Other visits d. Interaction with other institutions	20%	

e. Any other ii. *Organizational responsibilities* a. Laboratory planning/development/maintenance b. Administrative c. Scientific meetings d. Training/refresher course e. Any other		
3. Other activities a. Consultancy services b. International participation c. Ph.D./Other thesis supervised d. Additional qualifications/training e. Honours/Awards/Distinctions	7%	
4. Behavioral aspects a) Motivation b) Ability to work in a team c) Relationship with fellow employees d) Leadership capabilities (for Scientist-D and above)	8%	Not to be self assessed

Signature of employee with name, date and designation

PART-II

A. Appraisal by the Reporting Officer

Give you critical appraisal on the performance of the employee during the period. (Comments can be given on the statement given by the scientist)

Item	Maximum	Your assessment and score
1. Research program including publications and/or technical report	65%	
2. i. Scientific Interactions a) In-house seminar etc. b) Conference attended and papers presented c) Other visits d) Interaction with other institutions e) Any other ii. Organizational responsibilities a. Laboratory planning/development/maintenance b. Administrative c. Scientific meetings d. Training/refresher course e. Any other	20%	
3. Other activities a) Consultancy services b) International participation c) Ph.D./Other thesis supervised d) Additional qualifications/training e) Honours/Awards/Distinctions	7%	
4. Behavioral aspects	8%	

a) Motivation b) Ability to work in a team c) Relationship with fellow employees d) Leadership capabilities (for Scientist-D and above)		

Score (On 05- point scale) (Each 20% will be counted as 1 point):

Outstanding, Very good, Good, Average, Poor

Signature of Reporting officer with date, name and designation

PART-II

B. Appraisal by the Reviewing officer

Give your assessment on appraisal by Reporting Officer

Item	Maximum	Your assessment and score
1. Research program including publications and/or technical report	65%	
2. i. Scientific Interactions a) In-house seminar etc. b) Conference attended and papers presented c) Other visits d) Interaction with other institutions e) Any other ii. Organizational responsibilities a. Laboratory planning/development/maintenance b. Administrative c. Scientific meetings	20%	

d. Training/refresher course e. Any other		
3) Other activities a) Consultancy services b) International participation c) Ph.D./Other thesis supervised d) Additional qualifications/training e) Honours/Awards/Distinctions	7%	
4) Behavioral aspects a) Motivation b) Ability to work in a team c) Relationship with fellow employees d) Leadership capabilities (for Scientist-D and above)	8%	

Signature of Reviewing officer with date, name and designation

Score (On 05- point scale) (Each 20% will be counted a 1 point):

Outstanding, Very good, Good, Average, Poor

C. Decision of the Head of the institute or designated authority

i) Remarks by the Head of the Institute/Designated Authority

(Please give detailed comments on the basis of above activities as well as discipline of the scientist)

ii) Final grade awarded (on 10 point scale)

(In case of difference with Reporting or Reviewing Officer in percentage, average will be taken for calculating the scale on 10 point basis)

Signature

Date: Head of Institute

Note: Marks obtained by the employee with fall under the category 'Good' and below as well as adverse remarks on his behavior, if any, should be communicated to the employee.

APPENDIX-V

ACRONYMS

AA	Affirmative Action
APAR	Annual Performance Appraisal/Assessment Report (APAR)
AR	Annual Report
ARCI	International Advanced Research Centre for Powder Metallurgy and New Materials
BSIP	Birabal Sahni Institute of Paleobotany
CGHS	Central Government Health Scheme
DFPR	Delegation of Financial Power Rules
DOE	Department of Education
DOP&T	Department of Personnel and Training
DSIR	Department of Scientific and Industrial Research
DST	Department of Science and Technology
EEO	Equal Employment Opportunity
FCS	Flexible Complementing Scheme
FRS	Fellow of Royal Society
GFR	General Financial Rules
GOI	Government of India
GPF	General Provident Fund
GPS	Global positioning system
HRD	Human Resource Development
HRM	Human Resource Management
HRMIS	Human Resource Management Information System
IIG	Indian Institute of Geo-magnetism
ISTM	Institute of Secretariat Training and Management
MIS	Management Information System

MMP	Mission Mode Projects
MPGO	Multi-parametric geophysical observatory
NGO	Non-governmental Organization
NOP	Notes on Office Procedure
OBC	Other backward classes
ONGC	Oil and Natural Gas Commission
PMS	Performance Management System
PSU	Public Sector Undertaking
R&D	Research and Development
RBV	Resource based view
RBV	Resource based view
S&T	Science and Technology
SAIL	Steel Authority of India Ltd.
SC/ST	Scheduled Caste/Scheduled Tribe
SCI	Scientific Citation Index
SHRM	Strategic Human Resource Management
SSC	Staff Selection Commission
SWOT	Strength, Weakness, Opportunity and Threat
TQM	Total quality management
UPSC	Union Public Service Commission
VRIO	Value, Rareness, Imitability and Organization
WIHG	Wadia Institute of Himalayan Geology

APPENDIX-VI

Extensive Table: Analysis of response from Scientific (including technical) staff on the basis of primary data

Question No.	Strongly agree (Ranking 1)	Mildly agree (Ranking 2)	Can't say (Ranking 3)	Mildly disagree (Ranking 4)	Strongly disagree (Ranking 5)	Wt. average	Std. deviation
1	12	8	0	1	2	1.8	1.2
2	8	8	3	3	1	2.2	1.2
3	8	7	5	1	2	2.2	1.2
4	6	10	1	3	3	2.4	1.4
5	9	10	0	3	1	2.0	1.2
6	5	6	5	6	1	2.7	1.0
7	10	7	0	6	0	2.1	1.2
8	4	7	3	6	3	2.9	1.4
9	7	10	1	3	2	2.3	1.3
10	6	9	3	4	1	2.3	1.2
11	7	6	2	5	3	2.6	1.5
12	7	5	2	7	2	2.7	1.4
13	5	8	3	2	5	2.7	1.5
14	10	11	1	1	0	1.7	0.8
15	7	13	2	1	0	1.9	1.0
16	11	10	2	0	0	1.6	0.8
17	6	8	3	4	2	2.5	1.1

Table continues

continued

Question No.	Strongly agree (Ranking 1)	Mildly agree (Ranking 2)	Can't say (Ranking 3)	Mildly disagree (Ranking 4	Strongly disagree (Ranking 5)	Wt. average	Std. deviation
18	4	6	4	5	4	3.0	1.4
19	8	9	3	2	1	2.1	1.1
20	20	2	0	0	1	1.3	0.9
21	17	4	0	2	0	1.4	0.9
22	9	6	3	2	3	2.3	1.4
23	12	6	3	2	0	1.8	1.0
24	15	5	3	0	0	1.5	0.7
25	6	7	4	3	3	2.6	1.4
26	7	8	3	3	2	2.3	1.3
27	5	8	5	5	0	2.4	1.1
28	13	5	2	2	1	1.8	1.2
29	3	7	5	3	5	3.0	1.3
30	5	10	3	3	2	2.4	1.2
31	9	7	4	0	3	2.2	1.3
32	8	6	3	3	3	2.4	1.4
33	5	4	5	1	8	3.1	1.6
34	4	3	2	8	6	3.4	1.4
35	12	7	1	3	0	1.8	1.0
36	9	5	4	4	1	2.3	1.3

Table continues

continued

Question No.	Strongly agree (Ranking 1)	Mildly agree (Ranking 2)	Can't say (Ranking 3)	Mildly disagree (Ranking 4	Strongly disagree (Ranking 5)	Wt. average	Std. deviation
37	7	8	4	2	2	2.3	1.3
38	13	6	2	1	1	1.7	1.1
39	8	6	3	5	1	2.3	1.3
40	11	9	1	2	0	1.7	0.9
41	9	6	4	2	2	2.2	1.3
42	10	5	3	1	4	2.3	1.5
43	3	5	2	9	4	3.3	1.4
44	6	6	6	3	2	2.5	1.3
45	14	6	3	0	0	1.5	0.7
46	6	9	2	5	1	2.4	1.2
47	7	10	4	2	0	2.0	0.9
48	13	7	2	0	1	1.7	1.0
49	11	9	2	1	0	1.7	0.8

APPENDIX-VII

Extensive Table: Analysis of response from administrative (including ancillary) staff on the basis of primary data

Question No.	Strongly agree (Ranking 1)	Mildly agree (Ranking2)	Can't say (Ranking 3)	Mildly disagree (Ranking 4	Strongly disagree (Ranking 5)	Wt. average	Std. deviation
1	6	7	2	3	3	2.5	1.4
2	3	12	3	2	1	2.3	1.0
3	9	4	5	1	2	2.2	1.3
4	4	7	1	5	4	2.9	1.5
5	10	3	4	2	2	2.2	1.4
6	10	3	4	2	2	2.2	1.5
7	4	6	1	4	6	3.1	1.6
8	5	7	1	3	5	2.8	1.6
9	6	6	3	4	2	2.5	1.4
10	4	6	2	5	4	3.0	1.5
11	5	3	1	5	7	3.3	1.6
12	5	8	2	4	2	2.5	1.3
13	3	4	1	3	10	3.6	1.6
14	5	9	3	3	1	2.3	1.2
15	6	8	5	1	1	2.2	1.1
16	10	6	3	1	1	1.9	1.1
17	7	3	5	3	3	2.6	1.5

Table continues

continued

Question No.	Strongly agree (Ranking 1)	Mildly agree (Ranking2)	Can't say (Ranking 3)	Mildly disagree (Ranking 4	Strongly disagree (Ranking 5)	Wt. average	Std. deviation
18	6	7	2	3	3	2.5	1.4
19	9	6	1	2	3	2.2	1.5
20	16	4	1	0	0	1.3	0.6
21	15	4	0	2	0	1.5	0.9
22	3	10	6	0	2	2.4	1.1
23	6	6	2	4	3	2.6	1.5
24	14	6	1	0	0	1.4	0.6
25	6	5	1	5	4	2.8	1.6
26	11	5	1	2	2	2.0	1.4
27	7	5	6	2	1	2.3	1.2
28	14	3	1	1	2	1.8	1.3
29	3	4	9	2	2	2.7	1.2
30	5	5	8	3	0	2.4	1.0
31	5	6	1	2	7	3.0	1.7
32	7	3	3	5	3	2.7	1.5
33	6	4	3	1	7	3.0	1.7
34	1	9	2	4	5	3.1	1.4
35	16	3	1	1	0	1.4	0.8
36	9	5	3	2	2	2.2	1.4

Table continues

continued

Question No.	Strongly agree (Ranking 1)	Mildly agree (Ranking2)	Can't say (Ranking 3)	Mildly disagree (Ranking 4	Strongly disagree (Ranking 5)	Wt. average	Std. deviation
37	7	7	3	0	4	2.4	1.5
38	7	3	1	3	7	3.0	1.8
39	6	3	1	4	7	3.1	1.7
40	7	10	0	2	2	2.1	1.3
41	4	6	3	3	5	3.0	1.5
42	5	4	3	0	9	3.2	1.7
43	7	5	1	3	5	2.7	1.6
44	3	7	1	6	4	3.0	1.4
45	11	5	0	2	3	2.1	1.5
46	6	7	6	2	0	2.2	1.0
47	6	5	2	2	6	2.9	1.7
48	7	6	8	0	0	2.0	0.9
49	14	5	1	1	0	1.5	0.8