Leveraging Human Resource for Effective Disaster Management

Comparative Lessons from the 2011 Tohoku and the 2004 Indian Ocean Tsunami

A Research Report

by

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4-8-23, Kamishakujii, Nerima-ku, Tokyo, Japan, 177-8502

2013

DEDICATION

This report is humbly dedicated to all the people who perished in the 2004 and 2011 Earthquake and Tsunami

ACKNOWLEDGEMENTS

I would like to sincerely thank the Japan Institute for Labour Policy and Training (JILPT), Japan for providing me with the opportunity to pursue the project. I am profoundly grateful to Mr. Prof. Kazuo Sugeno, the President (JILPT) and Mr. Koichiro Yamaguchi, Former President (JILPT) for their whole hearted support to communicate with the researchers and Professors, both at JILPT and other institutions within Japan and also for extending me the facilities for accomplishing my research. The research opportunity helped me closely observe and analyze the Disaster Management framework of Japan from a broad perspective and facilitated learning from the Japanese experts and peers working in the areas of human resource management and disaster management. The financial support received from JILPT, Japan for participating as Foreign Visiting Researcher is duly acknowledged.

I would like to thank especially the following faculty members of JILPT for their wholehearted support, timely help and unstinted support during my research stay in Japan: Mr. Yutaka Asao, Research Director General, Mr. Shinichi Umezawa, Research Director, Department of Policy Management, Mr. Mitsuji Amase, Director, International Affairs Department, Mr. Yasuhiko Matsumoto, Research Director, Department of Career Guidance, Mr. Noboru Ogino, Director, Research and Statistical Information Analysis Department, Mr. Kotaro Nomura, Executive Director, Mr. Kenichi Yamakoshi, Executive Director, Ms. Akiko Ono, Vice Senior Researcher, Department of Policy Management, Mr. Minoru Ito, Project Researcher, Ms. Mari Okutsu, Project Researcher, Mr. Hideyuki Oshima, Deputy Director, International Affairs Department, Ms. Kayo Amano, Assistant Director, International Affairs Department, Ms. Seiko Kobayashi, International Affairs Department.

I am also extremely grateful to the following for useful and fruitful discussions and for providing me with research articles and several useful suggestions and comments for my research: Prof. Yasuyuki Sawada, University of Tokyo, Tokyo, Ms. Utsumi Fusako, President, National Women's Equality Center (NWEC), Saitama, Mr. Nishizawa Tatsushi, Vice President, NWEC, Prof. Yuji Genda, University of Tokyo, Prof. Rajib Shaw, Kyoto University, Kyoto, Prof Daniel P. Aldrich, Purdue University, USA, Prof. Nobuhiro Hosoe, Prof. Kiyoshi Kobayashi, Kyoto University, Kyoto, Prof. Hiroshi Yoshida, Tohoku University, Sendai, Prof. Ryosuke Matsui, Ryo Matsui, Professor Emeritus, Hosei University, and Vice President, Japanese Society for Rehabilitation of Persons with Disabilities (JSRPD), Mr. Hiroyuki Murakami, JSRPD, Japan NGO Center for International Cooperation (JANIC), Dr. Fumiko Konno, Prof. Satoru Masuda, Prof. Kenji Mori, Prof. Kentaro Nakajima, Tohoku University, Sendai, Prof. Kazuo Kuroda, Waseda University, Tokyo, Prof. Norio Maki, Kyoto University, Kyoto, Prof. Shiro Hioki, Prof. Kondo Naoki, Prof. Shunji Matsuoka, Prof. Norio Sasaki, Tohoku University, Sendai, Prof. Yasunari Takaura, Tohoku University, Sendai, Prof. Masuda Satoru, Tohoku University, Sendai and Prof. Wataru Kuwayama and Mr. Katsunori Sato, Tohoku University, Sendai. I am extremely grateful to Dr. Helen Ochi of NWEC, Saitama for personal discussions and sharing information pertaining to the gender issues

encountered after the Japan 2011 mega disasters. It might not possible to mention the names of all Professors and faculty members of the various universities in Japan who were interviewed, but I am grateful to all who helped me in getting the data and the interviews even if their names have not been mentioned.

I take this opportunity to sincerely thank Dr. Rupa Gunaseelan, Associate Professor, Bharathiar School of Management and Entrepreneur Development, Bharathiar University, Coimbatore, India for her wholehearted support and encouragement.

I am grateful to Prof. M.K. Mandal, Chief Controller Research and Development, Defence Research and Development Organization, New Delhi, India for enlightening discussions and valuable suggestions. The help received from Mr. Arisudan Tiwari of the Defence Institute of Psychological Research (DIPR), New Delhi, India particularly with respect to normalization of the questionnaire is gratefully acknowledged. I wish to place on record my sincere gratitude to Lt. Gen. J.R. Bhardwaj, PVSM, AVSM, VSM, Former Member, National Disaster Management Authority (NDMA), India for encouragement and support.

I would like to thank all those who have helped me in my research in various ways. It might not be possible to mention individual names, but I would like to humbly and sincerely thank all those who have helped me in the pursuance of my research.

Finally, I am grateful to my father-in-law, Mr. Gopal Kumar Arora, my husband and our sons (Tanmay and Geetansh) for their support during my stay at JILPT. I would like to thank my parents Mr. B.K. Sethi and Mrs. Basant Kaur for their blessings and support.

I must accept that visiting the sites in Japan where tsunami had struck was a heartrending experience, and it brought tears to my eyes. The pain of the affected people was unimaginable. I would consider my efforts worthwhile, if the present research work done helps in some form in developing effective human resource and disaster management policies that can help prevent loss of lives in future in different parts of the world. I thank Almighty for bestowing me with the strength to pursue the research work.

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This research report was made possible by the generous support of the Foreign Researcher Invitation Program of the Japan Institute for Labour Policy and Training (JILPT), Tokyo, Japan.

Citation to this publication should be made in the following manner:

Arora P. (2013) Leveraging Human Resource for Effective Disaster Management: Comparative Lessons from the 2011 Tohoku and the 2004 Indian Ocean Tsunami. *Visiting Researcher Report submitted to the Japan Institute for Labour Policy and Training (JILPT), Tokyo, Japan*, p. 90.

Disclaimer: The opinions articulated in this report are derived from the responses of the experts interviewed, and on the basis of data analyzed from the filled-in questionnaires in Japan. The views and opinions expressed in this report are based on the analysis of data and are not those of the JILPT or the affiliated organizations of the respondents. The interpretation of the results is entirely mine and there is no intent to hurt the sentiments of anyone, whatsoever or point out any shortcomings in policies; the only idea has been to suggest improvements for better HR planning and effective disaster management. The author declares no conflict of interest.

ABBREVIATIONS

ADB Bank	:	Asian Development Bank
ADRC	:	Asian Disaster Reduction Center
BRR	:	Badan Rekonstruksi dan Rehabilitasi NAD-Nias
CBDRM	:	Community based disaster risk reduction
CFW	:	Cash-for-Work
CITU	:	Centre of Indian Trade Unions
DAD	:	Donor Assistance Database
DDPM	:	Department of Disaster Prevention and Mitigation
DRR	:	Disaster risk reduction
FAO	:	Food and Agriculture Organization
GDP	:	Gross domestic product
GEJE	:	Great East Japan Earthquake
HDI	:	Human development index
HPC	:	High-Powered Committee
HRM	:	Human Resource Management
IDNDR	:	International Decade of Natural Disaster Reduction
ILO	:	International Labour Organization
INES	:	International Nuclear and Radiological Event Scale
iNGO	:	International Non-Governmental Organization
IPEC	:	International Programme for Elimination of Child Labour
IST	:	India Standard Time
IT	:	Information Technology
IYF	:	International Youth Foundation
JILPT	:	Japan Institute for Labour Policy and Training
JPA	:	Japan Police Agency
MEXT	:	Ministry of Education, Culture, Sports, Science and Technology
MHA	:	Ministry of Home Affairs
MHLW	:	The Ministry of Health, Labour and Welfare
NCDC	:	Natural Civil Defence Committee
NDMA	:	National Disaster Management Authority
NGO	:	Non-Governmental Organization
NIDM	:	National Institute of Disaster Management
NPO	:	Non-profit Organization
NWEC	:	National Women's Education Center
OCHA	:	Office for the Coordination of Humanitarian Affairs (UN)
RIRP	:	Rapid Income Recovery Programme
SAR teams	:	Search and Rescue Teams
SDF	:	Self Defence Force
SHGs	:	Self Help Groups
SIYB	:	Start and Improve Your Business
TEC	:	Tsunami Evaluation Coalition
UN	:	United Nations
UNCTs	:	UN country teams
UNDP	:	United Nations Development
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
UNHCR	:	United Nations High Commissioner on Refugees
USGS	:	US Geological Survey
UTC	:	Coordinated Universal Time
WFP	:	United Nations World Food Programme
WHO	:	World Health Organization
WTO	:	World Tourism Organization

CONTENTS

SECTION 1

DISASTERS AND HUMAN RESOURCE MANAGEMENT: THE SUBTLE LINK

Disasters are mostly inevitable events! Whether natural or manmade, they disrupt the normal lives of the local community directly and sometimes affect the indirect communities also and cause immense pain and suffering amongst the masses. It is often said that "disasters are a local phenomenon", however their impact can be global in today's world. The local communities are the first stakeholders and also the first responders. The fact remains that response in the first few hours, minutes and seconds can save many precious lives. Disasters can result in psychosocial (Williams and Drury, 2009), economic (Shaw, 2011) and health problems in the local community as well as the wider community and can affect either a single or multiple countries directly or indirectly The social and economic cost of the disasters has increased in recent years for all, irrespective of the act whether it is a developed or developing country. The increase in disasters and the losses that follow have created a lot of awareness and disaster management consequently is studied and practiced at all levels, whether it is at the national, state, district or at the community level. It is possible to reduce the impact of disasters by adopting suitable disaster mitigation strategies. Disaster reduction is a systematic work which involves different regions, different professions and different scientific fields, and has become an important measure for human, society and nature sustainable development.

Disaster management involves a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary for:

- prevention of danger or threat of any disaster
- mitigation or reduction of risk of any disaster or its severity or consequences
- capacity building including research and knowledge management
- preparedness to deal with any disaster
- prompt response to any threatening disaster situation or disaster
- assessing the severity or magnitude of effects of any disaster
- evacuation, rescue and relief
- rehabilitation and reconstruction

The steps involved in disaster management are suitably expressed by the Disaster Management Continuum (Fig 1.2). There is no denying the fact that human resource is a crucial and integral part of the entire continuum (Merlot and De Cieri, 2012), and without their active contribution, disaster management is just not possible and hence the need to link the two further. The link between human resource management and disaster management apparently exists, but in a rather subtle manner. Upon closer examination, it is apparent that the two are intertwined together, almost inextricably interwoven.

The last ten years witnessed two devastating disasters (the 2004 Indian Ocean tsunami and 2011 Japan tsunami) that killed and maimed thousands, left millions homeless and orphaned. Rescue, relief, reconstruction and rehabilitation require human efforts and effective human resource management played a major role in alleviating the effects of the two disasters.

Fig 1.1. Disaster Management Cycle.

Disasters, whether they occur in developed or underdeveloped countries, increase the vulnerability of the society. People suffer from increased problems of joblessness, loss of livelihoods, adding to the debts and increase in the assets mortgage. The loss and the downfall of the financial powers of the people leading to a feeling of insecurity and often psychological and health problems, which in turn reduces their coping capability. Immediately after the disaster, as soon as the response in the disaster hit areas starts, the responsibility of all levels i.e., the Government, NGOs, affected community begins to operate and all have to play a crucial role. This stage of the disaster response is very important in terms of development of the disaster victims and enhancing their ability to bounce back to normal with increased coping capabilities. At this stage the policy implementation and capital investment, if directed in a properly managed way, can lead to successful recovery. This is the crucial stage for Human Resource Management (HRM) integration in disaster Management leading to sustainable recovery of the disaster-affected community. The affected community can be made resilient through proper training, employment and entrepreneur development. This leads to an increase in the paying capacity of the people, increase in savings, assets and insurance. Regaining

financial stability results in boosting the confidence level of the human resource with increased social security and skilled, efficient human resource, further adding to the sustainable development. Thus, it is very important to accomplish proper integration of the human resource development in the disaster management policies for the benefit of the affected community, the national and global economy at large.

Counts *et al*., 2005 have studied poverty reduction and sustainable development through microfinance after tsunami disaster.

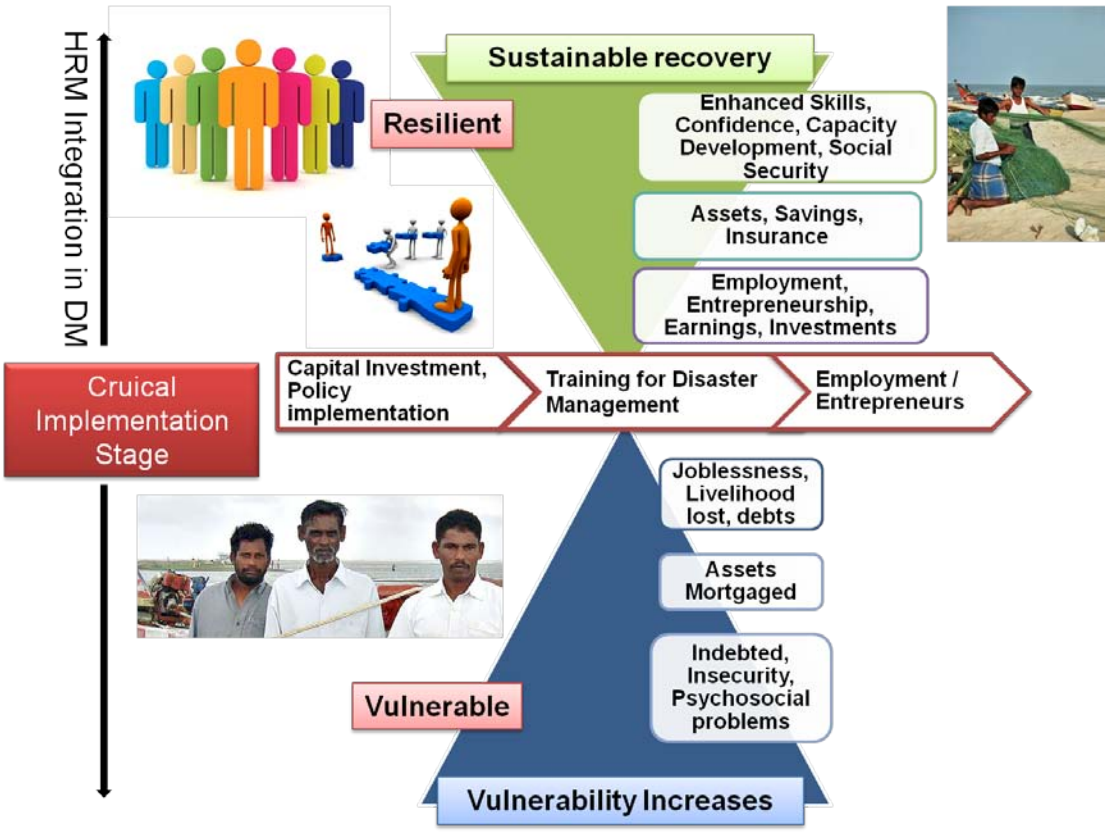

Fig 1.2. Human Resource Management Integration in Disaster Management.

The Human resource management prior to or in a disaster situation or its aftermath is not confined to the administration; rather it is a joint effort in coordination at three levels (Fig. 1.3):

i) the Government of the affected country
ii) the supporting institutions, enterprises, unions of the affected area and also the international agencies working in the area
iii) the affected community

Unless there is proper coordination between all the aforementioned levels, disaster management cannot be successful and, therefore, human resource management is an integral part of the whole disaster management process. Human resource management (HRM) in a disaster situation can only be effective provided there is a joint effort in

coordination between the government, supporting agencies and the affected community (Fig. 1.3).

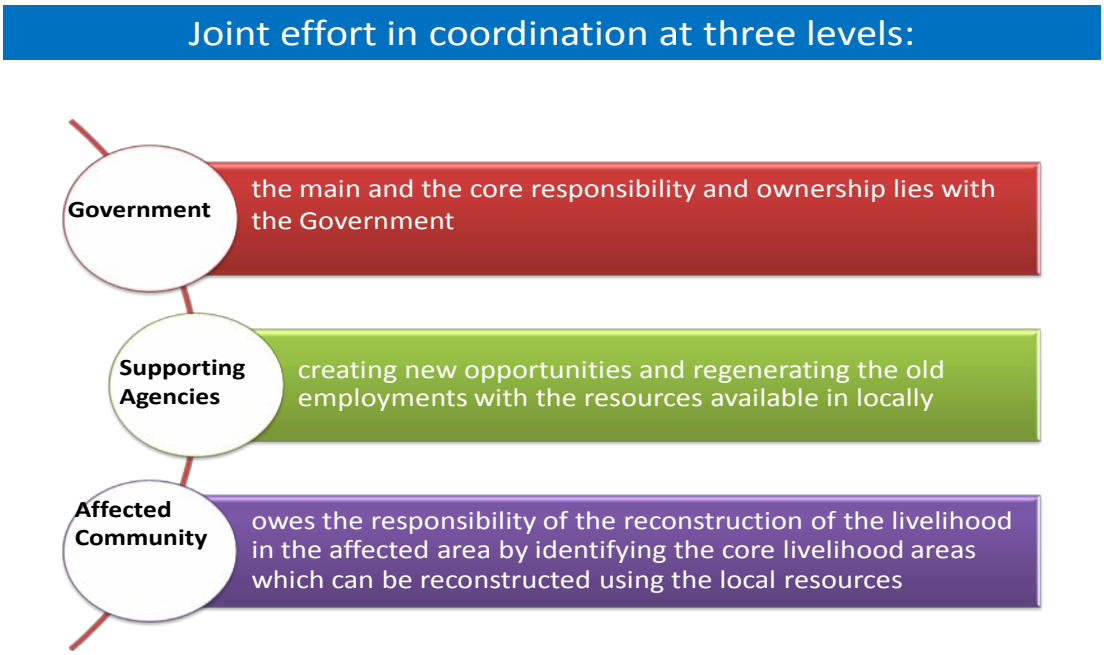

Fig. 1.3. HRM in a disaster situation or its aftermath is a joint effort in coordination at the levels of government, supporting agencies and the affected community.

RATIONALE OF THE STUDY

Two disasters, not far apart in time, rather close within a decade's time inflicted unimaginable havoc and deaths across the continents.

As per the World Bank Report (Feb 2, 2005), the 2004 tsunami is rated as the fourth largest in the world since 1900, and considered to be largest in 40 years that resulted in the dislocation of the seabed by nearly 10 meters. There was very little/no awareness about the early warning of the approaching disaster-the people were busy performing their regular daily tasks, unaware of the dreadful waves approaching them. Since the population was caught unaware, the tsunami left millions of peoples dead, injured and leaving their families and loved ones burdened by an overwhelming psychosocial stress that lasted for several years.

The 11 March' 2001 Multiple Japan Disasters, also known as 'Tohoku earthquake' or 'The Great Eastern Japan earthquake', are considered the costliest disasters in human history and have affected a huge population. Japan, despite being a developed country, was hit hard by multiple disasters viz., earthquake, tsunami, the ensuing fires, nuclear reactor damage and consequent radiation leakage. The Japanese people endeavoured to cope with the impact and did its best to move on the road to recovery. There are several

questions that have been posed by the disaster in terms of preparedness, response rescue, relief and rehabilitation. The short and long-term effects of the disaster would perhaps take several years to fully comprehend the complex issues. Japan's disaster management system is considered one of the best, however, this disaster exposed some areas where there is much that needs to be done in terms of disaster preparedness, response and recovery. From a management perspective, it is imperative to study and relook at what happened, what went well and what went wrong and how things could be made better. This would help in designing better strategies for leveraging human resource for effective disaster management. Lessons from the 2011 Great East Japan Earthquake (Tohoku Earthquake) disaster are likely to shed light on strategies to be followed in the future to avert the damaging effects of the future disasters. Since, this disaster is the most recent one, and has posed many questions in terms of preparedness, response, rescue, relief and rehabilitation, despite the best preparedness; a careful study is needed to identify strengths, weaknesses, threats and opportunities to learn better management strategies and hence the present study was envisaged.

There is no denying the fact that effective human resource management is the key to economic prosperity. Infact, optimal utilization of the human resources has led to establishment of Japan as one of the formidable economic powers of the world. Japan's economic growth model, along with its human resource management (HRM) system is regarded foremost amongst the globally successful practices. The unique management style is often referred to as 'the Japanese Management Style' and has several distinct features that are worth emulating. Post-1980s, the Japanese organizations, especially business enterprises but only restructured their businesses and reengineered the management systems and processes in response to the changed milieu (Kishita *et al*., 2006). However, a disaster like the 2011 Japan earthquake can overwhelm this system. This was evidently apparent in the wake of the 2011 Japan multiple disasters. Effect of disasters on employment and business continuity post-disaster are areas of immense concern that need urgent attention. In 2011, the International Labour Organization (ILO) and Japan Government signed the "Framework for Cooperation by ILO/Japan Fund for Dissemination of Employment and Labour Measures for Recovering from the Great East Japan Earthquake as International Public Resources" aimed at helping the Asia Pacific countries in dealing with the effects of natural disasters and strengthening the role of employment in early recovery and reconstruction. Japan's Ministry of Health, Labour and Welfare estimates that nearly 841,000 workers and 88,000 businesses were located in the regions directly affected by the Great Eastern Japan Earthquake (International Monetary Fund Report 2011) leading to a rise in national bankruptcies and applications for the employment assistance subsidy. The question then arises: how to plan in order to cope with such scenarios and the problems of employment in the wake of disasters?

To develop a leveraging systems approach of human resource management (HRM) for effective disaster management, an in-depth study of the job creation system for the disaster affected people, integrated support for industrial development and employment

and the programs for employment recovery in the areas affected by the disaster is a sine qua non. A comprehensive approach to study the programs/mechanisms for training of personnel who contribute to reconstruction and support for placement of people in stable jobs and public vocational training in the industrial sector under the impact of the Tohoku (Great East Japan) earthquake and tsunami is an urgent requirement.

These disasters left certain lessons to be learnt that could help save human lives, stabilize economies in various countries, raise preparedness, reconstruct better and result in fewer mistakes.

With a view to identifying the gaps and improving human resource management in the wake of disasters, an attempt towards this direction has been made through a leveraging approach of human resource management for effective disaster management; utilizing comparative lessons from the 2011 Tohoku Earthquake and Tsunami and the 2004 Indian Ocean Earthquake and Tsunami.

FOCUS OF THE PRESENT STUDY

The focus of the present study was to study the effectiveness of strategies/programs employed for employment recovery and business continuity. The study has attempted to examine whether the human resource management strategies were effective in mitigation of the impact of the 2011 Tohoku earthquake and has also identified select areas that need improvement in coming years to be able to manage disasters more efficiently and effectively. The study includes both survey work and select case studies. Both primary and secondary data, in the form of Government reports, statistical materials from official and sectoral agencies have been interpreted.

A brief comparison between experiences gained from the 2004 Indian Ocean Tsunami and the 2011 multiple disasters in Japan has been presented (Fig. 1.4) and is definitely a learning experience from the Japanese model and Asian models.

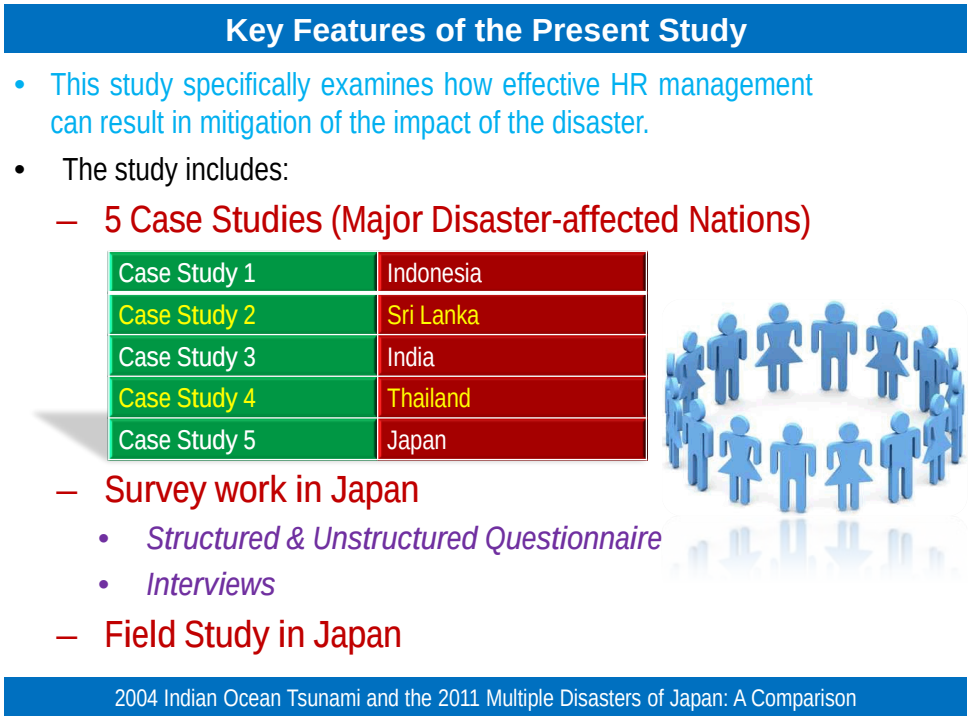

Fig. 1.3. Focus of the present study: 2004 Indian Ocean Tsunami and the 2011 Japan Multiple Disasters.

A COMPARISON OF TWO OF THE WORLD'S MAJOR DISASTERS

A comparison…of two major disasters.. years apart

2004 INDIAN OCEAN TSUNAMI

- Massive disaster affected a huge population; several nations
- The developing world
- Preparedness, response and recovery strategies: almost non-existent.
- From a management perspective, it is imperative to study and relook at what happened, what went well and what went wrong and how things could be made better.
- Despite resource crunch: Managed unprecedented disaster

2011 JAPAN EARTHQUAKE & TSUNAMI

- Massive and the costliest disaster in human history:
- Developed country hit hard by multiple disasters viz., earthquake, tsunami, the ensuing fires, nuclear reactor damage and consequent radiation leakage
- Japan endeavoured to cope with the impact and did its best to move towards the road to recovery
- Japan's disaster management system is one of the best, however, this disaster exposed some areas where there is much that needs to be done
- From a management perspective, it is imperative to study and relook at what happened, what went well and what went wrong and how things could be made better.

Indian Ocean Tsunami

Japan Tsunami

Fig. 1.4. A comparison of the two devastating disasters of this century: similar as well as different in many respects (Photo source: Internet).

SECTION 1.1.

THE 2004 INDIAN OCEAN TSUNAMI

As per the World Bank Report (Feb 2, 2005), the 2004 tsunami is rated as the fourth largest in the world since 1900, and is considered to be the largest in 40 years that resulted in the dislocation of the seabed by nearly 10 meters. The tsunami of December 26, 2004 came as an unimagined, fearful dream transforming itself into reality, shattering the lives of millions of people in the coastal regions of Aceh, Indonesia, India, Sri Lanka, Thailand and several small neighbouring islands of the South Asian region. There was very little/no awareness about the early warnings of the approaching disaster.

At 6:28:53 AM (IST) on a bright Sunday morning (26 Dec, 2004), when everyone was busy to begin their daily tasks, a massive earthquake of magnitude 9.0 on the Richter scale occurred in the Indian Ocean near the West coast of Sumatra Indonesia. People experiencing the earthquake were oblivious of the unexpected danger of the massive high-rising tsunami, which was destined to change the lives of millions of people in the coastal regions. The earthquake was a megathrust earthquake with its epicentre off the west coast of Sumatra Indonesia in the Indian Ocean (Source: World Bank Response to the Tsunami Disaster Feb 2, 2005). The earthquake resulted when the Indian plate, which is a part of the Indo-Australian plate, slipped along the subduction zone where the India plate slides under the overhead Burma plate. The Indian plate subducts beneath the Burma plate, which carries the Andaman, Nicobar, Sumatra islands. The earthquake triggered a chain of devastating tsunamis along the coastal regions of the fourteen countries surrounding the Indian Ocean. Hence, this massive tsunami was named as the 2004 Indian Ocean tsunami. It has also been named as the Indonesian tsunami and sometimes is also referred as the South Asian tsunami. Some key facts regarding the 200 tsunami are given in Table 1.1.

Table 1.1. Some Key Facts regarding the 2004 Tsunami
(Source: USGS, WHO and OCHA situation reports).

Date and Time	December 26, 2004 7:58:53 AM (IST) (00:58:53 UTC)
Magnitude	9.1
Epicentre	3.316°N, 95.854°E Off the west coast of Northern Sumatra(Indonesia)
Depth	30 km under the sea
Type	Megathrust, subduction
No. of deaths	Aprox. 230,000
Areas affected	Indonesia, Sri Lanka, India, Thailand, Maldives, Malaysia, Myanmar, Seychelles, Somalia, Singapore, Bangladesh, Kenya
Energy released	2.0 Exajoules (34,000 times as compared to the Hiroshima bomb)
Tsunami height	24 m high waves

The tsunami killed approximately 230,000 people across the fourteen countries and the worst affected country was Indonesia. North Sumatra province and north and west coastal regions of the Banda Aceh province in Indonesia were the two districts that were severely affected by the tsunami. Destruction was not limited to Indonesia; countries like Sri Lanka, India, and Thailand were also hit hard by the tsunami. The tsunami then proceeded towards Maldives and then the African coast spreading the arms of destruction in Somalia and Seychelles.

The Tsunami snatched away the livelihoods from approximately more than 4 million people in India, Indonesia, Maldives, Malaysia, Myanmar, Seychelles, Sri Lanka, Somalia and Thailand shattering their economic stability and pushing them more tightly in the clutches of poverty (ADB, 2005). The respective countries made all out efforts towards rescue, relief and rehabilitation. At international level, the International Labour Organization (ILO) worked extensively in the affected areas- planning for the early recovery and rehabilitation and meeting the needs of countries for priority reconstruction. The ILO team worked persistently towards employment generation and creating new opportunities and means of livelihood of the victims. The ILO focussed on several areas, the ILO response to the 2004 tsunami disaster in the affected countries revolved around the following measures:

i. infrastructure reconstruction by using labour-based technology, which in turn benefitted the affected community by providing them employment opportunities and helping them build their livelihoods.
ii. the local economic system was taken into consideration for the reconstruction of the livelihood and the economic status of the community.
iii. making available the emergency employment services to the public and the unemployed, who were connected to the available employments.

(Source: ILO- After the Tsunami: In the Wake of the Disaster, ILO helps rebuild lives and livelihoods- World of Work Magazine No. 53, April 2005; dated 01 April 2005).

RESPONSES TO THE 2004 INDIAN OCEAN TSUNAMI IN SOUTH AND SOUTH EAST ASIA:

COUNTRY-SPECIFIC COMPARISONS

Table 1.2. shows the number of dead, missing and jobs lost (Source: ADRC (Asian Disaster Reduction Center), World Health Organization (WHO), International Labour Organization (ILO), OCHA Situation Reports).

Table 1.2. The death toll, number of missing people and those who lost livelihood during the 2004 Indian Ocean Tsunami.

Country	Dead	Missing	Loss of livelihood
India	10,749	5551	**647,599**
Indonesia	101,199	127,749	**532,898**
Sri Lanka	35,322	5,644	**516,150**
Thailand	5332	3144	

The various South Asian countries were differently affected by the same disaster, depending on the preparedness level, relief and response undertake and rehabilitation projects taken up post-disaster by the Government, NGOs and international organizations. Each country handled the disaster differently and the unique strategies, including HR strategies, adopted for livelihood generation and employment provide a learning experience in the form of best practices adopted under the prevailing circumstances, often under tremendous resource constraints. This experience derived from available literature and studies carried out in the form of 5 Case studies presented in the following sections.

CASE STUDY – 1:

INDONESIA

Indonesia was the worst hit by the 2004 disaster that caused a loss of lives and infrastructure and shaking the entire setup of the society. The livelihood and the social system in the coastal regions were disrupted substantially, rather than just nationally. The private lives were affected more due to destruction of their houses, livelihood, and lives of families rather than damage to the public sector, which was in the ratio of 75:25 respectively. Agriculture, fisheries, transport, commerce, housing sectors were the most affected and was approximately 40% of the GDP. The livelihood loss was approximately for 600,000 people. Aceh province is a very small and remote area of Indonesia with a high rate of unemployment. The disaster of 2004 added more to these rates of unemployment and poverty (Source: Earthquake-Tsunami Response: ILO Proposals for Reconstruction, Rehabilitation and Recovery; WHO Response to the Tsunami Disaster, Feb 2, 2005).

The worst hit area of Indonesia included the Aceh province and the Nias island of Sumatra. Aceh is the poorest province of Indonesia and some portions are secluded from the rest of Indonesia. 75% of the total Government infrastructure was damaged. With the massive destruction caused to the Government buildings, complete data was lost, disrupting the entire coordination network, leaving them stranded post-tsunami. This affected the relief work and seeking assistance from other agencies. The units at the national, provincial, district levels were hierarchically present and a National Level Disaster Management Plan, which was formulated on March 30, 2001 existed, but they

lacked as there were no effective emergency plans prepared for the disaster. Reconstruction plan was made by the National Development Planning Agency.

After the 2004 tsunami, the need for the formulation of a Disaster Management Act was unequivocally felt. The Disaster Management Act of Republic of Indonesia was enacted in 2007 (Law of the Republic of Indonesia, 2007); the organizational structure is depicted in Fig. 1.5.

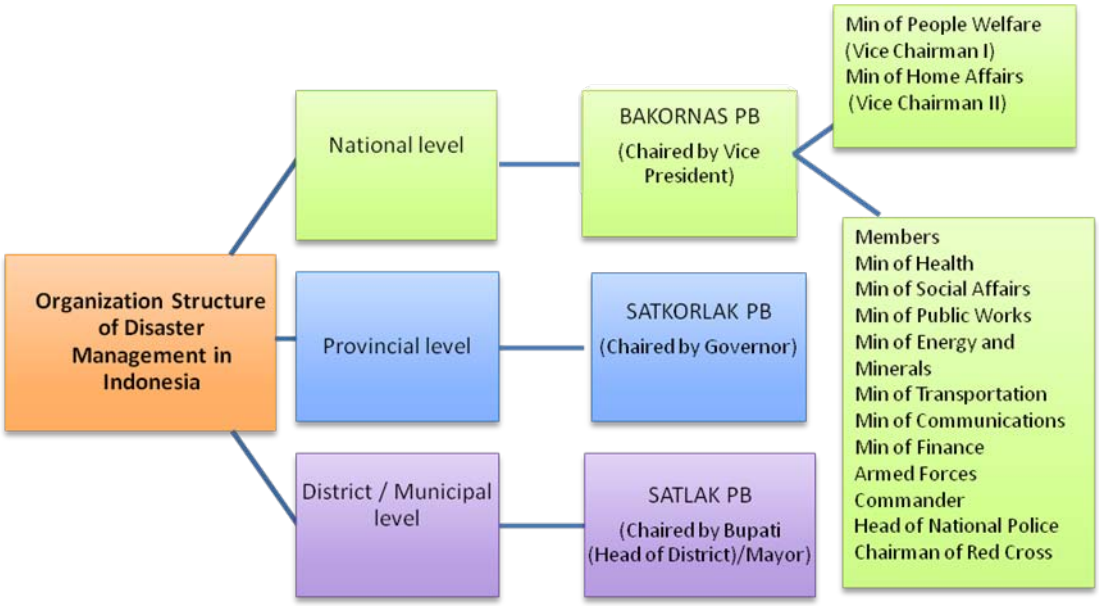

Fig. 1.5. Organization structure of Disaster Management in Indonesia.

For the implementation of the plan, the Agency for the Rehabilitation and Reconstruction of Nanggroe Aceh Darussalam- Nias (Badan Rekonstruksi dan Rehabilitasi NAD-Nias (BRR)) was established for the disaster-hit Aceh and Nias island. BRR worked directly under the Indonesian President (Source: Local Response by Earl Kessler). Data from BAPENAS (the National Development Planning Agency) (2005) revealed that lives of 4% of the population of Aceh was lost by the devastating tsunami. There was a huge loss to the Government organisations as 5,200 employees of the local authorities, 3,000 civil servants lost their lives and 2,275 went missing. In Nias island alone, 122 people died due to the tsunami, 2,300 people were displaced and 18 were reported missing (Source: TEC Tsunami Evaluation Coalition).

The different ministries like the public works, health, social and the military forces played a very important role in the rescue, relief and reconstruction work. But the communities and the authorities of the neighbouring sub districts helped the victims even before any aid from the Government could reach them. Pre-disaster the activities of the international agencies like the NGOs and UN agencies were controlled very strictly but post-disaster the assistance came in a straight line from the international agencies making them active participants after the tsunami. Republic of Indonesia took a very important lesson from the Indian Ocean tsunami, that the most effective way to reduce the risk of

the disaster is through capacity development of the community. Later on, Government institutions and organisations have been actively involved in the capacity building process. For effective advocacy, Centers for Disaster Management Studies were established in various universities and the NGOs took active part in capacity building through their community-based activities at the grass roots level. Disaster Management was not confined to emergency response and relief of disaster. Law of the Republic of Indonesia concerning Disaster Management (Law no. 24 of 2007) stretched the mandate of Disaster Management to both pre-disaster and post-disaster. Contingency planning, simulation exercises and training for capacity building of the community were actively started at the entire levels nationwide. Projects in coordination with the UN agencies like OCHA, UNDP, WFP, WHO, UNESCO were launched for disaster risk reduction (DRR).

Reconstruction and rehabilitation work carried out in Aceh-Nias is highlighted in a paper by Nazara *et al*., 2007. Immediately after the tsunami, the international NGO Oxfam initiated the projects of Cash-for-Work projects and providing assets and equipments for their livelihood regeneration. Several projects for the grants, loans, training, and SHG formations were launched for the affected people mainly the farmers, fishermen, tailors and the weaver community. Small-scale businesses were encouraged and training and equipment were provided for their sustainable performance (Source: http://www.oxfam.org.nz/what-we-do/emergencies/previous-emergencies/asian-tsunami-2004/indonesia).

Centre for Community Development and Education, in partnership with the International Youth Foundation (IYF), worked in the disaster affected area for human resource and livelihood development. Several programs for the skill development, vocational training for the youth and the women were launched. Training in the field of IT, entrepreneurship, financial management, livelihood skills were imparted. SHGs were also formed and the people were trained for their efficient progress (Source: Rebuilding Young Lives and Livelihoods- The Tsunami Reconstruction Initiative- Final Report by International Youth Foundation). Muhari *et al*., 2007 have highlighted some of the lessons learnt from the tsunami in Indonesia.

HRM Strategies for Employment Generation in Indonesia & Labour-related Issues

The unemployment rate was 26% before Tsunami and 40% after the Tsunami. To bridge this gap in Indonesia, the ILO worked in close cooperation with United Nations Industrial Development Organization (UNIDO), UN-HABITAT for the local economic development by working for the employment creation, placement and skills development. The ILO worked with the Indonesian Government for recovery activities. The restoration of the livelihood of the affected people was mainly done through practical workable programs, cash-for-work programme for infrastructure reconstruction projects, setting up of emergency employment service centres. ILO also supported the Government of Indonesia in developing Government policy documents by giving inputs about the recovery and reconstruction work. The ILO worked for women and children and took a

front seat post-disaster. In Indonesia, the ILO conducted several training programmes for women. These programmes helped women support their living and gaining self confidence and self esteem. The ILO was successful in working for gender quality and bringing women as important partners in economic development (Source: Working Out of Disaster- Improving Employment and Livelihood in Countries Affected by the Tsunami- ILO).

In joint venture with the local NGOs, the ILO carried out needs assessment and launched a project for the self employed businessmen. A fund was given to them for their business revival and when they began to earn profits they returned the money through a cooperative, which was again used to help others, like a revolving fund (Source: Working out of Disaster- Improving Employment and Livelihood in Countries Affected by the Tsunami-by ILO).

Adoption of a three-pronged Strategy to Improve the Employment Situation Post-disaster

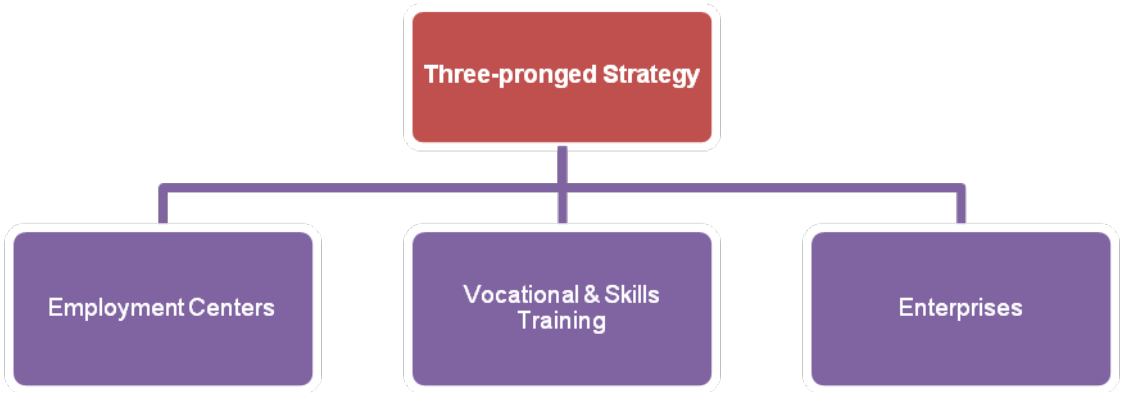

Fig. 1.6. A three-pronged strategy was adopted to improve the employment situation post-disaster.

The major activities undertaken as a part of this strategy were as follows:

- Training and employment through construction sector.
- Revival of the fishery industries by helping the coastal communities rebuild their boats and fishing nets, which resulted in establishing sustainable livelihood for the fishing folk, carpenters and fish sellers etc.
- Rehabilitation and reconstruction by working with Indonesian Government on a master Plan, which gave way to employment and livelihood reconstruction.
- The ILO helped the children in the age group of 15 and 17 years with skill development through training and ensuring their continuity in schooling, which resulted in preventing them from dropping out of school, ensuring that they were able to get gainful and suitable employment when they grew up and supported

their family's livelihood. This was done under the International Programme for Elimination of Child Labour (IPEC).

- Start and Improve Your Business (SIYB) programme was implemented.

CASE STUDY – 2:

SRI LANKA

Sri Lanka is an island country in the northern Indian Ocean off the southern coast of the Indian subcontinent in South Asia. The 2004 tsunami resulted in a huge number of causalities and loss to livelihood in Sri Lanka, which was estimated to be approximately 40966 and 516,150 respectively. Major destruction was caused to the infrastructure, fishing equipments like fishing vessels and tourism. A large number of hospitals, schools, universities and training centres were also damaged. This tsunami increased the vulnerability of the poor by adding to their poverty and inflation in economy after the disaster added to their poverty. People in the affected areas became jobless, which raised the unemployment rate from 9.2% to 20%. The major losses were incurred by the fishery, construction, tourism industries (Source: Earthquake-Tsunami Response; ILO Proposals for Reconstruction, Rehabilitation and Recovery; WHO Response to the Tsunami Disaster Feb. 2, 2005). Tsunami public awareness and disaster management system of Sri Lanka have been recorded (Kurita *et al*., 2006).

The 2004 tsunami disrupted the socioeconomic structure severely hitting the coastal community. In a flash of 15 minutes the gigantic waves took away the lives of over 30000 people, injuring 15000 people. Approximately 800,000 people were affected by the tsunami several of them losing their loved ones, houses, belongings, and livelihood. Before the tsunami hit the coasts of Sri Lanka, the fishery, art and craft, tourism industries flourished and added to the national economy. The tsunami uprooted these industries, adversely affecting the local community on the coasts as well as the national economy.

Sri Lanka is a democratic, socialist, republic country with eight provinces as administrative divisions. It was just after the 2004 tsunami that initiatives for disaster management were taken by passing the National Disaster Management Bill in 2005. A National Disaster Management Authority was also setup, headed by the Prime Minister. The Disaster Management Authorities were setup at the state level as State Disaster Management Authorities. These State Disaster Management Authorities worked with the Chief Minister of the State as the Chairperson. At the District level, District Disaster Management Authorities were setup, which were headed by the District Magistrate. The National and the State Disaster Management were mandated to formulate policies, plans and laying down the guidelines for all the phases of disaster management. The functions for prevention, mitigation of disasters and implementation of disaster management plans for the recovery in the aftermath of the disaster were performed by the Disaster

Management Coordinating Committee (Source: ADRC Country Report, WCDR Country Report). Some of the post-tsunami challenges in terms of recovery have been reported (Jayasuriya *et al*., 2006).

HRM Strategies for Employment Generation and Labour-related Issues in Sri Lanka

The relief, rehabilitation and reconstruction work in Sri Lanka are executed by the Department of Social Services and the Ministry of Social Services. For reconstruction and bringing back the affected community to lead normal lives, the Government of Sri Lanka initiated a project called 'Rebuilding Sri Lanka', Cash for repair and reconstruction programs, and outright grant projects for compensations of the damage to the houses (Vaes and Goddeeris, 2012).

The Sri Lanka Government introduced many projects in support with various organizations for the rehabilitation and reconstruction of the affected community, utilizing best practices in human resource management. In Sri Lanka, the ILO worked in a close net with the Government by providing support for the development of the Government policy for recovery and reconstruction. Cash for work programme was an important part of the policy.

Cash-for-Work (CFW) project for building roads was introduced in partnership with ILO and this endeavour gave employment to both men and women. Adequate care was taken to eliminate gender discrimination and implement equal wages for equal work. The ILO launched various projects to support the disaster victims like:

- JobsNet
- Start and Improve Your Business (SIYB) to promote entrepreneurship
- The International Programme of the Elimination of Child Labour (IPEC)
- Rapid Income Recovery Programme (RIRP)
- Revival of the tourism industry
- Start and Improve Your Business (SIYB).
- In Sri Lanka, women came up with small-scale businesses in the field of handicrafts and tailoring industries.

Several NGOs worked in Sri Lanka to alleviate the sufferings of the affected people by providing employment generation opportunities post-disaster. Oxfam in Sri Lanka focussed on the Cash-for-work projects, providing boats, equipments for fishing and farming. For long-term reconstruction, Oxfam worked in close partnership with Sewa Lanka and Sarvodaya Economic Enterprises Development Services (SEEDS) and various NGOs and volunteers working at the grass roots level for livelihood projects. Approximately 280,000 peoples were benefitted by the Oxfam initiatives and nearly more than half of the beneficiaries were women. Assistance to people from the fishery, agriculture, construction, animal husbandry industries were provided by the Oxfam.

Training and financial assistance was provided to the women for starting small scale businesses (Source: http://www.oxfam.org.nz/what-we-do/emergencies/previous-emergencies/asian-tsunami-2004/sri-lanka). Foundation of Goodness (FoG) worked for the training to enhance the skills, financial counselling and also for the entrepreneur development, making handicrafts, cookery beauty industries for establishment. The focus was more on youth and the women. The energy and ability of the youth was tapped by commencement of the Diving training centres. These centres provided training, job placement to the unemployed youth. Hambantota District Chamber of Commerce (HDCC) initiated programs for the training, vocational trainings. The youth were trained by giving them training in computers and the English language. They were also trained for starting up small scale businesses and also taking up jobs in IT field (Source: Rebuilding Young Lives and Livelihoods- The tsunami Reconstruction Initiative- Final report by International Youth Foundation).

CASE STUDY – 3:

INDIA

The 2004 tsunami also caused substantial damage in India. States in the coastal regions of South India and the Andaman and Nicobar islands suffered enormous destruction in terms of lives and livelihood lost, and infrastructure damage following the 2004 tsunami. Nearly 2,260 km of the coastline from Andaman and Nicobar Islands, Tamil Nadu, Andhra Pradesh, Kerala, and some portion of the Union territory of Pondicherry were hit by the tsunami. The Andaman and Nicobar islands were the worst hit. Around 10,749 people died and in all 2,731,874 people were affected (Source: Situation Report, Ministry of Home Affairs (MHA), Government of India). The largest loss was borne by the fishing community as their boats, houses fishing vessels and fishing nets, were all destroyed. In addition, the Government sector was also not spared by the tsunami. Infrastructures, including a large number of public buildings were also destroyed.

The Indian coastal regions in the southern part of the country were devastated by the Indian Ocean tsunami. The devastation extended from Andaman & Nicobar Islands, Tamil Nadu, Andhra Pradesh, Kerala to some parts of Pondicherry. The tsunami took away the lives, livelihoods, houses, boats, fishing equipments from the people living on the coasts. The loss was huge for the poor as many of them lost their livelihood; the shipping industry, tourism industry, fishery were badly hit by the disaster. The fishermen communities were the worst affected by the tsunami. The fishing community was provided with boats, but the other communities like the farmers, small businessmen and the workers in other territorial jobs were left from the benefits of the reconstruction post-disaster (Kumar and Kamatchi, 2005).

The National Contingency Relief Fund was immediately released after the disaster by the Indian Government and was utilized in a rational manner. Despite the enacted legislation and policy to protect vulnerable groups (tribal groups, religious minorities, women and

children), implementation of these policies was a big task post-disaster. Employment generation and reconstruction work was done by the Government of India and compensation for the losses, was also distributed among the affected community.

There was an influx of assistance to the private agencies, NGOs working in the disaster affected area, but due to the lack of coordination there was a huge wastage of the humanitarian efforts due to duplication in the relief work. The donations and the relief supplies were more and the donors were even more than the affected population, but the supplies could not reach the affected community due to damaged roads, and inaccessibility to the affected community. It was also reported that the relief supplies from the donors were often inappropriate as the kind of food and clothes sent for the relief did not match the culture of the affected community (Source: After the Deluge India's Reconstruction Following the 2004 Tsunami - Human Rights Watch, 2005). The relief work in the aftermath of the disaster has been reported to be chaotic and unorganised by some international agencies (Source: "Tsunami-Hit India Struggles to Channel Flood of Aid to Needy," Agence France Presse, January 2, 2005).

The Indian Government took this 2004 disaster as a chance for bouncing back better with much more improved living standards than the ones which existed before the disaster. This was achieved with reconstruction work integrated with a view of reducing the vulnerability and building the capacity of the people. It was in 2005 that the Indian Government became active in regard to disasters and changed their perception towards disaster management, holistically from a relief centric to a proactive approach. Initially, India refused to take any international assistance for response to the disaster relying on the indigenous capacity available within the country. Rather, India sent assistance to the neighbouring countries like Sri Lanka, Indonesia and the Maldives. In the later phase, upon repeated requests, the Indian Government accepted to work in close coordination with the international NGOs and the NGOs for the humanitarian relief work. For long-term reconstruction work, assistance was taken from the World Bank and the Asian Development Bank (ADB) and programmes were launched for the rehabilitation and reconstruction work (Source: Indian Ocean Earthquake and Tsunami: Humanitarian Assistance and Relief Operations, 2005- CRS Report for Congress). Tsunami Rehabilitation Program worked for the permanent shelters, fisheries, agriculture, transport infrastructure, water supply and sewage, power and communication, social infrastructure, environmental protection and tourism (Source: Local Response Overview -Tsunami Evaluation Coalition (TEC): The International Community's Funding of the Tsunami Emergency and Relief). In response to the tsunami, Search and Rescue (SAR) teams from the paramilitary forces, medical teams, Helicopters, equipments were deployed by the Indian Government to the disaster sites. NGOs played a very important role in the response and approximately 150 NGOs participated. (Source: NIDM TIDINGS-Quarterly newsletter of National Institute of Disaster Management, 2005). There was an influx of response assistance from the neighbouring states.

The devastation led to a very crucial turn in terms of policy making and resulted in enactment of the Disaster Management Act, 2005. National Disaster Management Authority (NDMA) was established at the national level which is now the apex body for disaster management in the country. NDMA is headed by the Prime Minister. The disaster management authorities are also setup at the state and the district levels. National guidelines and training of trainer manuals on disaster management were also issued (NDMA, 2007; GOI-UNDP Disaster Management Programme, 2008). The National Institute of Disaster Management (NIDM) was constituted under the Disaster Management Act 2005. The National Institute of Disaster Management (NIDM) became the nodal institute at the national level for capacity building. The mandate of NIDM is to engage in capacity building, training, human resource development, training, documentation, advocacy of the disaster management policy to make India resilient to disasters. NIDM works for the development and promotion of the prevention and preparedness as a culture for all phases of the disaster taking a holistic and proactive approach to disasters.

Immediately after the tsunami, a National Crisis Management Committee was set up for the relief and rescue operations. Government of India in partnership with the World Bank, The Asian Development Bank (ADB) and United Nations did a survey for rehabilitation of tsunami victims and estimated a requirement of US $ 1.2 billion for the rehabilitation work (Source: Socioeconomic implications based on interviews with fishermen following the Indian Ocean tsunami by N. Nirupama- Springer). In India many NGOs, industrialists and International agencies joined hands together for establishing the recovery projects for the disaster victims. As the coastal areas were hit by the tsunami – the coastal community and tourism were badly affected. Government of India, NGOs and various other agencies provided new boats to the fishermen. Repairing of the boats, boats engine, nets was done by the local government and some of the industrialist, free of service charges (Source: Socioeconomic implications based on interviews with fishermen following the Indian Ocean tsunami by N. Nirupama- Springer). The efforts were to get the community back to their work, so that they could earn their livelihoods and bounce back to living a normal life. The community was also interested in getting work rather than getting aid so that they could earn sustainable livelihoods, get employment and move towards sustainable recovery. WHO and ADB aided many projects to develop the skills of the people through training programmes. This helped the community grab more employment opportunities rather than relying only on their traditional fishery business/ employments options. Women were also empowered by these training projects. Women, who had the additional burden of supporting their families post-disaster (role reversal), were also benefitted by these training programmes. These training programmes were followed by the placement projects like the incense stick project, tailoring project, manufacturing soaps, disinfectants, leather, coir making, sandal, coconut oil production projects.

HRM Strategies for Employment Generation and Labour-related Issues in India

In India, the ILO played a crucial role in bridging and supporting the various sections of the society i.e., organisations, employers and workers. ILO helped them to get employment and livelihood.

- ILO supported the Government at different levels i.e., the National, Ministries, district level for the reconstruction of the employment and livelihood.
- ILO and the Centre of Indian Trade Unions (CITU) together launched a project for women which gave training for skills enhancement of the sewing skills and also supported them to develop their businesses. Employer's federations and ILO together initiated many projects for the disaster victims in the informal sector and also supporting them develop their businesses with Start and Improve Your Business (SIYB).
- ILO also provided opportunities for Entrepreneurship development.
- The vulnerable groups, especially the orphaned children were also provided support by the ILO.

In India, several NGOs worked to ensure that employment problems were alleviated in the aftermath of the tsunami. The International Youth Foundation (IYF), in collaboration with Community Collective Society for Integrated Development (CCFID)- a local NGO, worked for the post-tsunami reconstruction work and provided vocational training, financial counselling, credit, insurance, guidance for entrepreneurs to the women and the youth. Livelihood Resource and Training Centre (LRC) were started. They utilized the interest of the youth to start their own business and provide them guidance, financial assistance and training for the same. They also provided the youth with personality development skills to enhance their confidence, ambition, ingeniousness so that they could analytically move towards their goals, knowledge management. CCFID provided services for technical training, exploring and linking of markets with the producers, financial assistance in addition with business planning and providing framework for businesses. Microentrepreneurship played a major role in livelihood recovery in South India (Régnier Philippe, 2007). Women in India have set an example by bringing out themselves as successful entrepreneurs and efficiently and successfully forming Self Help Groups (SHG) with the assistance provided by the CCFID. The women formed groups where they deposited money, earned interest on their saving and got loans when in need. Families were trained for the livelihood skills to support and encourage the youth in job. (Source: Rebuilding Young Lives and Livelihoods-The Tsunami Reconstruction Initiative- Final Report by International youth Foundation).

Oxfam in close collaboration with local organisations strengthen the livelihood work in South India and Andaman and Nicobar Islands. Approximately 600,000 people gained by the livelihood projects of Oxfam. They targeted the affected community of the fishery

and the agriculture industries. People who had lost their boats, fishing and agriculture equipments were equipped to regain their livelihood. Self Help Groups (SHGs) and cooperatives were formed for better access to the market, guidance and financial assistance for credit, saving etc. Agricultural techniques to boost the production and increase their earnings and techniques for drying fish with less investment were also introduced, which in turn enhanced the livelihood of the people. Oxfam with other foundations organised several SHGs for the saving, credit activities. Women of these communities were advantaged by these activities, making them confident, independent and preventing them from exploitation of intermediaries and moneylenders (Source: http://www.oxfam.org.nz/what-we-do/emergencies/previous-emergencies/asian-tsunami-2004/india). Apart from government initiatives, it was felt that self help groups , NGOs and international organizations did a splendid job in post-disaster rehabilitation and reconstruction.

CASE STUDY –4:

THAILAND

Southern Thailand was hit by the Tsunami causing destruction in six coastal provinces (Phuket, Trang, Phangnga, Krabi, Ranong and Satun). The worst affected were Phuket and Khao Lak. Thailand has initiated an immediate and successful response to the disaster (Source: Indian Ocean Earthquake and Tsunami: Humanitarian Assistance and Relief Operations, 2005- CRS Report for Congress). Relief work started on the same day that the Tsunami hit. The major strength for the successful recovery was the legal and institutional framework of Thailand.

Before the 2004 tsunami, the Thai government had disaster management systems already in place. The Civil Defence Act of 1979 was the basis for the disaster management system in Thailand. The Natural Civil Defence Committee (NCDC) is the main policy making body. Disaster management coordination between different agencies in Thailand was taken care by the Department of Disaster Prevention and Mitigation (DDPM) of Thailand, which was formed after the enactment of the Bureaucrat Reform Act 2002. The former Civil Defence Division was replaced as the National Civil Defence Committee Secretariat. In Thailand, disaster risk reduction (DRR) has been adopted and integrated into national development plans. To ensure the sustainability and resilience of the nation, natural disaster preparedness for the development of proper preventive and mitigating structural and non-structural measures with the emphasis on both social and economic aspects were taken up on priority and under the 11th National Economic and Social Development Plan 2012-2016 (Source: Thailand: National progress report on the implementation of the Hyogo Framework for Action (2009-2011); UN-ISDR, 2006).

A strong coordination system of the Government agency, military, police, civil departments, NGOs, UN, International NGOs etc. led to the successful relief efforts in Thailand in the aftermath of the 2004 tsunami (Department of Disaster Prevention and

Mitigation, 2005). The Government of Thailand in partnership with all these agencies together worked for the rehabilitation and reconstruction process making it easier for the early recovery of the affected community (Source: Thailand Country Report, 2006, WCDR Report and Department of Disaster Prevention and Mitigation Ministry of Interior Report). Ministry of Foreign Affairs, Thailand and International Development Cooperation Agency (TICA) performed the duties of recovery and coordination of the post-tsunami efforts in all sectors for sustainable recovery. To maintain transparency and track the tsunami assistance, the Ministry of Foreign Affairs maintained Donor Assistance Database (DAD). Many foreign tourists lost their lives in Thailand. The Thai Government provided assistance to the foreign visitors in the form of food, accommodation, temporary passport (who lost their documents in Tsunami), air ticket to their native lands. A committee was approved by the Cabinet for tourism reconstruction. The committee worked for the regeneration of the tourism industry in the affected coastal areas as the tourism industry plays a very important role and is a major contributor to the national economy. All this could be achieved only through appropriate management of human resources. Phuket Action Plan was launched by the joint efforts of the Ministry of Tourism and Sports and the World Tourism Organization (WTO). Phuket Action Plan worked for the reconstruction of the Tourism industries. It worked for the community relief, marketing communication, vocational training, sustainable development and risk management (Source: Rehabilitation in the Aftermath of December 26 Tsunami: Foreign Office-The Government Public Relations Department, Thailand). The Thai Government worked in partnership with UN Country Team and NGOs and launched various programmes for social protection, livelihood recovery, environmental rehabilitation, reconstruction of livelihood regeneration of income in the affected community, disaster preparedness. Various programmes for the capacity development, especially the development of vocational skills in the community through training modules, supporting regeneration of tourism industry and encouraging micro-entrepreneurship were laid down for the community (United Nations and World Bank Report, 2005). These programmes together led to rapid recovery of the affected community in Thailand (Source: UN Thailand).

Employment Generation Strategies and Labour-related Issues in Thailand

The fishery, tourism, handicrafts industries in the coastal regions of six districts of southern Thailand was badly affected. The Thai Ministry of Labour together with UNDP, ILO initiated projects for the recovery and reconstruction. Various projects like the soap making, batik project, sari weaving projects were initiated for the disaster victims by the Thai Government in partnership with ILO, NGOs and Thaicraft. ILO worked in close association with the UN agencies. The focus was to help the migrants gain employment. To help the disaster victims, ILO introduced many programmes for their welfare and help them gain employment. Some of the programmes undertaken included:

1. *Start and Improve Your Business (SIYB)*
2. *Entrepreneurship development*
3. *Business Development Services*

Oxfam worked in the area of livelihood reconstruction in partnership with Save Andaman Network (SAN). The people were involved directly and a community-based revolving fund project was also initiated for their efficient and sustainable development. Fishing communities were greatly benefitted by these programs. Oxfam also worked with Human Settlement Foundation and worked for supporting the people for land related issues (Source: http://www.oxfam.org.nz/what-we-do/emergencies/previous-emergencies/asian-tsunami-2004/thailand).

The National Council for Child and Youth Development (NCYD) and IYF worked in Thailand for human resource development, equipping the people with their lost assets. Training for the motorcycle repair, boats repair and construction, tourism were initiated for the youth and equipped them with skills to gain employment or start their own small scale business. Special training programs for the youth and community leaders for the community based planning and childcare was launched. (Source: Rebuilding young lives and livelihoods- The tsunami Reconstruction Initiative- Final report by International youth foundation). A lot of efforts by philanthropists and the Government led to recovery (Bernhard *et al*., 2005; Bhanupong, 2007). The impact of tsunami on fisheries and aquaculture has been recorded in the joint report of FAO (FAO, 2005). Coastal forests play a major role in mitigating the impact of tsunami (Forbes and Broadhead, 2007) and, therefore, there is a need to train unskilled human resource in the local communities as well as sustained efforts of experts to help stop the denudation of coastal forests.

INTERNATIONAL RESPONSE TO THE 2004 INDIAN OCEAN TSUNAMI

The 2004 tsunami impacted not only on the countries that it hit directly but also shook the entire world community resulting in extraordinary response from agencies across the globe in various forms: donations, humanitarian aid, sympathies and much more as this was an unprecedented disaster that impacted the lives of innumerable people. Immediately after the 2004 tsunami damage assessment and needs assessments was carried out with UN country teams (UNCTs) in Indonesia, Sri Lanka, Thailand, and India. A number of countries extended help and mobilized their teams for rescue, relief and rehabilitation (Thoresen *et al*., 2009). ILO worked in partnership with agencies such as FAO, UNDP, UNHCR, OCHA, etc. in post-disaster response and reconstruction. ILO, World Bank and Asian Development Bank worked closely for developing recovery strategies for the disaster hit countries. Specifically, the ILO played a pivotal role for employment and livelihood regeneration of the affected areas paying attention to the human rights in post-disaster reconstruction with special attention to child labour, gender equality, trafficking, discrimination against vulnerable groups and arranged decent reconstruction working conditions (Source: Working out of disaster ILO document).

Nowak and Caulfield (2008) discuss about women and livelihoods in post-tsunami India and Aceh, Indonesia. Besides the ILO, almost all countries worked at their best, along with national and international NGOs and other agencies to help the affected population. An important area that needed attention over a period of years was development of post traumatic stress disorders among the victims as well as disaster response and relief workers (Armagan *et al*., 2006; Benedek *et al*., 2007; Fuhimi, 2012; Kato *et al*., 1996, 2012; Kim and Akiyama, 2011; Mahoney *et al*., 2006; Prasetiyhawan *et al*., 2006; Neria *et al*., 2008; NIMHANS, 2010). As is apparent from the foregoing section, livelihood reconstruction was mainly done by the respective Governments, along with help from various NGOs.

Joint evaluation of the international response to the Indian Ocean tsunami was done in a report under coalition (Telford *et al*., 2006). Some of the challenges of the 2004 Indian Ocean tsunami for strategic international human resource management in multinational enterprises are highlighted in an interesting article (Merlot and De Cieri, 2012). National progress reports (2009-2011) on the implementation of the Hyogo Framework for Action are important documents to gauge the progress made in the respective countries.

SECTION 1.2

THE 2011 TOHOKU EARTHQUAKE OR THE GREAT EASTERN JAPAN EARTHQUAKE

CASE STUDY – 5:

The land of Japan experienced a massive earthquake of magnitude 9.0 on 11th March 2011 at 14:46 (JST). The 2011 earthquake Tohoku earthquake's Romaji name is 'Higashi nihon dai-shinsai' and is also often referred to as the Great East Japan Earthquake. The Pacific coast of the North Eastern part of the Tohoku Region was struck by an earthquake, which was a scale larger than anyone had ever expected or even dreamt of. Japan is an archipelago of 6,852 islands and is located on the Ring of fire, and has a recorded history of earthquakes. The 2011 Tohoku earthquake is considered as the largest earthquake ever recorded in the history of Japan. The earthquake caused wide spread destruction and brought with it untold misery, suffering, livelihood, loss of lives, assets, human resource and economic loss (Shaw, 2011) for the entire nation. The loss was not only for the Japanese community who were directly affected, but the entire world was in grief, saddened and taken back by this disaster of immense proportions. The hypocentre of the earthquake was approximately 24 km deep (Latitude-38°6.2' N and Longitude 142° 51.6'east), off shore at Sanriku, 130 km east south east off Oshika Peninsula. Earthquake early warning was issued immediately after 8.6 seconds of the detection of the first P-wave at the nearest seismic station (Source: Japan Meteorological Agency (JMA) http://www.jma.go.jp/jma/en/2011_Earthquake/Information_on_2011_Earthquake.html).

The 2011 Tohoku Earthquake occurred across the fault, where the Pacific Plate subducts under the plate on which Japan is situated. The north eastern region of the Honshu Island (the main island of Japan) of Japan, was shifted by about 5 m eastward, and the seabed displaced by approximately 5m for over an area of 15000 km^2 (Source: Insights from the Great 2011 Japan earthquake by Thorne Lay and Hiroo Kanamori). According to the Japan Meteorological Agency (JMA), the maximum seismic intensity recorded was 7 in the Kurihara city of the Miyagi Prefecture, 6+ in 28 cities and towns in Miyagi, Fukushima, Ibaraki, and Tochigi Prefectures and seismic intensity of less than 6 and even weaker was recorded from Hokkaido to Kyushu Prefectures. There were several aftershocks and the largest aftershock was felt on 11 March 2011 15:15 JST of 7.6 magnitude. There were 6 aftershocks of magnitude 7 or >7, 102 aftershocks of 6 or >6 and 671 aftershocks of magnitude 5 or >5 (Source: Japan Meteorological Agency (JMA) http://www.jma.go.jp/jma/en/2011_Earthquake/Information_on_2011_Earthquake.html).

The Ensuing Tsunami and Other Following Disasters

The Great Eastern Japan Earthquake caused displacement of the seabed, which resulted in the generation of huge gigantic devastating tsunami at 15:31 JST. The tsunami swept with it many villages, fields, farms and cities causing wide spread destruction. The damage was more due to the tsunami than due to the earthquake. The Tsunami Warning System in Japan was so efficient that the first tsunami warning was issued within 3 minutes after the occurrence of the earthquake. The tsunami approached and wrapped the Northern part of Japan in its gigantic waves and swept everything that came in its way. The tsunami receded spreading and affecting the areas of eastern, central western part of pacific coast of Hokkaido, Pacific coast of Aomori, Iwate, Miyagi, Fukushima, Ibaraki, Chiba prefecture, Kujukuri and Sotobo area and Izu islands (Parashar *et al*., 2011).

The areas worst hit by the tsunami were Iwate, Miyagi, Fukushima prefectures. http://fpc.state.gov/documents/organization/159785.pdf (Nanto *et al*., 2011).

The maximum tsunami height reported was approximately 40 m at the Omoeaneyoshi district of Miyako, in Iwate prefecture and 9.3 m wave height was recorded in the Soma city, Fukushima prefecture (Source: The telegraph, UK; http://www.ouramazingplanet.com/1517-japan-tsunami-height-40-meters.html ; http://www.nippon-sekai.com/main/articles/great-east-japan-earthquake-of-2011/march-11th-tsunami-reached-heights-up-to-40-meters/). The energy released from the earthquakes is represented in Table 1.3.

Table 1.3. The energy released from the earthquakes that resulted in the 2004 Indian Ocean Tsunami and the Tohoku earthquakes were as follows:

Tsunami	Epicentre	Magnitude	Energy Released	Depth (under water)
Indian Ocean Tsunami, 2004	West coast of Sumat	9.1	2.0 Exajoules	30 km
Tohoku Earthquake Tsunami, 2011	Miyagi Prefectu Japan	9.0 (biggest ever earthquake recorded in Japan)	$20x10^{17}$ Joules	24 km

The devastation caused by this horrific disaster didn't end with this tsunami. There were several incidents of fire in the disaster affected area. These incidents were monitored by the Japan Police Agency (JPA) and Fire and Disaster Management Agency worked with the fire fighters. The colossal use of highly-trained and efficient human resource displays the efficient human resource management procedures in place in Japan.

In addition, 11th March 2011 brought with it many complex problems not only for the Japanese community, but also for the world at large. Due to the massive earthquake, three of the six reactors at the Fukushima Daiichi nuclear power plant were shut down automatically. The backup system of the diesel generators, which was for supplying the water for cooling the fuel rods inside the reactors, failed due to the high waves of the tsunami (Chandler, 2011). At 15:30 JST on March 12, 2011, the first hydrogen explosion took place at the number one reactor and led the Japanese government to evacuate people within a 20km radius around the Fukushima Daiichi power plant. The Japanese Government then classified the situation at the Fukushima Daiichi nuclear power plant as a number 4 "Accident with Local Consequences" on the International Nuclear and Radiological Event Scale (INES), which was later upgraded to 7 (equivalent to Chernobyl) on 26 April 1986 (Sharma and Arora, 2011; Arora *et al*., 2013a,e). The aftermath involved a situation of great stress amongst the population, mainly pertaining to radiation health risks and brought to the memory of people the risks of the Chernobyl disaster (Meineke and Dörr, 2012). Mental health and psychosocial consequences of disasters in general (WHO, 2006), and nuclear disasters in particular are well known (Loganovsky, 2008; Arora *et al*., 2012; Bromet, 2012).

The earthquake and the tsunami devastated the Tohoku and the other regions. The authorities responded immediately for the infrastructure restoration in the Tohoku region and the other affected areas. Approximately 100,000 houses were demolished and 60,000 were partially destroyed by the disaster events. Direct damage to the stock (capital, housing and private corporate facilities) was estimated to be approximately 16-25 trillion Yen. Inundation caused by the tsunami was 561 square km throughout Japan. Surprisingly, much wider areas were inundated, as compared to the predictions made on the basis of the Hazard maps (Source: White Paper on Disaster Management, Japan, November 2011). According to the Japan White Paper, this disaster caused greatest number of causalities, since World War II. The damage was huge and the disaster took

15,270 lives, while 5,364 people were injured and 8,499 were missing [Source: The National Police Agency (NPA)]. Approximately 154,486 people were evacuated from the disaster site (Fig. 1.7; Source: Fire and Disaster Management Agency-June 2, 2011).

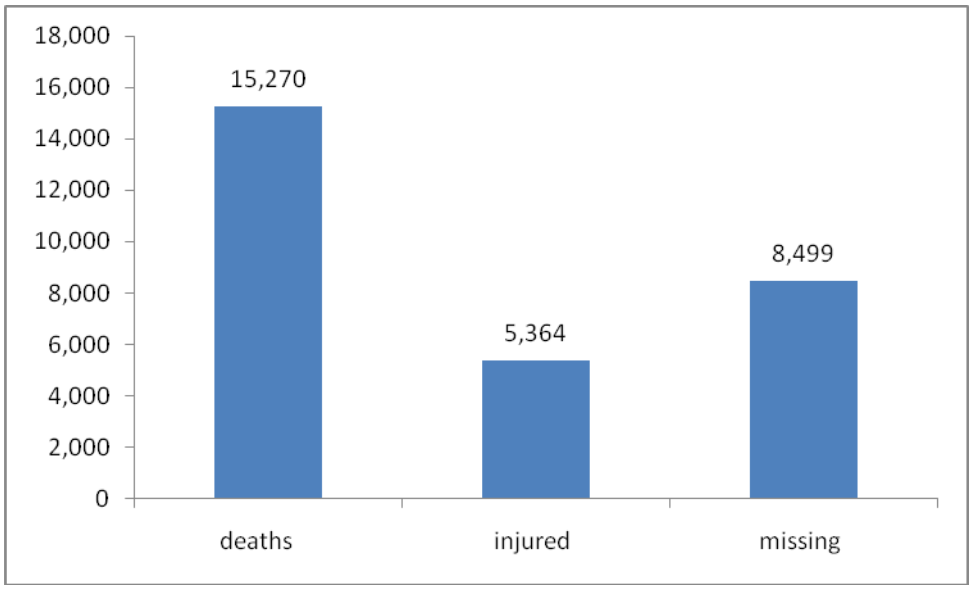

Fig. 1.7. Graph showing the number of casualties, people injured and missing in Japan (Source: The Japanese National Police Agency (JNPA), Japan).

Emergency response team was established under the leadership of the Prime Minister after the disaster in Japan without delay. Ministry of Defence deployed all the available resources of the Japan Military. The Government of Japan utilized immense human resource to manage this disaster of huge proportions. In all, the Government dispatched 307,500 of the National Police Force and the Fire and Disaster Management Agency deployed 27,373 teams. 110,000 troops of the Japan Self Defence Forces (JSDF) were deployed for the recovery post-disaster (Source: White Paper on Japan, November 2011). In Eastern Japan coordination system between the government offices, NGOs, civil society organisations was setup and maintained by the Japan Civil Network for Disaster Relief. The unprecedented scale of the disaster necessitated the colossal deployment of human resource and in the process efficient human resource management practices were employed (ReliefWeb). The disaster left a number of lessons to be learnt, which have begun to be recorded (Arora, 2011; Arora *et al*., 2012; Arora *et al*., 2013a,b,c,d,e; Lay and Kanamori, 2011; Yamazaki *et al*., 2011; Yasumura *et al*., 2012). Coastal areas as far away as California had to be sensitized to prepare for a response (Hunter *et al*., 2012).

HRM Strategies for Employment Generation and Labour-related Issues in Japan

'Japan as One Work' Project

To support the employment needs, job creation, stopping of efflux of the disaster victims from their hometowns in the aftermath of the 2011 Great East Japan Earthquake, 'Japan as One' work project was launched on April 5, 2011 at the "Conference on promotion of

employment support and job creation for the disaster victims". The three phases of the project were formulated and implemented (Source: Ministry of Health, Labour and Welfare of Japan; Fig. 1.8, 1.9 and 1.10). Disaster prevention and reconstruction from a gender equal society perspective has been given due attention in Japan, following the 2011 disasters (The White Paper on Gender Equality, Cabinet Office, 2012).

Fig. 1.8. Phase I of 'Japan as One' Work Project.

All the ministries of the Japan Government jointly made efforts in formulating the overall countermeasures for the employment support and job creation for the disaster victims of the Great East Japan earthquake. The guideline "to support the disaster victims employment and living by Japan becoming one" was also launched for the better implementation of the project. Approximately 44,000 people got employment under the 'Japan as One' work project phase 1.

Countermeasures for the Phase 2 were finalised at the conference. Measures were in accordance with the supplementary budget and new legislation. The main target was to create employment and employment support for more than 1.7 million people. Implementation of the Phase 2 benefitted 200,000 people with employment creation and employment of 1.5 million was supported. For the Phase 3 approximately 580,000 people were expected to be benefitted by the job creation and support.

The 2011 Japan Disasters
JAPAN AS ONE: PHASE 2

Countermeasures for the Phase 2 were finalised at the conference.

- Phase 2 included
  - Improvement of the reconstruction projects and inclusion of disaster prevention measures.
  - Employment support and development of the employment opportunities
  - Subsidizes the businesses that give placement to the disaster victims
  - Development of the job creation fund projects
  - Augmentation of vocational training
  - Expansion of the employment adjustment subsidies
  - Exemption of various insurance premiums
  - Expansion of the extended payments of employment insurance benefits
- Measures were in accordance with the supplementary budget and new legislation.
- The main target was to create employment and employment support for more than 1.7 million people.
- Implementation of the Phase 2 benefitted 200,000 people with employment creation and employment of 1.5 million was supported.

Source: MHLW, Japan

Fig. 1.9. Phase II of 'Japan as One' Work Project.

The 2011 Japan Disasters
JAPAN AS ONE: PHASE 3

- For the Phase 3 approximately 580, 000 people were expected to be benefitted by the job creation and support.
  - Phase 3 included
    - Measures and integrated support for the employment creation and industrial reconstruction
    - Training of the personnel working in the reconstruction and to employment generation to create a more long term stable employment
    - The worst hit prefecture is the Fukushima Prefecture as it has left behind the devastated community, the local community in the Fukushima prefecture suffered huge losses in terms of lives, health, livelihood, employment, the administration had to face and tackle many rumours in addition to the revitalisation of the prefecture as a whole.
  - The prefectural government is working on a number of plans to make the Fukushima a better place to live a health, beautiful, happy life free of the nuclear radiation.
  - This process as estimated by the Fukushima municipal government will take approximately 10 years.

Source: MHLW, Japan

Fig. 1.10. Phase III of 'Japan as One' Work Project.

Fukushima Prefecture was the worst hit prefecture by the 2011 Japan disaster and the local community suffered huge losses in terms of lives, health, livelihood and employment. The administration has had to face and tackle many rumours in addition to the revitalisation of the prefecture as a whole. The prefectural government has worked on a number of plans to make Fukushima a better place to live a health, beautiful, happy life free of nuclear radiation. This process, as estimated by the Fukushima municipal government, will take approximately 10 years. The role of human resource in accomplishing this can't be underestimated and there is a need to learn from the Japanese experience so that such risks can be avoided and effectively managed.

SECTION-2

RESEARCH METHODOLOGY

With a view to investigating the effectiveness of various management (mainly HR) currently being employed for employment recovery and business continuity at national level in Japan, a survey method was employed and a comparison of the lessons learnt has been made with the 2004 Indian Ocean tsunami.

Data Collection Method and Participants

The distribution of the sample among the various categories is given below in Fig. 2.1:

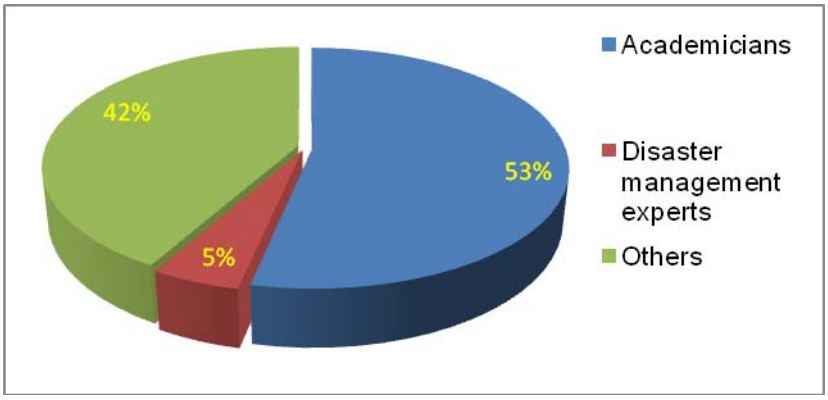

Fig. 2.1. The sample comprised of Academicians, Disaster Management Experts and Others (Officers involved in policy making, human resource management, graduate students, employees of NGOs, Vocational Training Center, Hello Work Offices etc.).

The sample mainly comprised of experts who were directly or indirectly involved in disaster response planning and implementation of disaster management plans and policy makers, although others were also included, including those who were directly or indirectly affected by the disaster. Primary data was collected and compiled by contacting experts from various organizations/agencies. Primary data was collected through: unstructured interview; semi-structured interview; structured interview (questionnaire method). The study specifically included personal discussions with University Professors, Disaster Management Professionals, officials directly or indirectly involved in disaster response planning and implementation of plans for generation of HR plans for employment post-disaster, academicians, students and other departments. The face to face interaction in the form of semi-structured interview was carried out to find any uncovered aspect and for elaboration of the emerged issues. The unstructured and semi-structured interviews were taken to further validate the structured questionnaire.

In terms of age, the sample fell in the range of 22-73 years, with the average age of respondents being 43.41years.

Field Visits

Field visits, mainly to the maximum affected Tohoku region, were undertaken to see and assess the on-ground situation and meet with Hello Work officials, NGOs, professors, scientists, graduate students and academicians working in the disaster-affected Tohoku prefecture.

Sources of Secondary Data

Secondary data was collected from published information in the form of white papers, research papers etc. from the following sources:

- *Authentic websites of International Organizations like:*
  - *Ministry of Health, Labour and Welfare (MHLW)*
  - *Ministry of Education, Culture, Sports, Science and Technology (MEXT)*
  - *United Nations (UN)*
  - *Preventionweb*
  - *National Women's Education Center (NWEC)*
  - *FAO etc.*
- *White papers and the published materials by the Ministries*
- *Peer-reviewed international journals*
- *Situation reports of various International Agencies (like UN, WHO etc.)*
- *In-house bulletins and other bulletins.*
- *Published views of significant officials and authorities in the Cabinet Office.*
- *Reputed International and National Newspapers and magazines.*
- *Manuals, Training and Development Calendars, Pamphlets etc.*

The overall conclusions of the study have been discussed in the light of contemporary literature.

It is anticipated that the conclusions and suggestions would help in designing and integrating holistic employment-oriented programmes in DM plans. Endeavours have been made to suggest measures for better HR planning and implementation in the wake of disasters.

Tools Used

The data for the study was collected by administering comprehensive tools to Human Resource Management Experts, Disaster Management Experts, Officers from the ministries involved in policy making, academicians and students etc. and included major dimensions ranging from policies, training, organizational and employment issues with special reference to: job creation/ job reconstruction, gender, ageing population and

workforce, societal and psychosocial issues. The mentioned tools were originally generated and relevant items were used to meet the objectives of the present study. The tool was standardized and validated before its administration.

The sample was targeted through different questions to gather information regarding the profound knowledge, profound strategy, purposeful direction and purposeful behaviors of the disaster management policy makers, experts and implementers. These dimensions were taken to achieve the target and to know the effectiveness of the policies and the policy makers in the aftermath of the mega disaster of 2011 Japan disasters.

Structured Interview (Questionnaire Method)

The questionnaire was designed by me and further validated and standardized by the experts in the field to get appropriate answers to the targeted questions and achieve the desired outcome and meet the objectives of the present study. The questionnaire was developed and administered to the target sample. In order to get additional inputs, face to face interviews in the form of informal conversations were conducted in Japan with the officers, experts, academicians and students. The observations were recorded to supplement and elaborate upon the issues from the perspective of the targeted population.

Procedure

In order to collect the data, The Japan Institute for Labour Policy and Training, Tokyo, Japan facilitated the visits to different locations, NWEC and other Universities. I personally met most of the respondents after seeking appointments telephonically or via emails. When contacted personally, after the initial rapport formation with the participants, the participants were informed about the purpose of the visit and the questionnaire was distributed. Thereafter, relevant instructions were given for filling up the questionnaire and the participants were requested to honestly and openly respond. They were assured that their personal identities with respect to the responses would not be revealed. After clarifying their doubts, if any, they were asked to start writing the responses. No fixed time limit was there to fill the questionnaire and the participants were asked to take their time to fill the questionnaire. I was available amidst them to clarify any doubts, while the questionnaires were in the process of being filled. After the questionnaire filling was done, I interacted with the participants for the semi-structured interviews in person and in some cases in groups. The responses to the questions were recorded down for the analysis and as a supplement to the questionnaire data. Once the required responses had been sought, the participants were debriefed and thanked for their cooperation. The data collected from all the places was clubbed and analysis was carried out. All efforts were made to maintain the objectivity in the analysis and avoid any possibility of bias during the analysis. For the purpose of report, combined analysis of the participant's response from the different fields was done.

Steps Taken to Control Biased Response and Exaggerated Responding

- Majority of the items included in the questionnaire were positively worded.
- The issues were presented in a generalised broader format rather than specifying the micro-level issues.

Data Analysis

The objective questionnaire data were analysed quantitatively by distributing the respondents in the different groups i.e, academicians, disaster management (DM) and other experts (officers involved in policy making, academicians/graduate students, officials of NGOs, Vocational Training Center, Hello Work Offices etc.) The average of the responses on the five point Likert scale was computed and the results displayed by means of bar and pie charts.

Limitations of the Study

Despite the best of planning and all precautions taken, some limitations do remain in any kind of research project. In this study too, there have been some limitations that are apparent and are listed.

1. It is indeed difficult to compare two similar, but entirely different disasters in different countries, that are separated by years in-between. It has been possible to collect primary data only for the 2011 Japan Disaster under post-disaster setting. For the Indian Ocean Tsunami, I have relied mainly on the published reports only, which in turn were utilized to compare the Indian Ocean Tsunami and the 2011 Japan Triple Disaster in terms of lessons learnt.
2. Some of the reports were in Japanese and difficult to access, without learning the language. Some of the Japanese reports were got translated with the help of a translator. Some other reports, mainly pertaining to the 2004 tsunami, were available in vernacular languages of the countries affected. All reports could not be interpreted.
3. Several of the eminent people exhibited reluctance in sharing information for reasons best known to them.
4. Despite the best efforts to recruit as many respondents as possible during the period of two months of my stay in Japan, only a limited number of respondents could be interviewed.
5. There were some inherent constraints like difficulties as a foreigner researcher to contact senior ministers and ministry officials.
6. Paucity of funds to visit several other cities affected by the disaster was perceived.
7. Though the time for the study was appropriate and commensurate with the targets set, this is an area that demands more detailed studies, which could be taken up further if proper funding and support are made available.

8. Some respondents may not have given the right picture-fact hiding is possible- either due to ignorance or deliberately- for fear from Government authorities, National pride or for other unspecified reasons. This can be a limitation at times in any such study of this kind. To reduce and avoid the likelihood of such responses to the extent possible, a normalized questionnaire was specially developed, validated, tested and employed.

While it is admitted that some of the above mentioned limitations did exist, they have in no way been an impediment to the analysis of the data and the conclusions derived thereof in this report.

SECTION-3

RESULTS

In order to evaluate the perception of the Japanese experts engaged in the field of human resource management, disaster management, policy making, and other experts, including officials from ministries, University Professors and faculty members, NGOs and students engaged in reconstruction work in the aftermath of Japan 2011 disaster, the responses were sought vis-a-vis 38 questions. The respondents were categorized into three categories viz., academicians, disaster management experts and other experts. Since the 2011 GEJE was a mega disaster, followed by many secondary disasters affecting the lives of millions of people, the reconstruction work was a challenge as the government had to focus on multiple agenda encompassing rescue, relief, rehabilitation, reconstruction of the affected community and in addition had the additional pressure of cooling of the nuclear reactors at Fukushima power plant. The response from the targeted sample (divided into three broad categories viz., Academicians, Disaster Management Experts and other Experts) helped analyse what worked and what did not work during the various phases post-disaster, especially with special reference to the role of the human resource in preparedness, reconstruction-related work and livelihood issues of the affected community. The data collected through administration of comprehensive tools to human resource management experts, disaster management experts, and professors and faculty members, officers from the ministries involved in policy making, academicians and students etc. on major dimensions ranging from policies, training, organizational and employment issues with special reference to: job creation/ job reconstruction, gender, ageing population and workforce, societal and psychosocial issues has been collated, analyzed and discussed in the light of contemporary literature.

Quantitative Analysis

Based on the analysis of the quantitative data collected from the respondents from different fields and locations, the obtained results have been explained in terms of percentage of respondents who responded on the Likert on each dimension. For better understanding, graphical representation of the results has been provided along with a brief description.

Policies

1. Upon being asked whether the policies were flexible enough to enable quick and systematic initiatives (based on the on-ground situation), 11.71% academician experts strongly disagreed, while 45.05% disagreed, 33.3% were neutral and only 9.91% of the academicians agreed. 10% of the Disaster Management (DM) experts on the other hand strongly disagreed, 30% disagreed, 40% were neutral, and 20% agreed. Other experts opined as follows: 8.05% strongly disagreed, 37.93% disagreed, 45.97% were

neutral, and only 8.05% agreed. When the data from all the experts was analyzed in totality, it emerged that 10.1% strongly disagreed, 41.35% disagreed with respect to the flexibility of the policies enabling quick and systematic, 38.94% were neutral in their response, while 9.61% agreed (Fig 3.1).

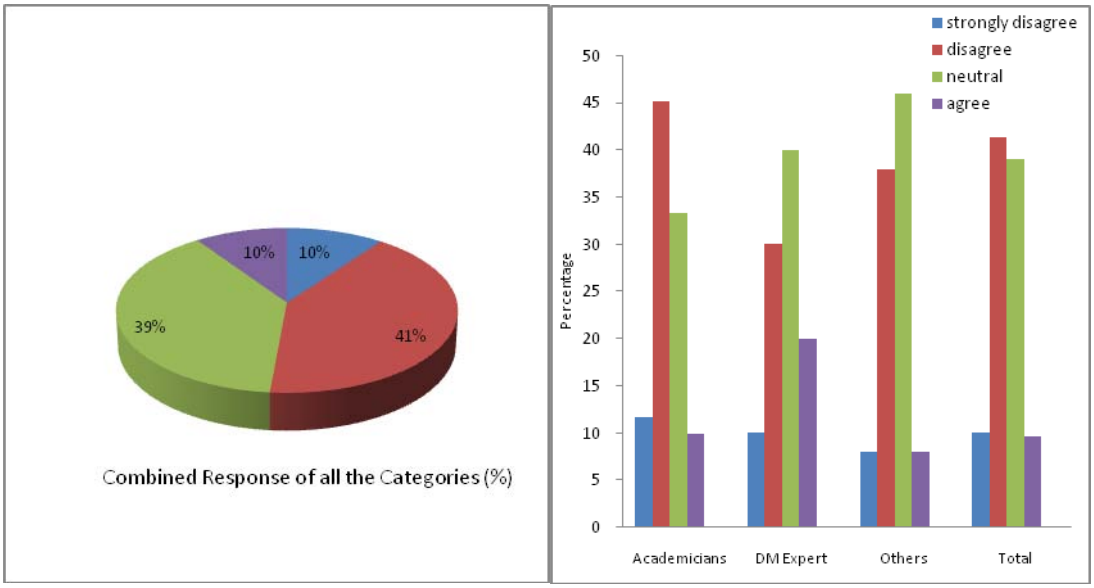

Fig 3.1. Responses to the question: The policies were flexible enough to enable quick and systematic initiatives (based on the on-ground situation).

2. The respondents when asked whether adequate attention has been paid to integrate HR planning with the policy responded as follow: 9.01% academician experts strongly disagreed, while 36.94% disagreed, 31.53% were neutral and 22.52% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, only 20% disagreed, 30% were neutral, and 50% agreed. Other experts opined as follows: none strongly disagreed, 39.08% either disagreed or were neutral, 19.54% agreed and only 2.3% agreed. When the data from all the experts was analyzed in totality, it emerged that 4.8% strongly disagreed, 37.02% disagreed 34.62% were neutral in their response, 22.6% agreed, while only 0.96% strongly agreed (Fig 3.2).

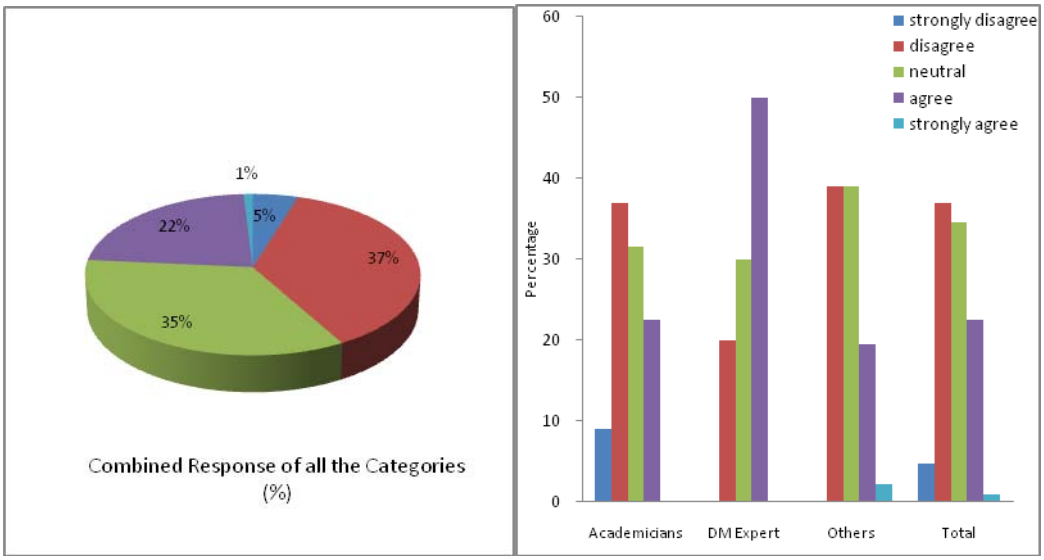

Fig. 3.2. Responses to the question: Adequate attention was paid to integrate HR planning with policy.

3. When the responses to the question whether the community is involved in the process of framing and implementation of the policies were recorded, 7.21% academicians strongly disagreed, while 34.23% disagreed, 31.53% were neutral and 21.62% of the academicians agreed, while 5.41% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 50% disagreed, 30% were neutral, and 20% agreed. Other experts opined as follows: 5.75% strongly disagreed, 31.03% either disagreed, 29.89% each were either neutral or agreed and only 3.44% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 6.25% strongly disagreed, 33.65% disagreed with respect to the concept that the community is involved in the process of framing and implementation of the policies, 30.80% were neutral in their response, 25% agreed, while only 4.3% strongly agreed (Fig 3.3).

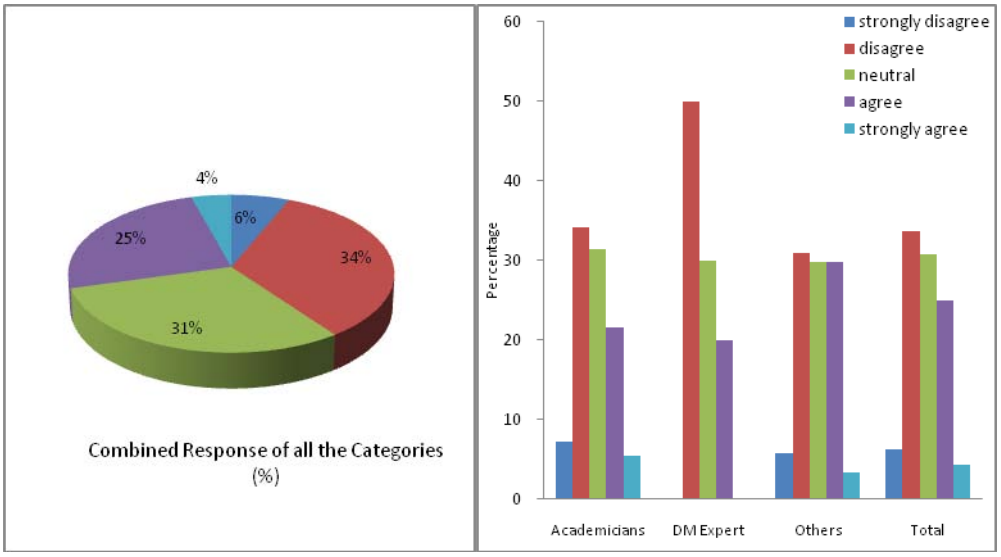

Fig. 3.3. Responses to the question: The community is involved in the process of framing and implementation of the policies.

4. When the respondents were asked to reply to the question whether women are included as active partners in policy making was recorded, the following response was obtained. 12.61% academicians strongly disagreed, while 24.33% disagreed, 40.54% were neutral and 22.52% of the academicians agreed, while none strongly agreed. 20% each of the Disaster Management (DM) experts on the other hand either strongly disagreed or disagreed, 10% were neutral, and 50% agreed. Other experts opined as follows: 11.5% strongly disagreed, 20.68% disagreed, 42.53% were neutral and only 22.99% agreed, while only 2.3% strongly agreed.

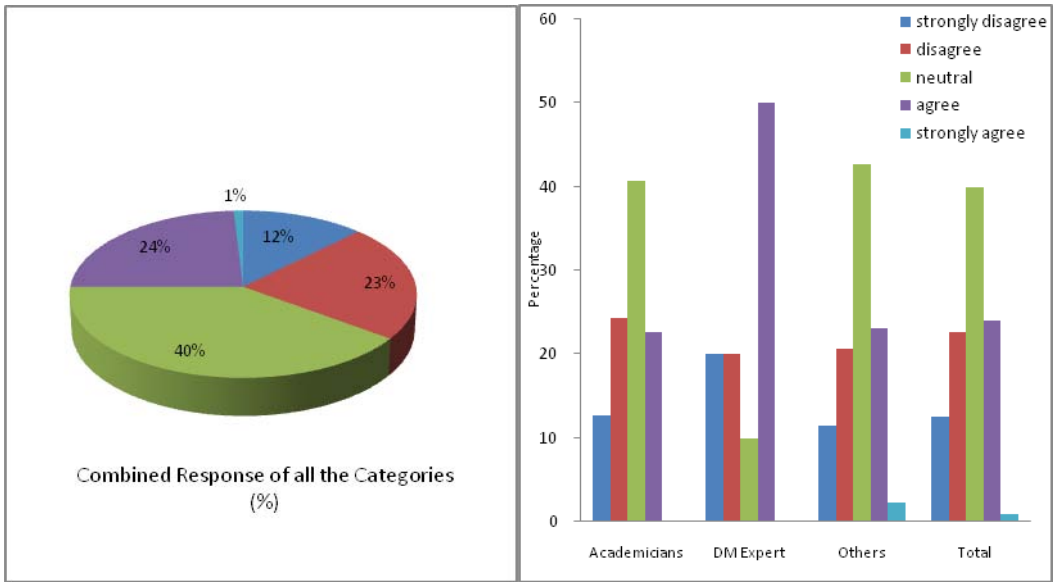

Fig. 3.4. Responses to the question: Women are included as active partners in policy making.

When the data from all the experts was analyzed in totality, it emerged that 12.5% strongly disagreed, 22.6% disagreed, 39.9% were neutral in their response, 24.04% agreed, while only 0.96% strongly agreed (Fig. 3.4).

Training

5. In response to the question whether the training imparted to the workers, engaged in post-disaster reconstruction, was effective 3.6% academicians strongly disagreed, while 25.23% disagreed, 51.35% were neutral and 19.82% of the academicians agreed.

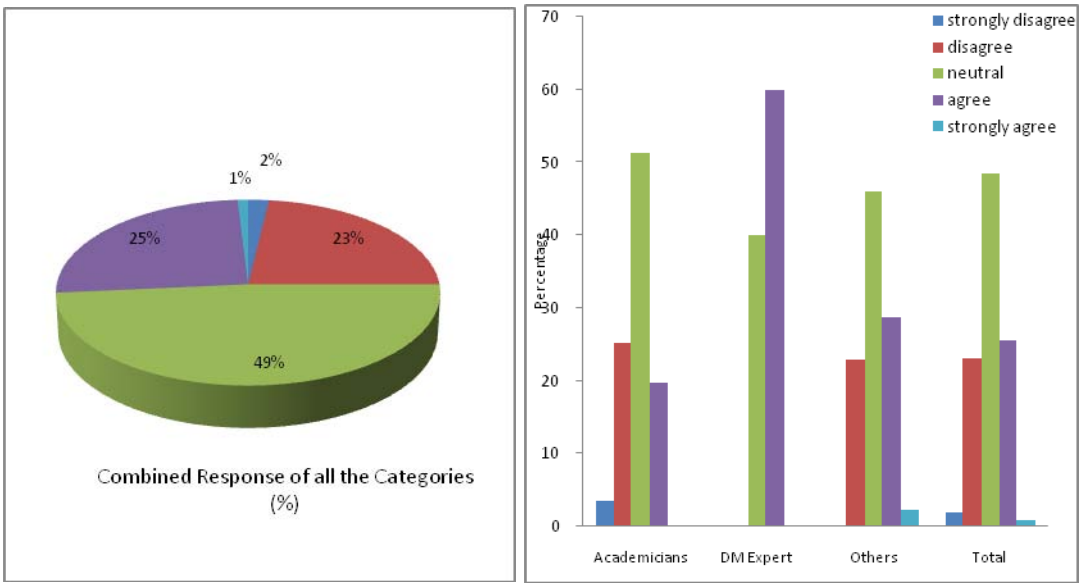

Fig. 3.5. Responses to the question: Training given to the workers, engaged in post-disaster reconstruction, was effective.

None of the Disaster Management (DM) experts on the other hand either strongly disagreed or disagreed, 40% were neutral, and 60% agreed. Other experts opined as follows: None strongly disagreed, 22.99% disagreed, 45.98% were neutral, 28.74% agreed and only 2.29% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 1.92% strongly disagreed, 23.08% disagreed, 48.56% were neutral in their response, 25.48% agreed, while only 0.96% strongly agreed (Fig. 3.5).

6. In response to the question whether the training given to local people in different organizations was useful in reducing disaster impact, 6.31% academicians strongly

disagreed, while 15.32% disagreed, 38.74% were neutral and 39.63% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 40% disagreed, 20% were neutral, and 40% agreed. Other experts opined as follows: 4.59% strongly disagreed, 14.94% disagreed, 48.27% were neutral, 29.9% agreed and 2.3% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 5.29% strongly disagreed, 16.35% disagreed, 41.83% were neutral in their response, 35.57% agreed, while only 0.96% strongly agreed (Fig. 3.6).

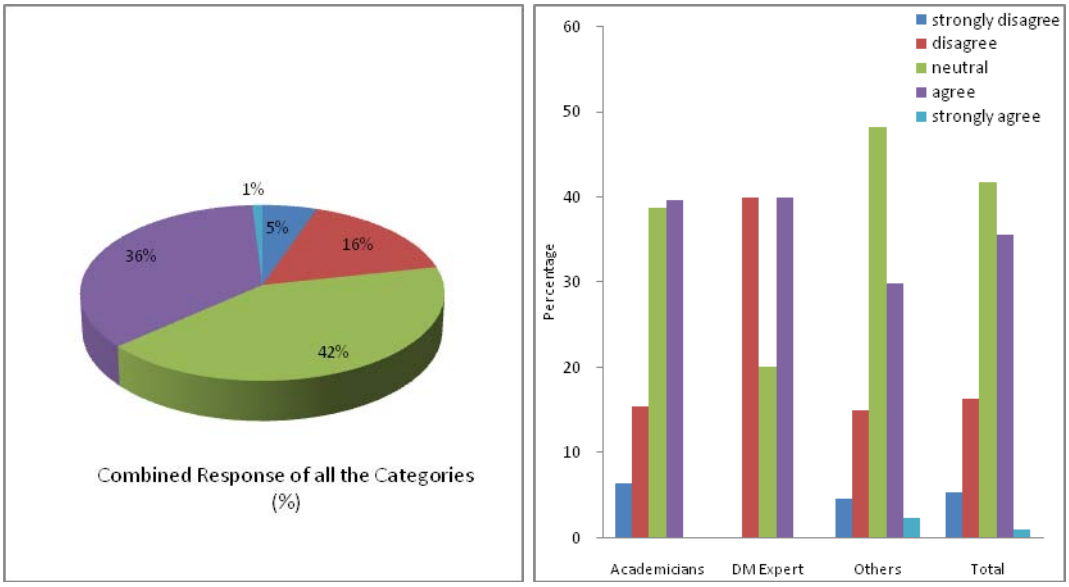

Fig. 3.6. Responses to the question: Training given to the local people in different organizations was useful in reducing disaster impact.

7. In response to the question whether training was imparted to the employees to handle entirely new/additional jobs, in case they lost jobs post-disaster, none of the academicians strongly disagreed, while 27.03% disagreed, 45.94% were neutral and 27.03% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 20% disagreed, 40% each were either neutral or they agreed. Other experts opined as follows: none strongly disagreed, 14.9% disagreed, 50.57% were neutral, 32.2% agreed and 2.29% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 21.63% disagreed, 47.6% were neutral, 29.81% agreed and 0.96% strongly agreed (Fig. 3.7).

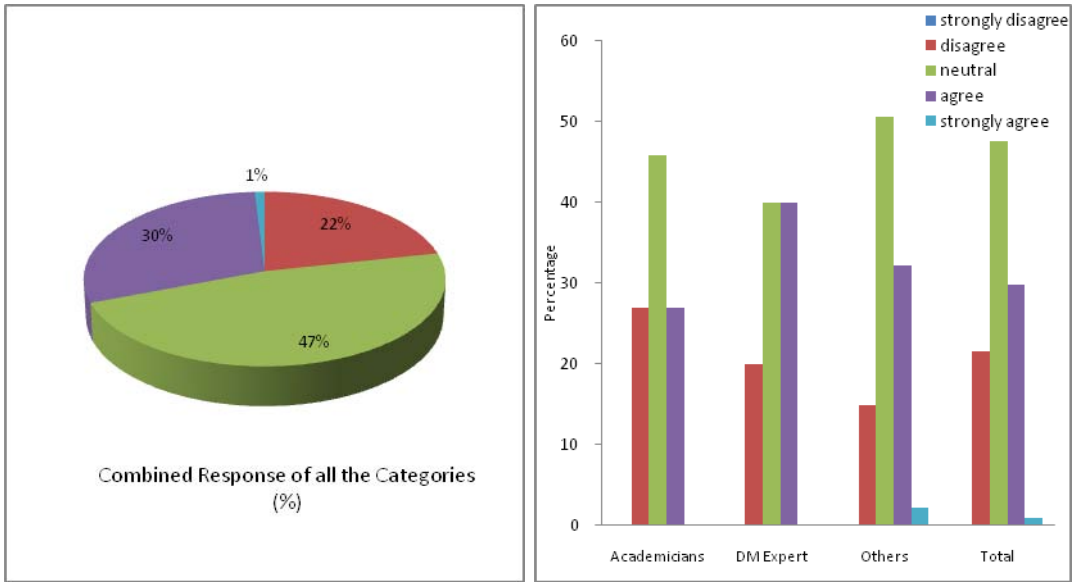

Fig. 3.7. Responses to the question: Training was imparted to the employees to handle entirely new/additional jobs, in case they lost jobs post-disaster.

8. In response to the question whether vocational training provided to young people acted as a safety net in securing/retaining employment, 2.7% of the academicians strongly disagreed, while 27.93% disagreed, 52.25% were neutral, 12.61% agreed, while only 4.51% of the academicians strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 40% disagreed, 50% were neutral and 10% agreed. Other experts opined as follows: 4.6% strongly disagreed, 17.24% disagreed, 48.28% were neutral, 26.43% agreed and 3.45% strongly agreed.

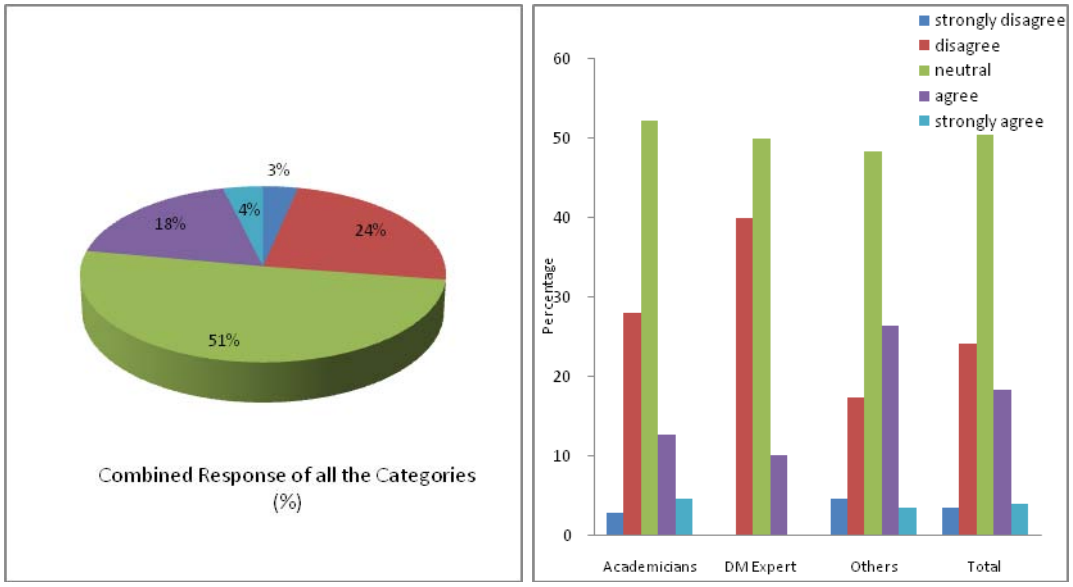

Fig. 3.8. Responses to the question: Vocational training provided to young people acted as a safety net in securing/retaining employment.

When the data from all the experts was analyzed in totality, it emerged that 3.37% strongly disagreed, 24.03% disagreed, 50.48% were neutral, 18.27% agreed and 3.85% strongly agreed (Fig. 3.8).

9. In response to the question whether vocational training helped the young graduates find suitable jobs, 2.7% of the academicians strongly disagreed, while 39.64% disagreed, 37.84% were neutral, 18.92% agreed, while only 0.90% of the academicians strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 30% disagreed, 10% were neutral and 60% agreed, while none strongly agreed. Other experts opined as follows: 4.6% strongly disagreed, 31.03% disagreed, 37.93% were neutral, 23% agreed and 3.45% strongly agreed.

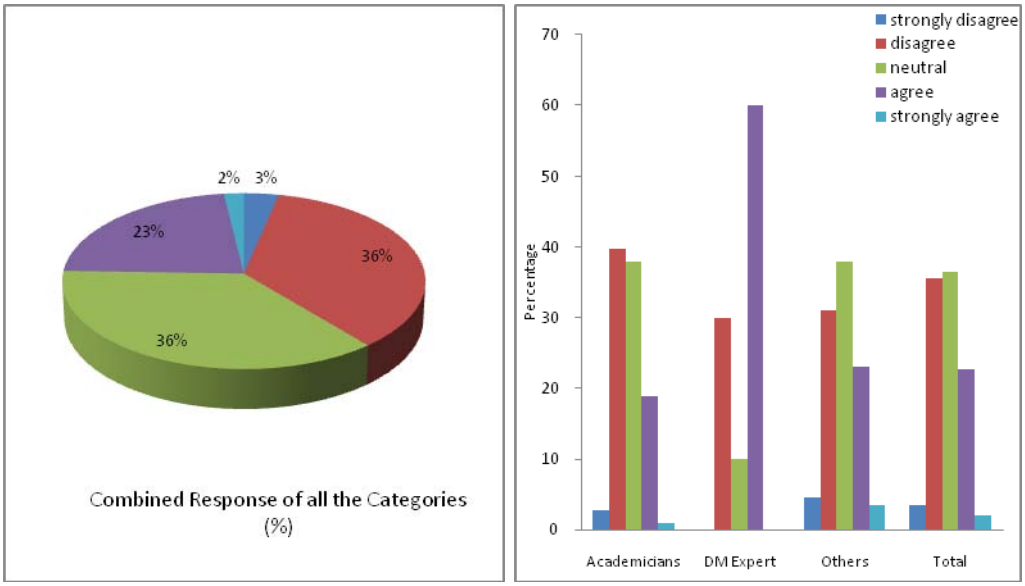

Fig. 3.9. Responses to the question: The vocational training helped the young graduates find suitable jobs.

When the data from all the experts was analyzed in totality, it emerged that 3.37% strongly disagreed, 35.58% disagreed, 36.54% were neutral, 22.59% agreed and 1.92% strongly agreed (Fig. 3.9).

10. In response to the question whether the "support system for job seekers" established were helpful in acquiring early employment through vocational skill development and livelihood support to the job seekers who are unable to receive unemployment benefits, 36.94% of the academicians disagreed, while 36.04% were neutral, while 27.02% of the academicians agreed. None of the Disaster Management (DM) experts

on the other hand strongly disagreed, 60% disagreed, 10% were neutral and 30% agreed, while none strongly agreed. Other experts opined as follows: 36.78% disagreed or were neutral, 24% agreed and 2.3% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that none strongly disagreed, 37.98% disagreed, 35.1% were neutral, 25.96% agreed and 0.96% strongly agreed (Fig. 3.10).

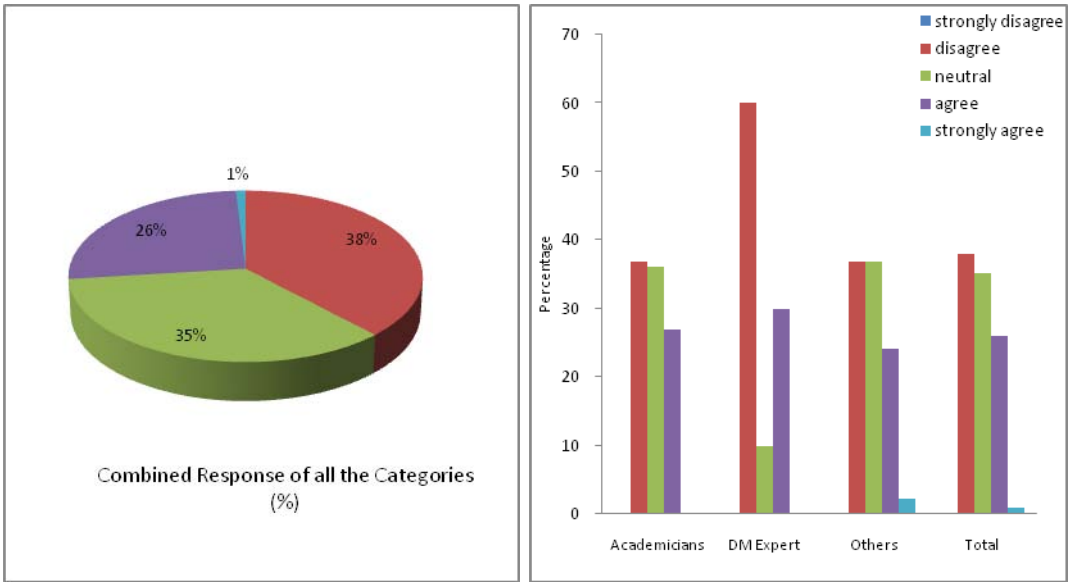

Fig. 3.10. Responses to the question: The "support system for job seekers" established were helpful in acquiring early employment through vocational skill development and livelihood support to the job seekers who are unable to receive unemployment benefits.

11. In response to the question whether the training to adapt to the changing nature of work was sufficient, 52.25% of the academicians disagreed, while 35.14% were neutral, while 12.61% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 70% disagreed, 10% were neutral and 20% agreed, while none strongly agreed. Other experts opined as follows: 39.1% disagreed, 47.13% were neutral, 11.48% agreed and 2.29% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that none strongly disagreed, 47.6% disagreed, 38.94% were neutral, 12.5 % agreed and 0.96% strongly agreed (Fig. 3.11).

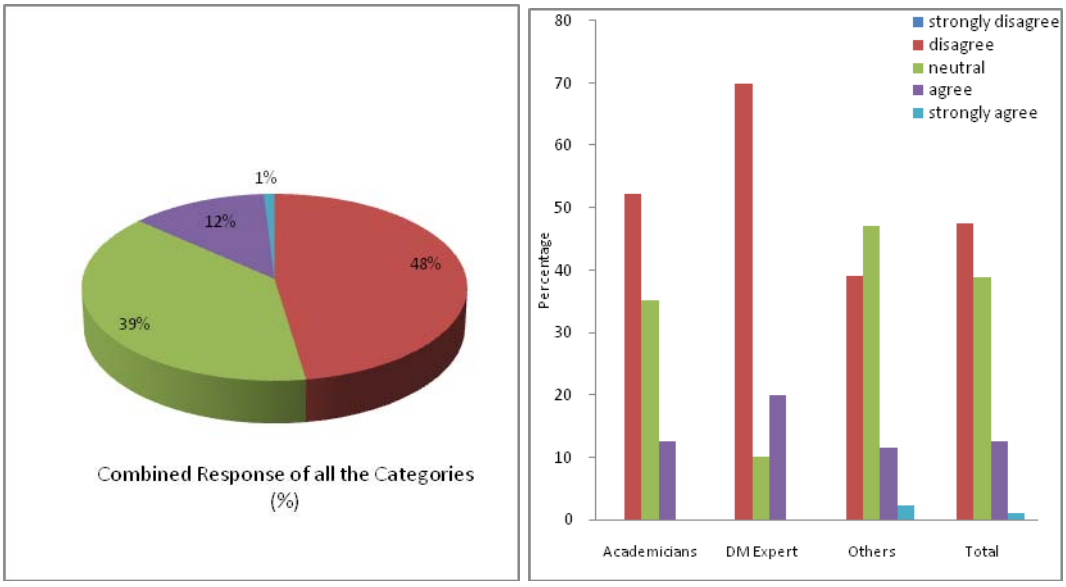

Fig. 3.11. Responses to the question: Training to adapt to the changing nature of work was sufficient.

12. In response to the question whether currently provisions exist for enhancing skills through retraining, development, and educational programs for workers already employed, 1.8% of the academicians strongly disagreed, while 18.92% disagreed, 46.85% were neutral, 32.43% agreed, while none of the academicians strongly agreed. 10% of the Disaster Management (DM) experts on the other hand strongly disagreed, 20% disagreed, 30% were neutral, 10% agreed and 30% strongly agreed.

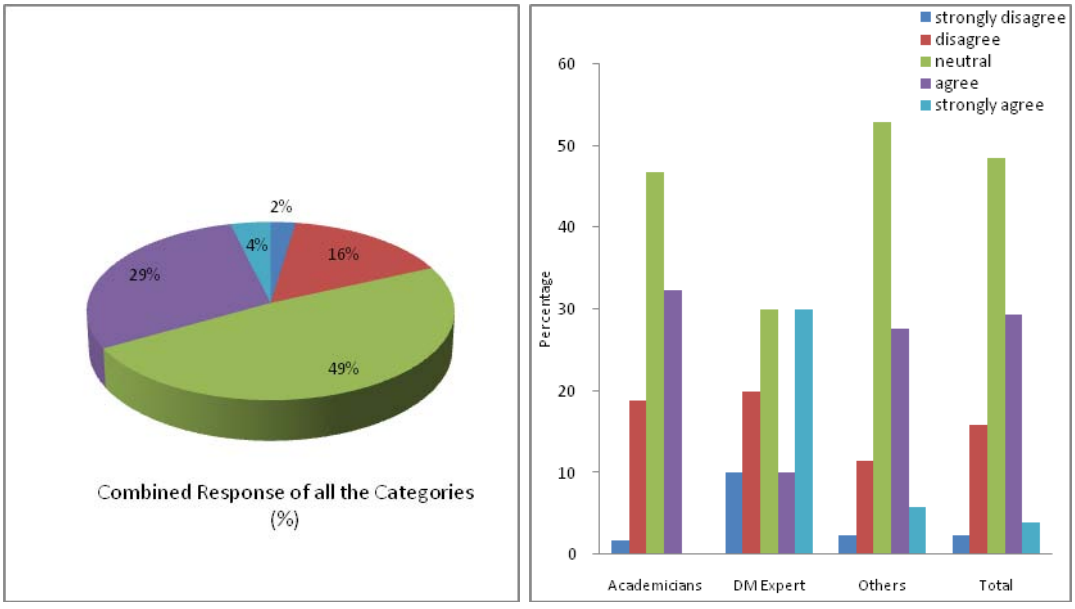

Fig. 3.12. Responses to the question: Currently provisions exist for enhancing skills through retraining, development, and educational programs for workers already employed.

Other experts opined as follows: 2.3% strongly disagreed, 11.49% disagreed, 52.87% were neutral, 27.59% agreed and 5.75% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.4% strongly disagreed, 15.86% disagreed, 48.56% were neutral, 29.33% agreed and 3.85% strongly agreed (Fig 3.12).

13. In response to the question whether community disaster training and mock drills are an effective tool in reducing casualties, 2.7% disagreed, 9% were neutral, 68.48% agreed, while 19.82 of the academicians strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed or disagreed, 30% were neutral, 30% agreed and 40% strongly agreed. Other experts opined as follows: 2.3% disagreed, 12.64% were neutral, 59.77% agreed and 25.29% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.4% disagreed, 11.54% were neutral, 62.98% agreed and 23.08% strongly agreed (Fig. 3.13).

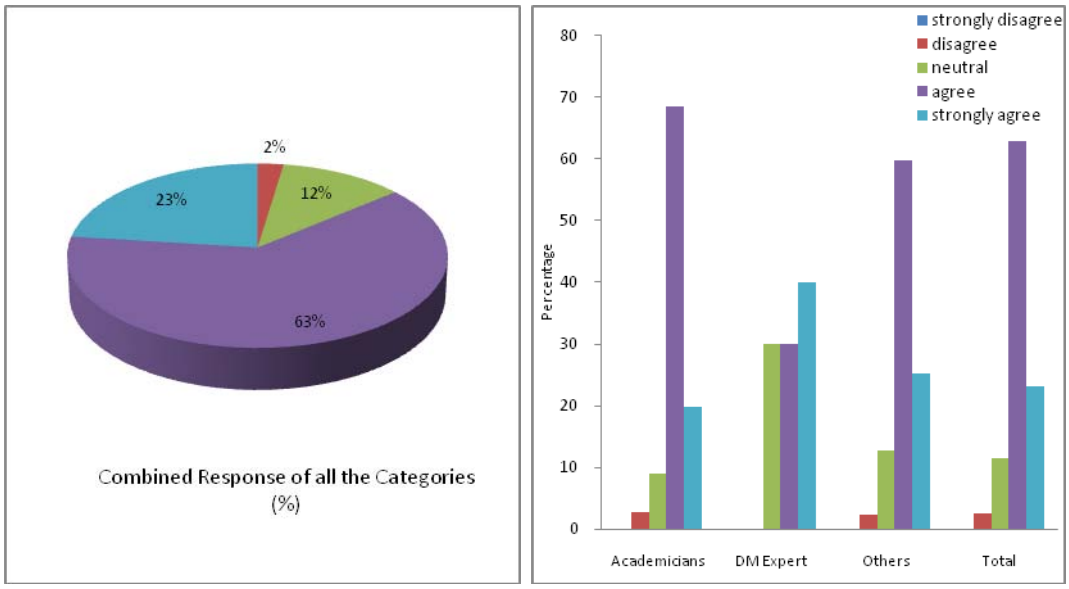

Fig. 3.13. Responses to the question: Community disaster training and mock drills are an effective tool in reducing casualties.

Organizational Issues

14. In response to the question whether the Government made adequate efforts in ensuring livelihood of people following the disaster, 5.41% of the academicians strongly disagreed, while 33.33% disagreed, 35.14% were neutral, while 26.13% of the academicians agreed. None of the Disaster Management (DM) experts on the

other hand strongly disagreed, 30% disagreed, 10% were neutral and 30% agreed, while 30% strongly agreed. Other experts opined as follows: None strongly disagreed, 26.44% disagreed, 34.48% were neutral, 32.18% agreed, while 6.9% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.88% strongly disagreed, 30.3% disagreed, 33.65% were neutral 28.85% agreed and 4.32% strongly agreed (Fig. 3.14).

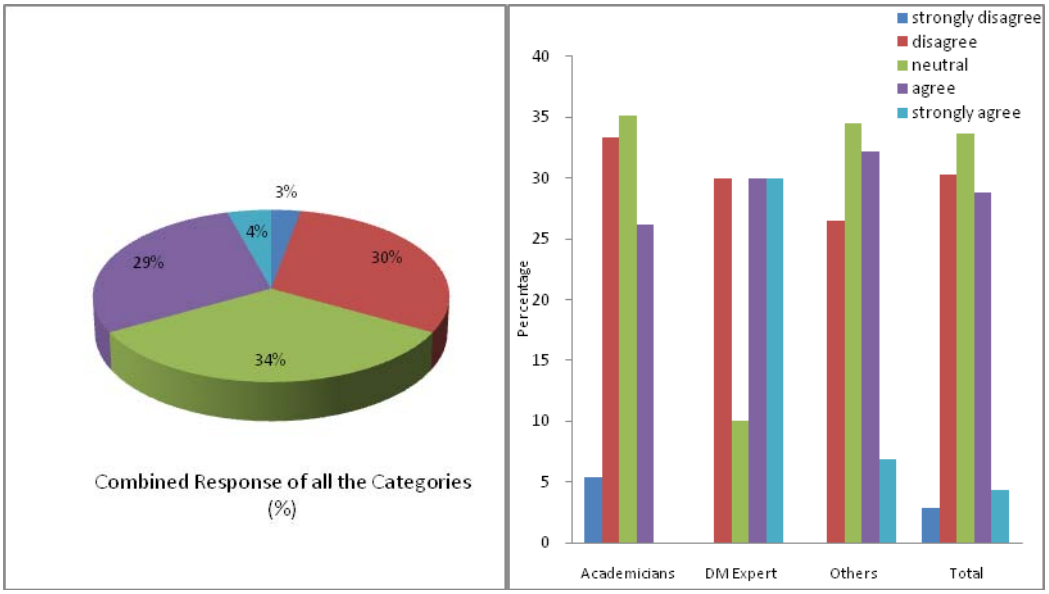

Fig. 3.14. Response to the question: The Government made adequate efforts in ensuring livelihood of people following the disaster.

15. In response to the question whether there should be more linkage of Government with industrial agencies for job creation for local people in the disaster affected areas, none of the academicians strongly disagreed, while 1.8% disagreed, 13.52% were neutral, while 75.68% of the academicians agreed and 9% strongly agreed. On the other hand none of the Disaster Management (DM) experts strongly disagreed, 30% disagreed, 10% were neutral, while 50% agreed and 10% strongly agreed. Other experts opined as follows: none strongly disagreed, 4.6% disagreed, 21.84% were neutral, 62.07% agreed, while 11.49% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that none strongly agreed, 4.33% disagreed, 16.82% were neutral, while 68.75% agreed and 10.1% strongly agreed (Fig. 3.15).

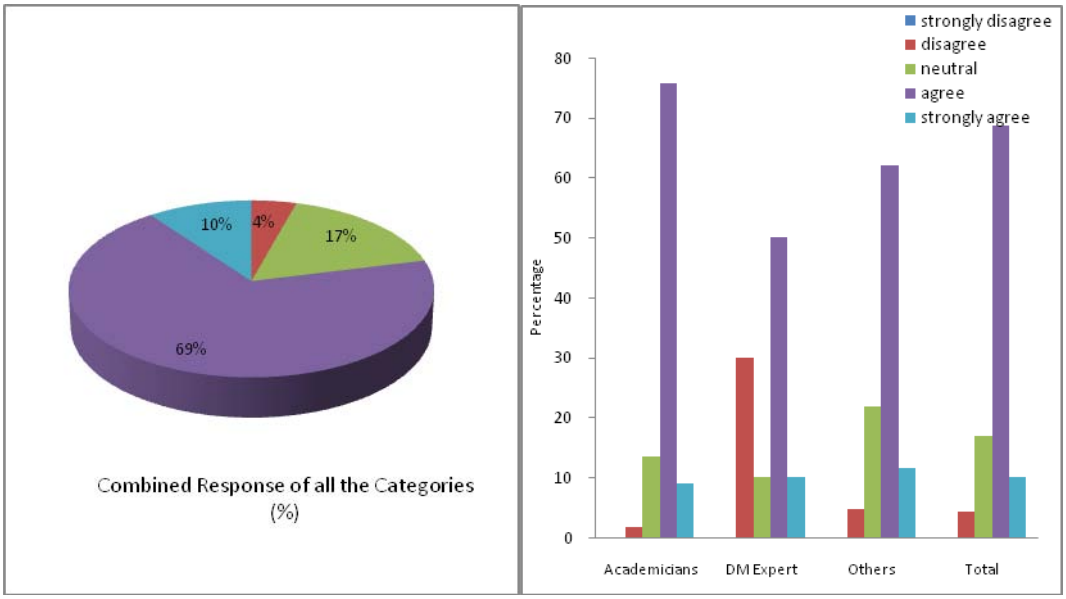

Fig. 3.15. Response to the question: There should be more linkage of Government with industrial agencies for job creation for local people in the disaster affected areas.

16. In response to the question whether partnership of Government with the donor agencies and NGOs for employment reconstruction is adequate, 5.41% of the academicians strongly disagreed, while 28.83% disagreed, 28.83% were neutral, while 24.32% of the academicians agreed and 12.61% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 20% either disagreed or were neutral, while 30% each either agreed or strongly agreed.

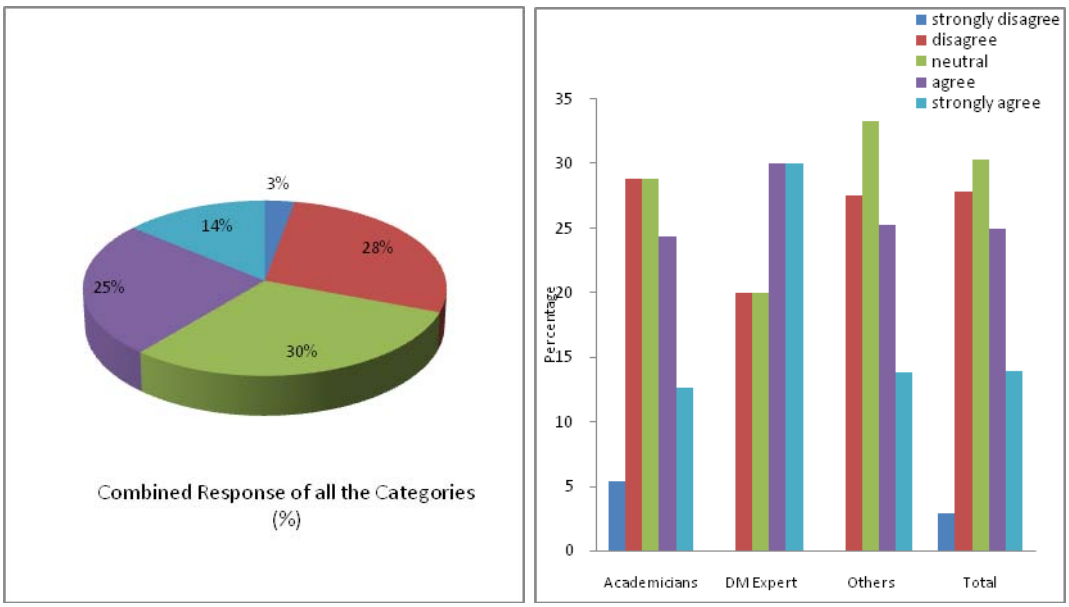

Fig. 3.16. Response to the question: Partnership of Government with the donor agencies and NGOs for employment reconstruction is adequate.

Other experts opined as follows: none strongly disagreed, 27.59% disagreed, 33.33% were neutral, 25.29% agreed, while 13.79% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.88% strongly agreed, 27.88% disagreed, 30.3% were neutral, while 25% agreed and 13.94% strongly agreed (Fig. 3.16).

17. In response to the question whether partnership of Government with International agencies for employment reconstruction should be encouraged, none of the academicians strongly disagreed, 8.11% disagreed, 26.13% were neutral, while 54.95% of the academicians agreed, 10.81% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 10% each either disagreed or were neutral, while 40% each either agreed or strongly agreed. Other experts opined as follows: None strongly disagreed, 9.19% disagreed, 25.29% were neutral, 44.83% agreed, while 20.69% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that none strongly agreed, 8.65% disagreed, 25% were neutral, while 50% agreed and 16.35% strongly agreed (Fig. 3.17).

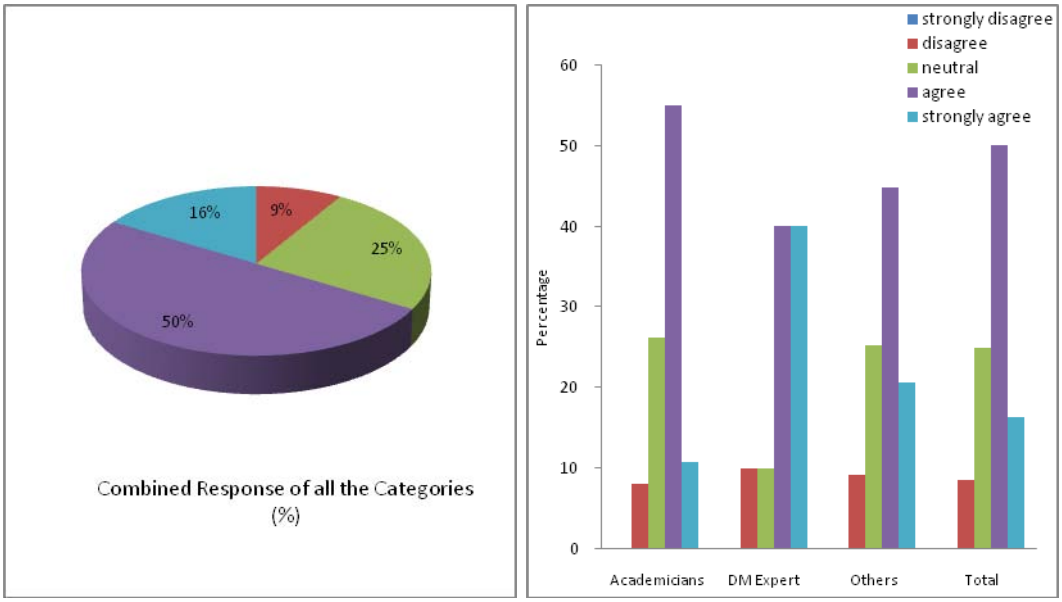

Fig. 3.17. Response to the question: Partnership of Government with International agencies for employment reconstruction should be encouraged.

18. In response to the question whether collective measures to develop the livelihood through local economic development programs are needed, none of the academicians strongly disagreed, 3.6% disagreed, 10.82% were neutral, while 54.05% of the

academicians agreed and 31.53% strongly agreed. None of the Disaster Management (DM) experts on the other hand disagreed, strongly disagreed or were neutral, while 20% strongly agreed and 80% strongly agreed. Other experts opined as follows: none strongly disagreed, 2.3% disagreed, 26.44% were neutral, 37.93% agreed and 33.33% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that none strongly disagreed, 2.88% disagreed, 16.83% were neutral, while 45.67% agreed and 34.62% strongly agreed (Fig 3.18).

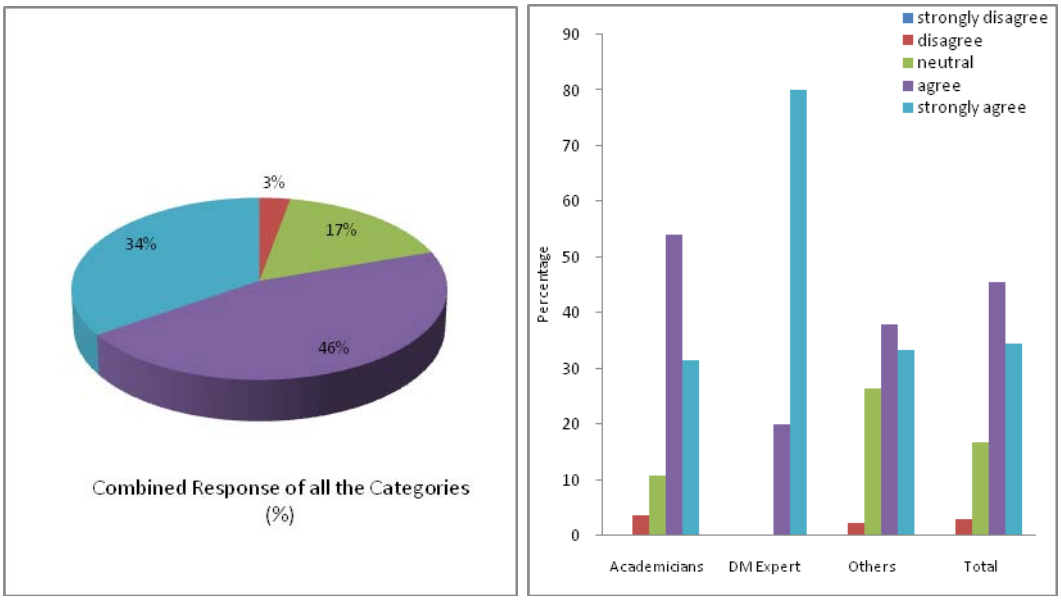

Fig. 3.18. Response to the question: Collective measures to develop the livelihood through local economic development programs are needed.

19. In response to the question whether labour-based reconstruction and maintenance created opportunities for the affected people, none of the academicians or DM experts or other experts strongly disagreed. Amongst academicians, 18.02% disagreed, 25.23% were neutral, while 51.35% of the academicians agreed and 5.4% strongly agreed. 30% of the Disaster Management (DM) experts disagreed, 50% were neutral, while 20% agreed, none of them strongly agreed. Other experts opined as follows: none strongly disagreed, 16.09% disagreed, 33.33% were neutral, 48.28% agreed and 2.3% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 17.78% disagreed, 29.81% were neutral, while 48.56% agreed and 3.85% strongly agreed (Fig. 3.19).

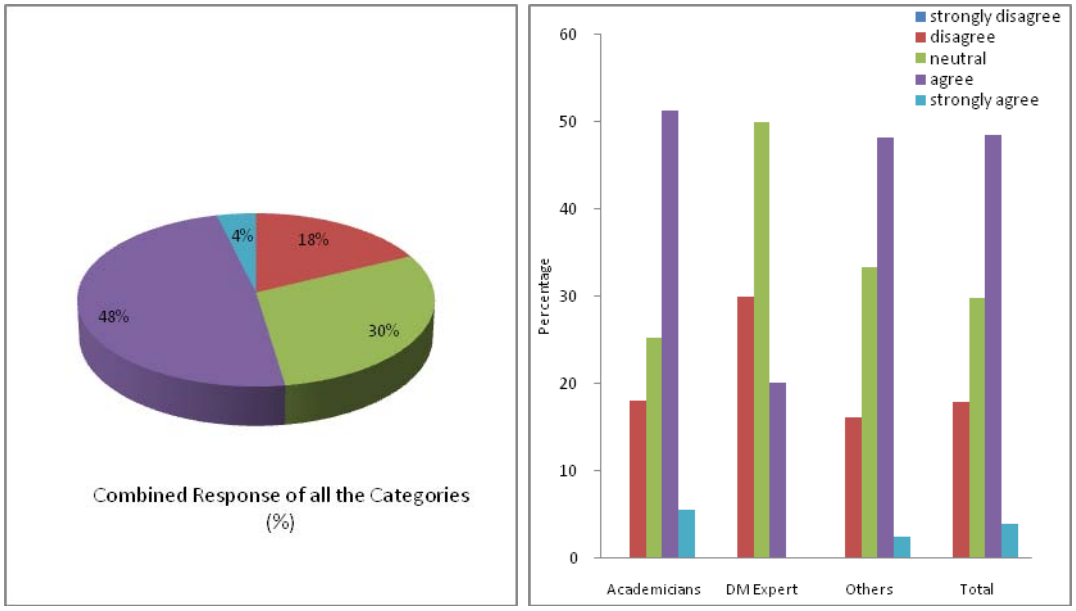

Fig. 3.19. Responses to the question: Labour-based reconstruction and maintenance created opportunities for the affected people.

20. The respondents replied to the question that the model used for the people catered to the following needs as follows:

Time management (shifts prioritization): 8.65% of the respondents disagreed, 50% were neutral, while 34.62% agreed and 6.75% strongly agreed.

Sharing of work functions: 10.09% of the respondents disagreed, 41.35% were neutral, while 45.19% agreed and 3.37% strongly agreed.

Counseling: 2.4% none of the academicians strongly disagreed 3.37% disagreed, 44.71% were neutral, while 40.87% agreed and 8.65% strongly agreed.

Compensation: 3.37% respondents strongly agreed, 2.88% disagreed, 43.27 were neutral while 37.98% agreed and 12.5% strongly agreed.

Willingness of the individual to get job/transfer from the affected area: 15.38% of the respondents disagreed, 38.94% were neutral, while 32.7% agreed and 12.98% strongly agreed.

Jobs for the migrants from the affected areas: 17.31% of the respondents disagreed, 43.27% were neutral, while 34.13% agreed and 5.29% strongly agreed.

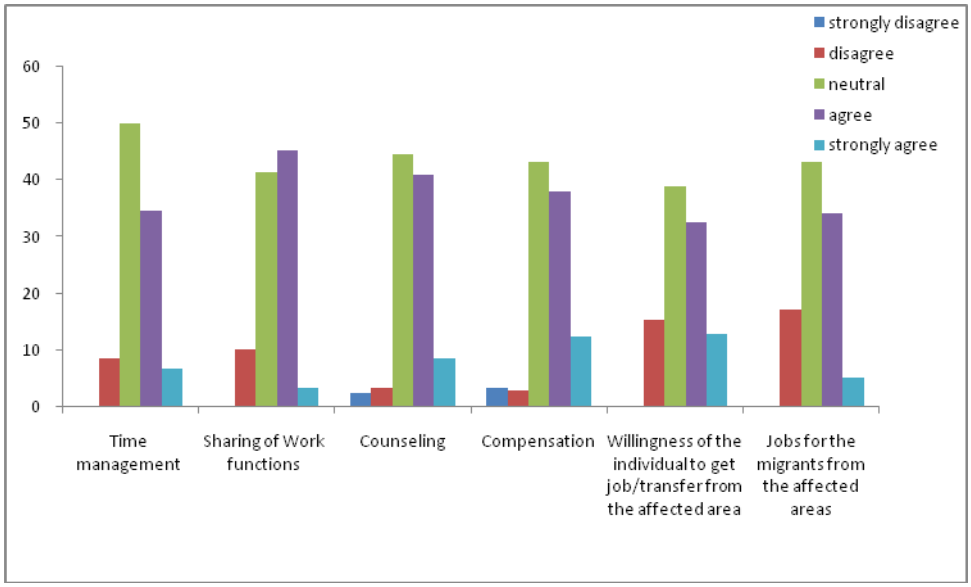

Fig 3.20. Responses to the question: Model used for the people catered to the following needs: time management (shifts prioritization); sharing of Work function; Counseling; Compensation; Willingness of the individual to get job/transfer from the affected area; Jobs for the migrants from the affected areas.

Employment Issues

Job Creation/ Job Reconstruction

21. When the question whether emergency employment service centre setup in the affected prefectures were effective was put up to the respondents, the response indicated that none of the academicians or DM expert or other experts strongly disagreed. Amongst the academicians, 20.72% disagreed, 49.55% were neutral, 29.73% of the academicians agreed, while none strongly agreed. Amongst the Disaster Management (DM) experts, 50% disagreed, 30% were neutral, while 20% agreed and none strongly agreed. Other experts opined as follows: 14.84% disagreed, 55.17% were neutral, 27.59% agreed, while 2.3% strongly agreed. Combined responses of all the categories of respondents when analyzed indicated that 19.71% disagreed, 50.96% were neutral, while 28.37% agreed and 0.96% strongly agreed (Fig 3.21).

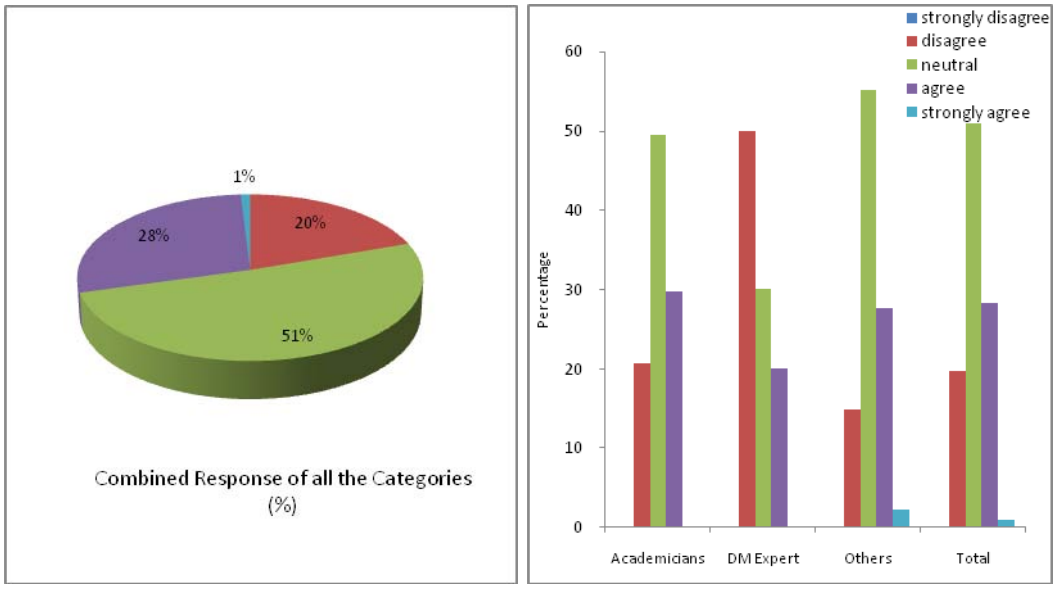

Fig. 3.21. Responses to the question: Emergency employment service centre setup in the affected prefectures were effective.

22. In response to the question whether job creation for the local affected population met their needs making them self reliant, 2.7% of the academicians strongly disagreed, while 30.63% disagreed, 41.44% were neutral, while 19.82% of the academicians agreed and 5.41% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 50% disagreed, 30% were neutral, while 20% agreed, none strongly agreed.

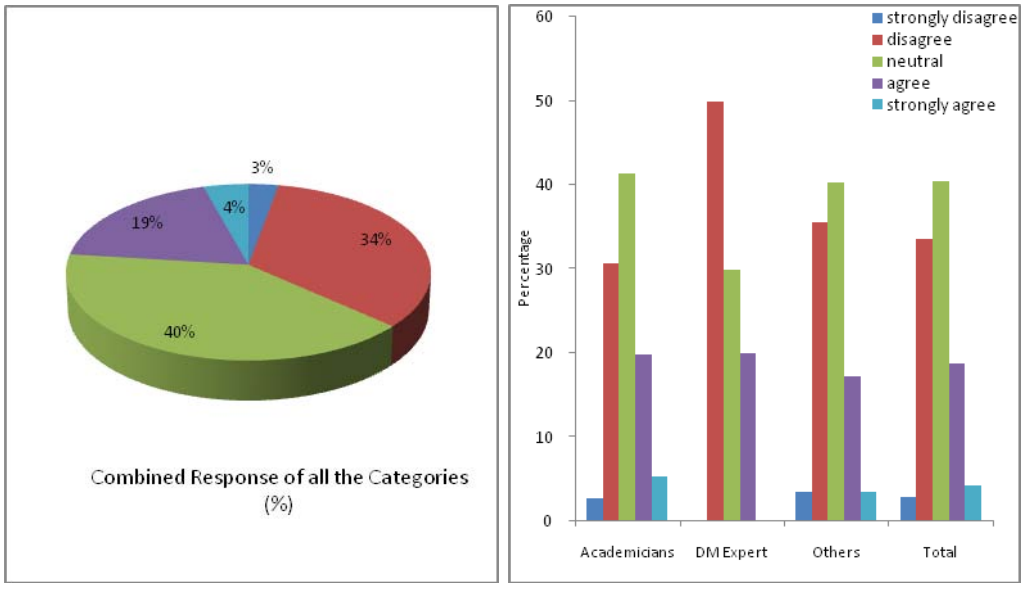

Fig. 3.22. Response to the question: Job creation for the local affected population met their needs making them self reliant.

Other experts opined as follows: 3.45% strongly disagreed, 35.63% disagreed, 40.23% were neutral, 17.24% agreed, while 3.45% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.88% strongly disagreed, 33.65% disagreed, 40.4% were neutral, while 18.75% agreed and 4.32% strongly agreed (Fig. 3.22).

23. Upon being asked whether the Job Card System played a crucial role and was helpful in acquiring of jobs in the aftermath of the 2011 disasters, 1.8% of the academicians strongly disagreed, 21.6% disagreed, 72.1% were neutral, while 4.5% of the academicians agreed. 10% of the Disaster Management (DM) experts on the other hand strongly disagreed, 20% disagreed, 60% were neutral, while 10% agreed. Other experts opined as follows: 2.3% strongly disagreed, 19.54% disagreed, 62.07% were neutral, 13.79% agreed, while 2.3% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.4% strongly disagreed, 20.67% disagreed, 67.31% were neutral, while 8.65% agreed and 0.97% strongly agreed (Fig. 3.23).

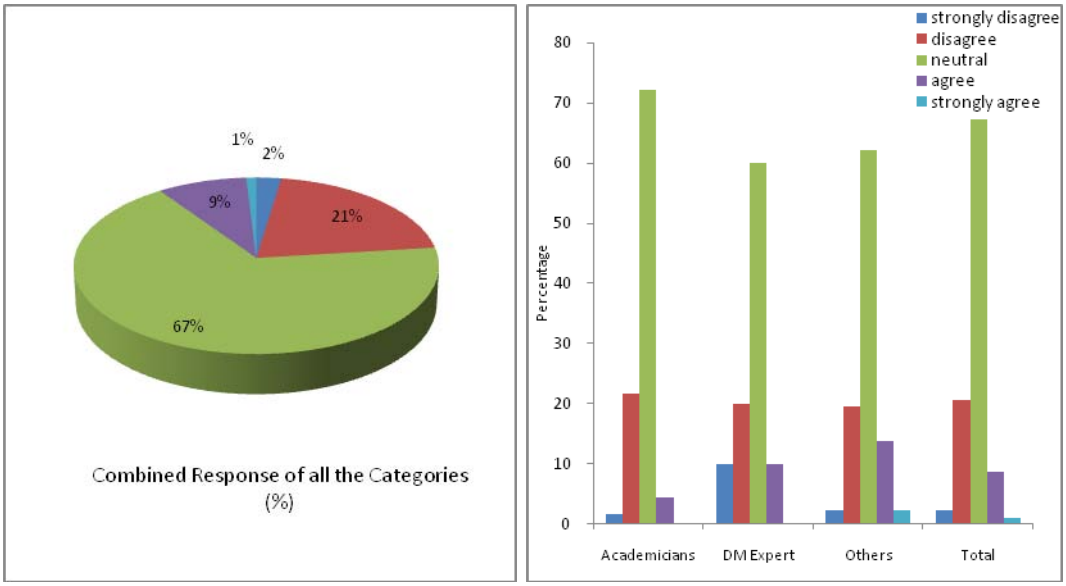

Fig. 3.23. Response to the question: The Job Card System played a crucial role and was helpful in acquiring of jobs in the aftermath of the 2011 disasters.

24. In response to the question whether “Hello Work to support new graduates” was effective in supporting employment of university students, 2.7% of the academicians strongly disagreed, 27.03% disagreed, 45.95% were neutral, while 22.52% of the

academicians agreed and 1.8 strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 30% disagreed, 50% were neutral, while 20% agreed, none strongly agree. Other experts opined as follows: 4.6% strongly disagreed, 24.14% disagreed, 48.28% were neutral, 17.24% agreed, while 5.74% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 3.37% strongly disagreed 25.96% disagreed, 47.12% were neutral, while 20.19% agreed and 3.36% strongly agreed (Fig. 3.24).

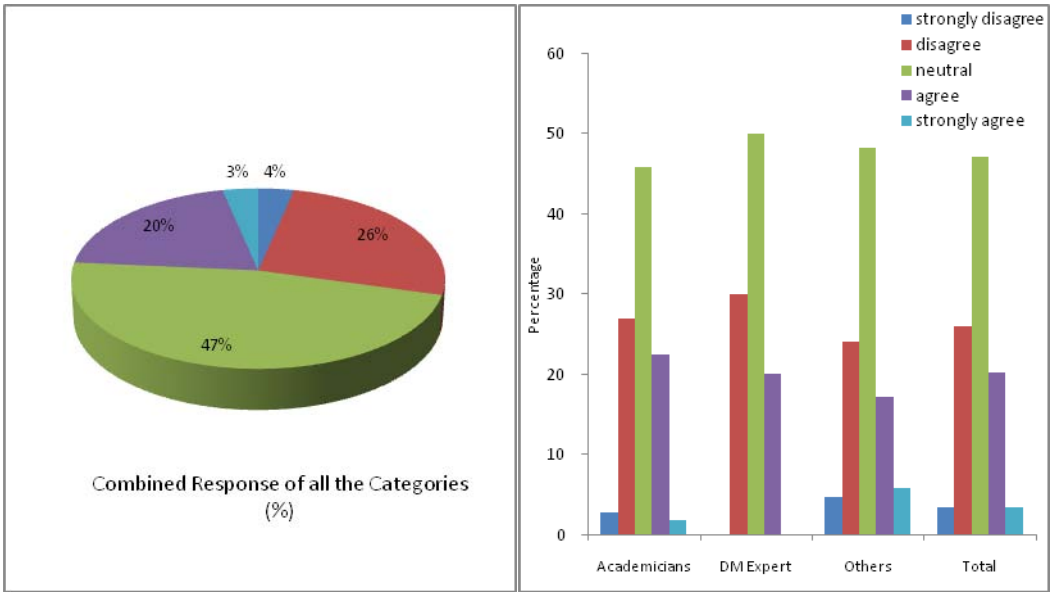

Fig. 3.24. Response to the question: "Hello Work to support new graduates" was effective in supporting employment of university students.

25. In response to the question "Job opportunities were matched with the interested skilled candidates (internal resources and skills), 4.5% of the academicians strongly disagreed, 56.76% disagreed, 24.32% were neutral, while 14.42% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 50% disagreed, none were neutral, while 50% agreed. Other experts opined as follows: 2.3% strongly disagreed, 47.13% disagreed, 32.18% were neutral, 16.09% agreed, while 2.3% strongly agreed. In totality, it emerged that 3.37% of the respondents strongly disagreed, 52.4% disagreed, 26.44% were neutral, while 16.83% agreed and 0.96% strongly agreed (Fig. 3.25).

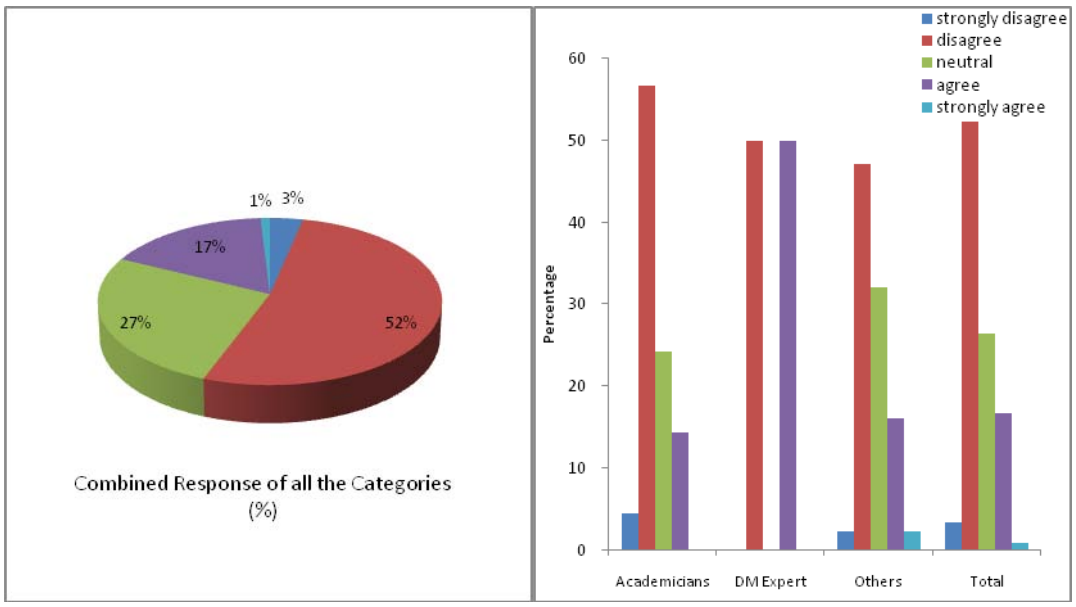

Fig. 3.25. Response to the question: Job opportunities were matched with the interested skilled candidates (internal resources and skills).

26. While responding to the question whether basic working conditions and standards for the healthy and safe environment were maintained, 1.8% of the academicians strongly disagreed, while 31.53% disagreed, 36.04% were neutral, while 28.83% of the academicians agreed, 1.8% strongly agreed. 10% of the Disaster Management (DM) experts on the other hand strongly disagreed, 50% disagreed, 10% were neutral, while 20% agreed and 10% strongly agreed. Other experts opined as follows: 2.3% strongly disagreed, 32.18% disagreed, 37.18% were neutral, 21.84% agreed, while 5.75% strongly agreed. When the data from all the experts was summarized, it emerged that 2.4% strongly disagreed, 32.69% disagreed, 35.58% were neutral, while 25.48% agreed and 3.85% strongly agreed (Fig 3.26).

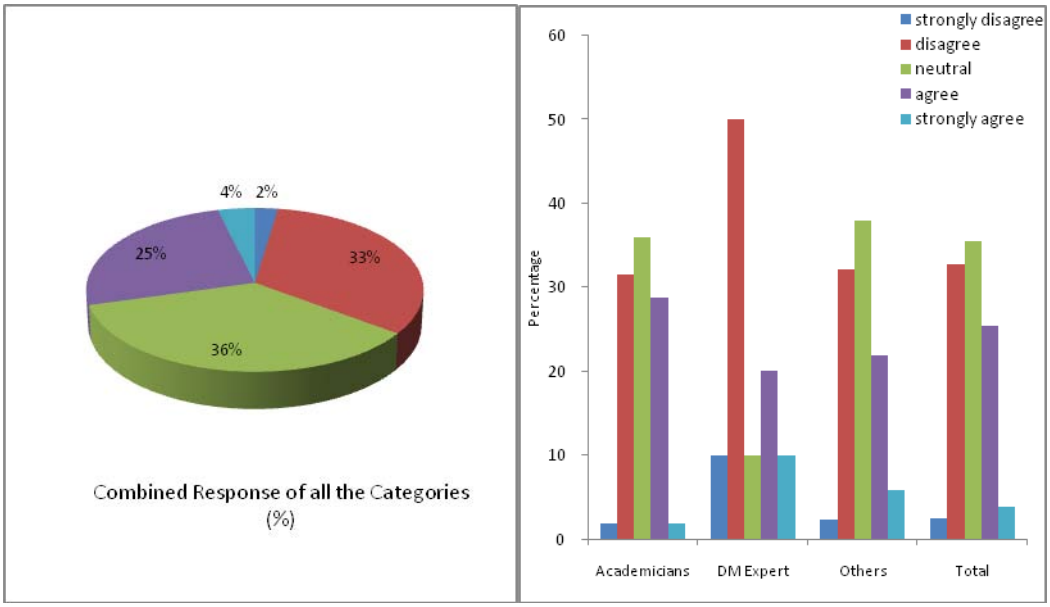

Fig. 3.26. Response to the question: Basic working conditions and standards for the healthy and safe environment were maintained.

Gender Issues

27. In response to the question whether employment generation for unemployed women who take the responsibility to support for the livelihood of their family was appropriate, 4.5% of the academicians strongly disagreed, 53.15% disagreed, 19.82% were neutral, while 21.63% of the academicians agreed and 0.9% strongly agreed.

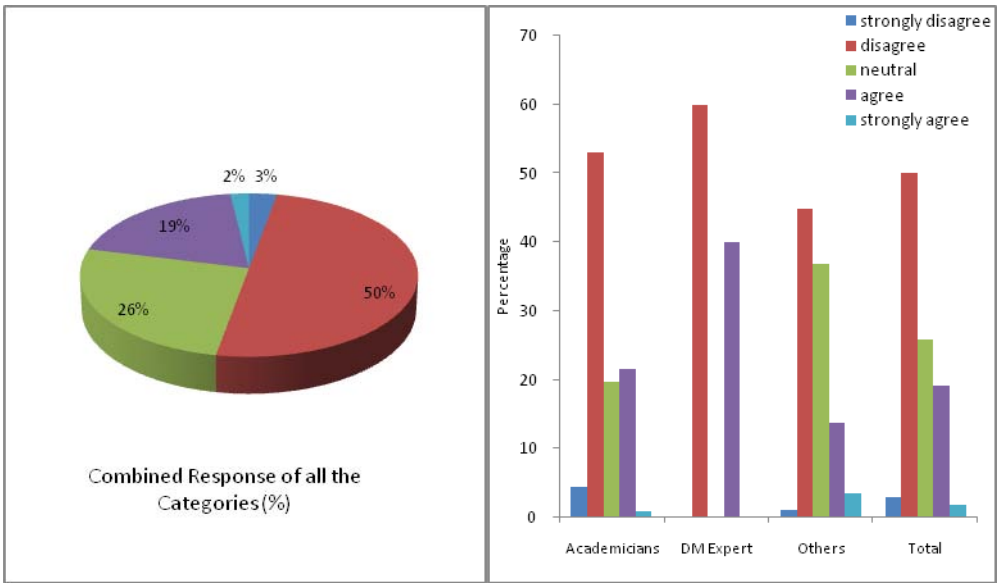

Fig. 3.27. Response to the question: Employment generation for unemployed women who take the responsibility to support for the livelihood of their family was appropriate.

None of the Disaster Management (DM) experts on the other hand strongly disagreed, 60% disagreed, none were neutral, while 40% agreed. Other experts opined as follows: 1.15% strongly disagreed, 44.83% disagreed, 36.78% were neutral, 13.79% agreed, while 3.45% strongly agreed. A comprehensive analysis of data from all the experts revealed that 2.89% strongly disagreed, 50% disagreed, 25.96% were neutral, while 19.23% agreed and 1.92% strongly agreed (Fig. 3.27).

28. In response to the question whether career counseling support was appropriate, 0.9% of the academicians strongly disagreed, 35.14% disagreed, 46.85% were neutral, while 17.11% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 40% disagreed, 50% were neutral, while only 10% agreed. Other experts opined as follows: 1.15% strongly disagreed, 18.4% disagreed, 55.17% were neutral, 22.99% agreed, while 2.29% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 0.96% strongly disagreed, 28.4% disagreed, 50.45% were neutral, while 19.23% agreed and 0.96% strongly agreed (Fig. 3.28).

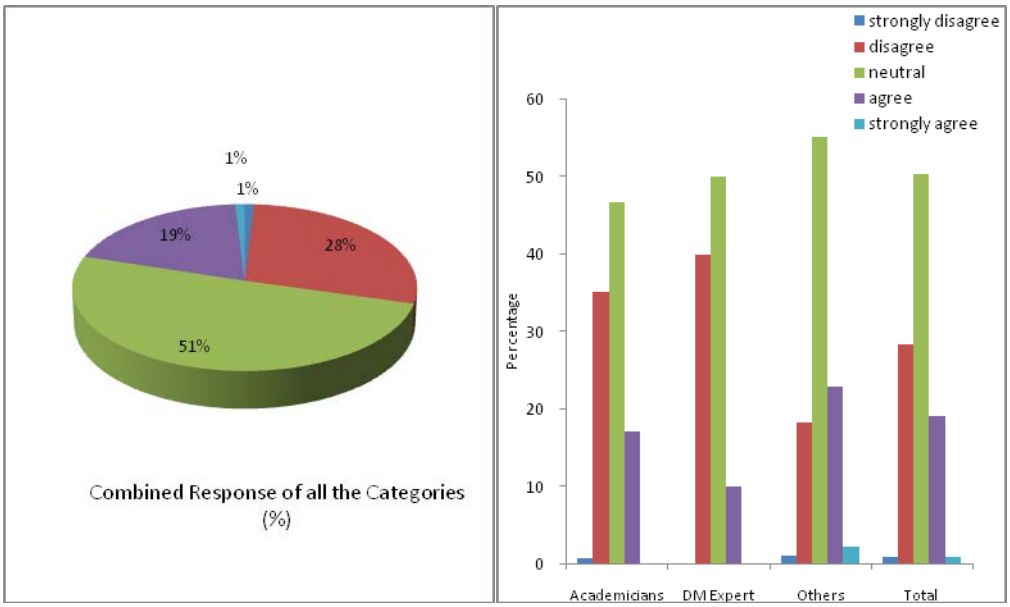

Fig. 3.28. Responses to the question: Career counseling support was appropriate.

29. Responding to the question whether flexible working hours were permissible, 7.21% of the academicians strongly disagreed, 36.94% disagreed, 29.73% were neutral, while 22.52% of the academicians agreed and 3.6% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 50%

disagreed, 10% were neutral, while 40% agreed. Other experts opined as follows: 5.75% strongly disagreed, 22.99% disagreed, 32.18% were neutral, 33.33% agreed, while 5.75% strongly agreed. Collective data analysis from all the experts indicated that 6.25% strongly disagreed, 31.73% disagreed, 29.81% were neutral, while 27.88% agreed and 4.33% strongly agreed (Fig. 3.29).

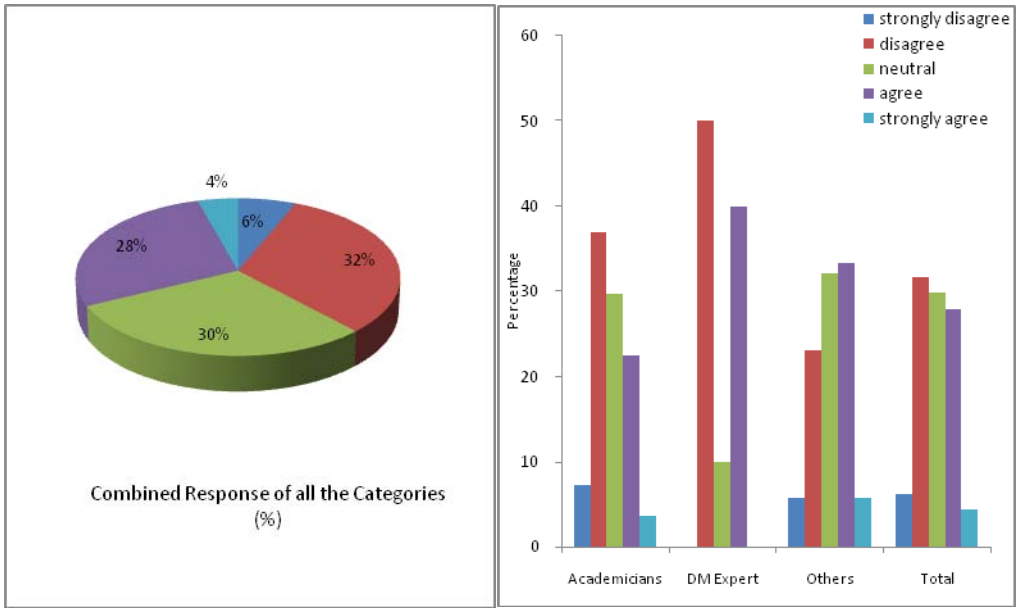

Fig. 3.29. Responses to the question: Flexible working hours were permissible

30. In response to the question whether equal wages for equal work for both men and women was considered, 11.71% of the academicians strongly disagreed, 27.93% disagreed or were neutral, while 28.83% of the academicians agreed and 3.6% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed, 30% disagreed, 30% were neutral, while 40% agreed. Other experts opined as follows: 6.89% strongly disagreed, 32.18% either disagreed or were neutral, 23% agreed, while 5.75% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 9.13% strongly disagreed, 29.81% each either disagreed or were neutral, while 26.92% agreed and 4.33% strongly agreed (Fig. 3.30).

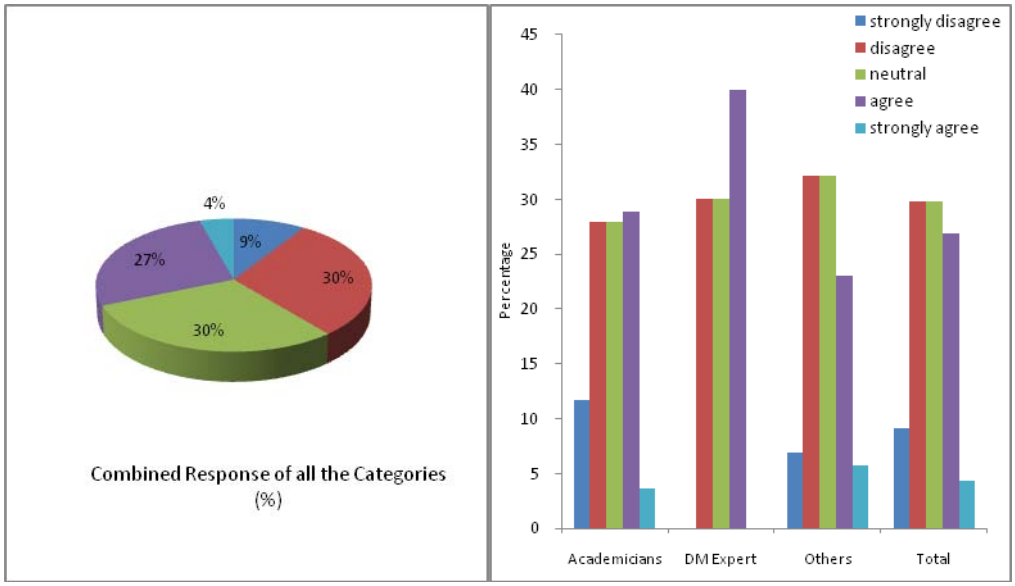

Fig. 3.30. Response to the question: Equal wages for equal work for both men and women was considered.

31. Responding to the question whether measures were taken to appropriately handle sexual harassment/abuse at the work place, 2.7% of the academicians strongly disagreed, 26.13% disagreed, 51.35% were neutral, while 18.92% of the academicians agreed and 0.9% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed or disagreed, 40% were neutral, while 60% agreed. Other experts opined as follows: 4.6% strongly disagreed, 8.05% disagreed, 66.66% were neutral, 17.24% agreed, while 3.45% strongly agreed.

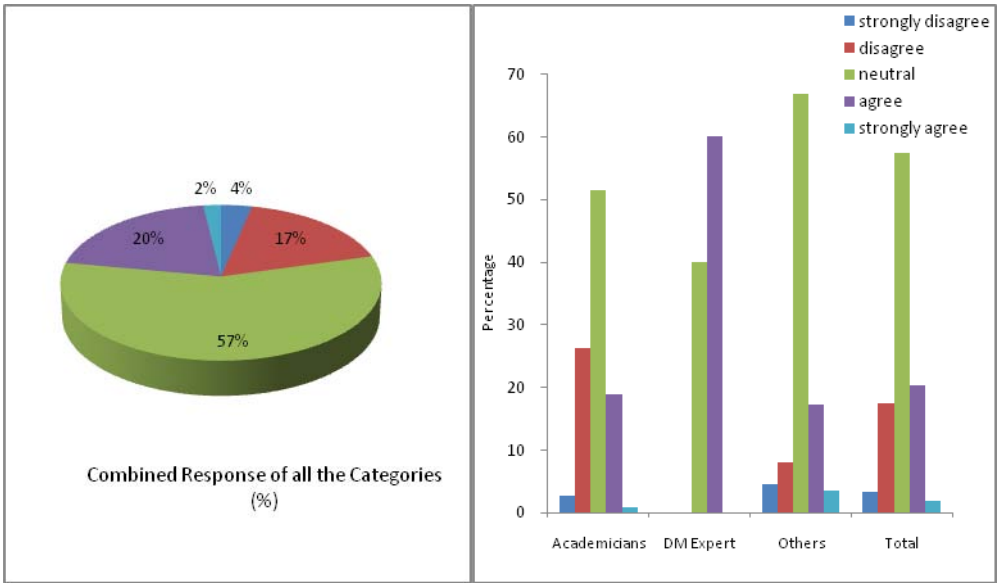

Fig. 3.31. Response to the question: Measures were taken to appropriately handle sexual harassment/abuse at the work place.

Comprehensive data analysis revealed that 3.75% of the respondent experts strongly disagreed, 17.31% disagreed, 57.21% were neutral, while 20.19% agreed and 1.92% strongly agreed (Fig. 3.31).

32. In response to the question whether programs to support changing family structures were supported**,** none of the experts strongly disagreed. Amongst the academicians, 37.84% disagreed, 39.64% were neutral, while 22.52% of the academicians agreed. 50% Disaster Management Experts disagreed, 20% were neutral, while 30% agreed. Other experts responded as follows: 33.33% disagreed, 41.38% were neutral, 22.99% agreed, while 2.3% strongly agreed. Analysis of the data from all the experts together indicated 36.54% disagreed, 39.42% were neutral, while 23.08% agreed and 0.96% strongly agreed (Fig. 3.32).

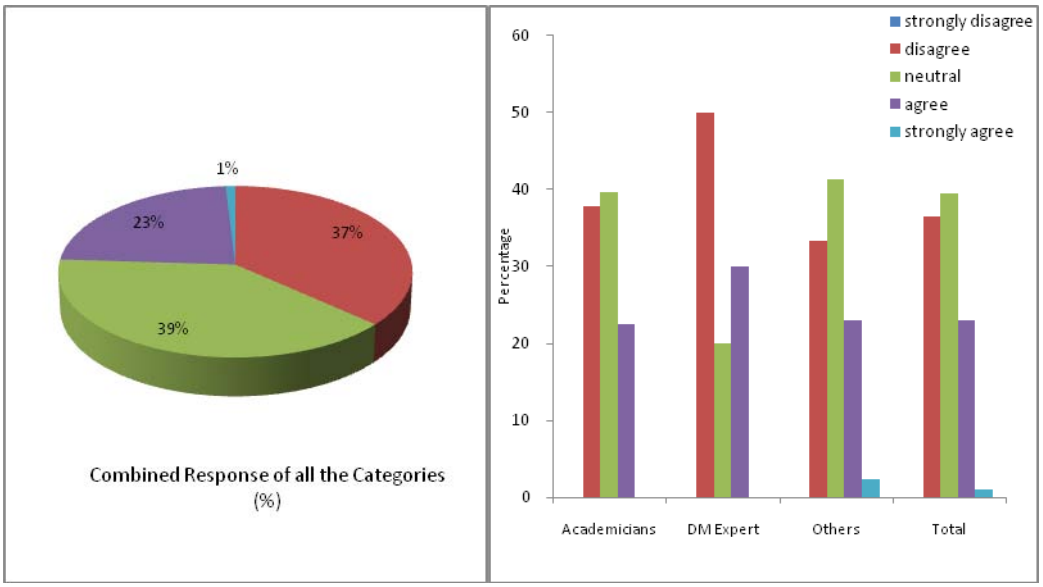

Fig. 3.32. Response to the question: Programs to support changing family structures were supported.

33. In response to the question whether facilities such as crèches, recreational centers were provided in the work place 39% responses were neutral, 37% disagreed, 6.25% strongly disagreed, 15% agreed, while 3.37% strongly agreed (Fig. 3.33). In response to the question whether facilities such as crèches, recreational centers were provided generally in the community, 47.6% responses were neutral, 14.9% disagreed, none strongly disagreed, 34.13% agreed, while 3.37% strongly agreed (Fig. 3.33).

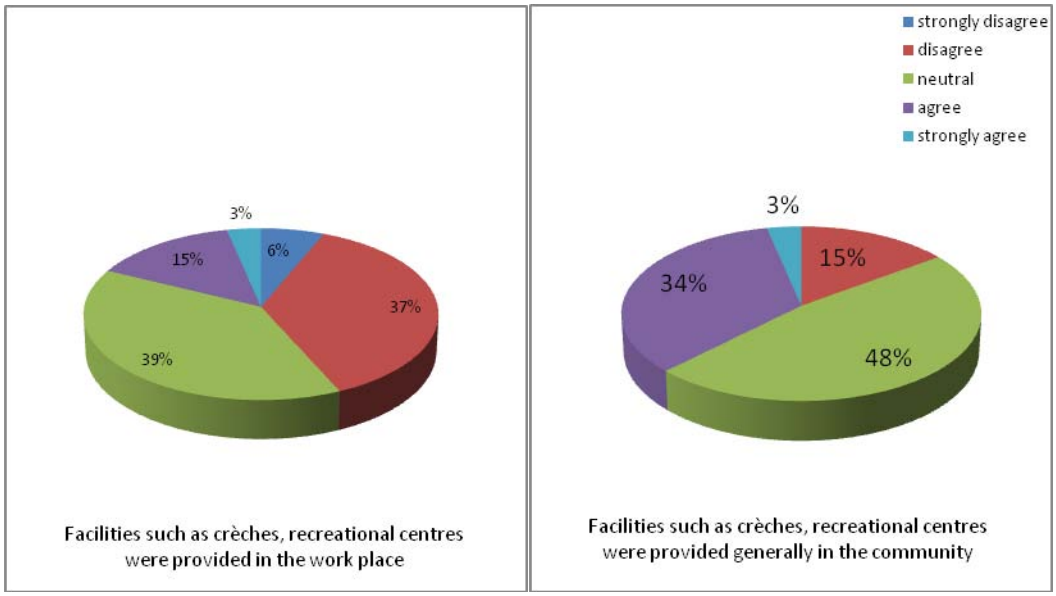

Fig. 3.33. Responses to the question: Facilities such as crèches, recreational centres were provided: i) in the work place; ii) generally in the community.

34. In response to the question whether "Mother's Hello Work" services (Suitable and sufficient job information and job placement services; day care services and information on childcare) were helpful to the job seeking mothers**,** none of the experts (academicians, DM experts or other experts) strongly disagreed, while 17.12% disagreed, 57.66% were neutral, while 25.22% of the academicians agreed, 60% of the Disaster Management (DM) experts were neutral, while 40% agreed. Other experts opined as follows: 20.69% disagreed, 58.62% were neutral, 18.39% agreed, while 2.3% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 17.79% disagreed, 58.17% were neutral, while 23.08% agreed and 0.96% strongly agreed (Fig 3.34).

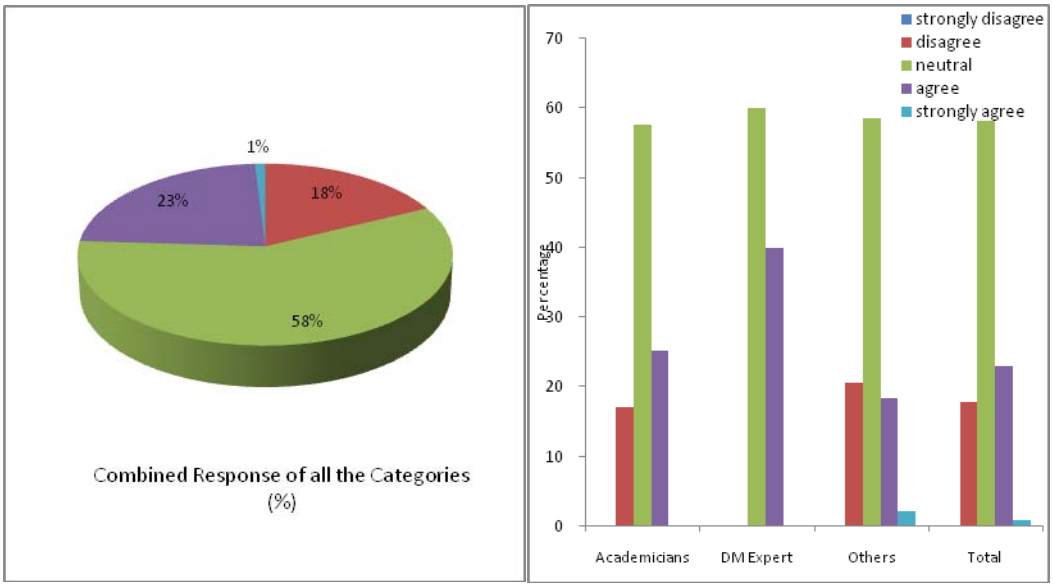

Fig. 3.34. Response to the question: "Mother's Hello Work" services (Suitable and sufficient job information and job placement services; day care services and information on childcare) were helpful to the job seeking mothers.

Ageing Population and Workforce

35. Upon being asked response to the question whether job opportunities were provided to the retired people to support their family (livelihood), 1.8% of the academicians strongly disagreed, 35.14% disagreed, 33.33% were neutral, while 27.93% of the academicians agreed and 1.8% strongly agreed. 10% of the Disaster Management (DM) experts on the other hand strongly disagreed, 30% disagreed, 10% were neutral, while 50% agreed or strongly agreed. Other experts opined as follows: 2.29% strongly disagreed, 27.59% disagreed, 39.08% were neutral, 25.29% agreed, while 5.75% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.4% strongly disagreed, 31.73% disagreed, 34.62% were neutral, while 27.4% agreed and 3.85% strongly agreed (Fig. 3.35).

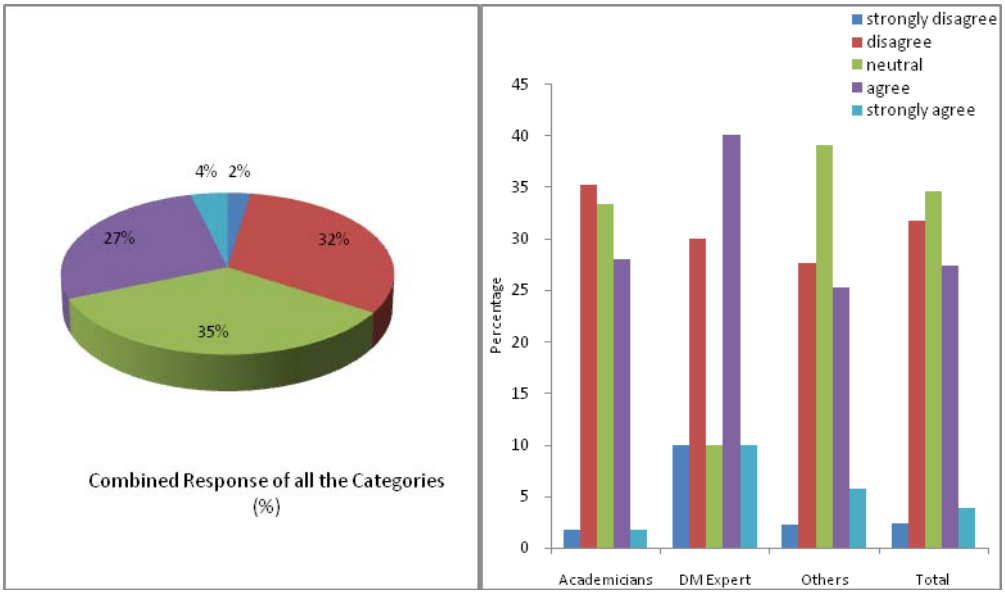

Fig. 3.35. Responses to the question: Job opportunities were provided to the retired people to support their family (livelihood).

36. In response to the question whether programs were undertaken to retain old and experienced employees in the organization (thru financial benefits, insurance, incentives, grade pay, medical coverage, etc.)**,** 2.7% of the academicians strongly disagreed, 18.02% disagreed, 54.05% were neutral, while 23.43% of the academicians agreed and 1.8% strongly agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed or disagreed, 40% were neutral, while 50% agreed and 10% strongly agreed. Other experts opined as follows: 4.6% strongly disagreed, 9.2% disagreed, 60.91% were neutral, 19.54% agreed, while 5.75% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 3.37% strongly disagreed, 13.46% disagreed, 56.25% were neutral, while 23.08% agreed and 3.84% strongly agreed (Fig. 3.36).

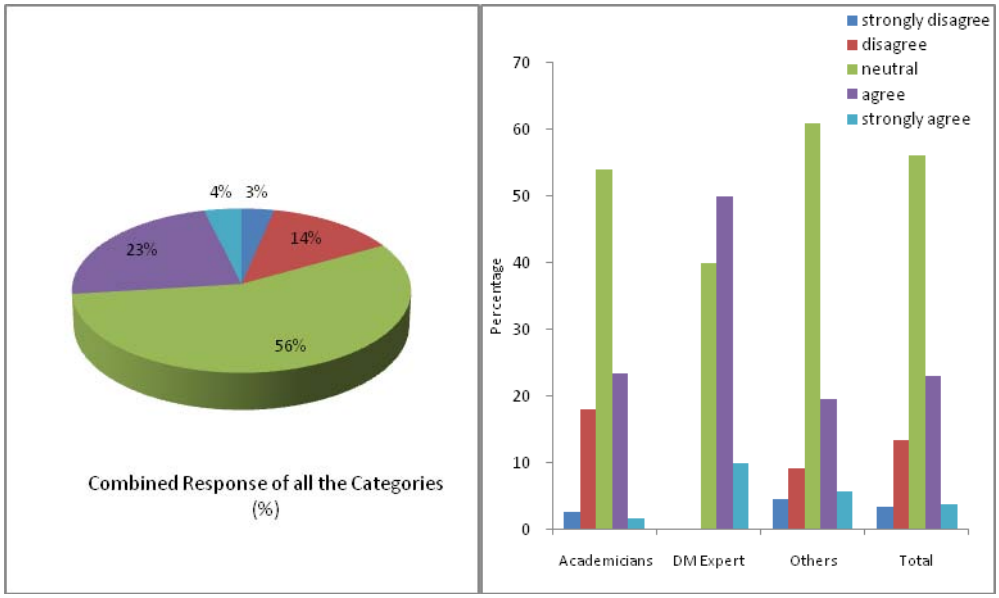

Fig. 3.36. Responses to the question: Programs were undertaken to retain old and experienced employees in the organization (thru financial benefits, insurance, incentives, grade pay, medical coverage etc.).

37. The experts responded to the question whether measures for training and retraining of older employees were undertaken in the following manner: 2.7% of the academicians strongly disagreed, 31.53% disagreed and 45.05% were neutral, while 20.72% of the academicians agreed. None of the Disaster Management (DM) experts on the other hand strongly disagreed; only 10% disagreed, 50% were neutral, while 40% agreed. Other experts opined as follows: 4.6% strongly disagreed, 19.54% disagreed, 52.87% were neutral, 20.69% agreed, while 2.3% strongly agreed. Comprehensive analysis of the data from all the experts revealed that 3.37% of the experts strongly disagreed, 25.48% disagreed, 48.56% were neutral, while 21.63% agreed and 0.96% strongly agreed (Fig. 3.37).

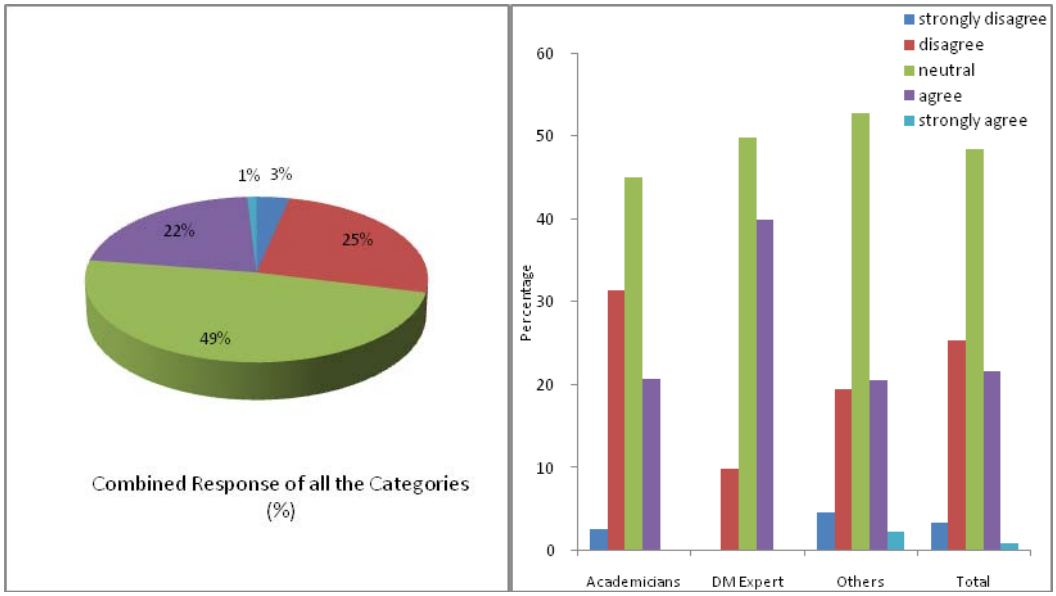

Fig. 3.37. Response to the question: Measures for training and retraining of older employees were undertaken.

38. In response to the question whether programmes were mentored to ensure that the skills of experienced managers are passed on to the new managers, 1.8% of the academicians strongly disagreed, 34.24% disagreed and 58.56% were neutral, while 5.4% of the academicians agreed. 10% of the Disaster Management (DM) experts on the other hand strongly disagreed, 20% disagreed and 50% were neutral, while 20% agreed. Other experts opined as follows: 2.3% strongly disagreed, 25.29% disagreed, 49.43% were neutral, 20.69% agreed, while 2.29% strongly agreed. When the data from all the experts was analyzed in totality, it emerged that 2.4% strongly disagreed, 29.81% disagreed, 54.33% were neutral, while 12.5% agreed and 0.96% strongly agreed (Fig. 3.38).

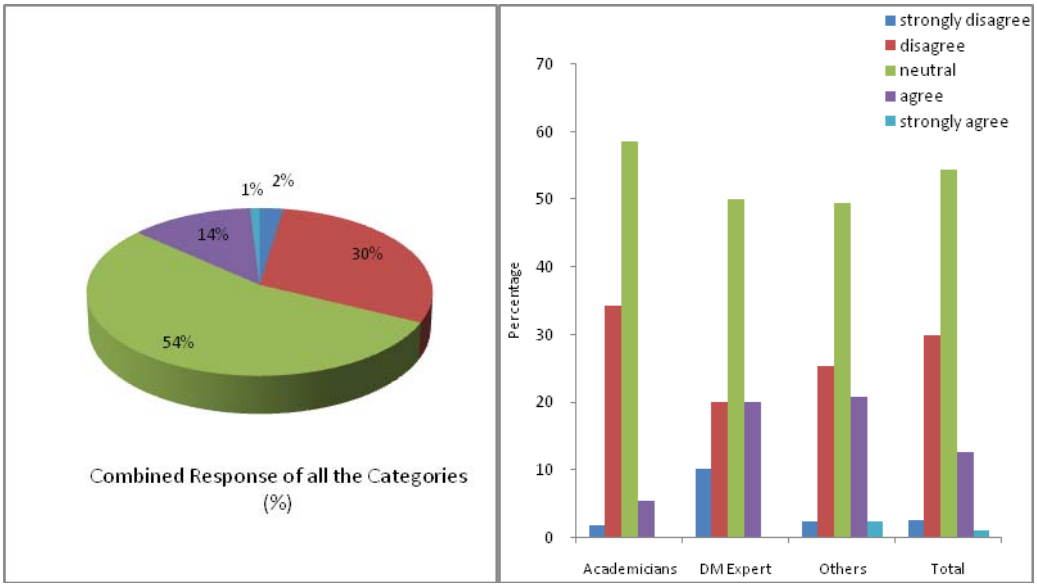

Fig. 3.38. Responses to the question: Programmes were mentored to ensure the skills of experienced managers are passed on to the new managers were undertaken.

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

- The two major earthquakes and tsunamis of 2004 and 2011 have resulted in learning of new lessons. While the 2004 Indian Ocean Tsunami mostly hit the less developed and developing nations, the 2011 disaster hit a developed nation. The response in terms of human resource and infrastructure deployment and overall resilience of the entire paraphernalia was starkly visible in the latter; which we must admit was quite primordial in several ways by comparison or even lacking in terms of comprehensiveness and cohesiveness in the 2004 Indian Ocean tsunami disaster. The comparatively less efficient (rather inefficient) response mechanisms in place prior to the 2004 tsunami cost more lives and delays in relief, recovery and reconstruction efforts and took years especially for employment reconstruction and livelihood restoration of the affected people. It must be acknowledged that despite resource and other infrastructure constraints, several strategies worked well. Tsunami was least expected by several of the nations that were struck and preparedness was at its nadir. The 2004 tsunami experience made it amply clear that the coastal communities are indeed vulnerable to local tsunamis and need to understand that the risk cannot be eliminated, but only effectively managed. The 2004 tsunami brought to the fore several examples where optimal use of sparsely available resources and indigenous technology, with a slight amount of innovation, resulted in substantial benefits to the affected community. Low-resource settings are the breeding grounds of innovative rescue, relief and reconstruction efforts and the countries affected by the 2004 tsunami exhibited immense courage and resilience despite the lack of basic necessities and trained human resources to handle the disaster. In fact, after the tsunami, the need to appropriately train the human resource for effective disaster management was felt.
- Based on the on-ground situation in the 2004 tsunami, it was found that most nations did not have a Disaster Management Plan in place, and even if they had one, it was not so efficient and effective. For instance, in Thailand, successful recovery post-tsunami was due to its major strength i.e., the legal and institutional framework in place. A strong coordination system of the Government agency, military, police, civil departments, NGOs, UN and International NGOs etc. led to the successful relief efforts in Thailand. The affected countries had least expected a tsunami and that too of such huge magnitude was an unimaginable proposition. However, the lessons learned from the 2004 disaster resulted in development of new policies and plans that were implemented later on for efficient disaster management. This helped the affected nations to rebound and rebuild on the experiences gained. It has been felt over time that the policies for disaster management need to be flexible enough to enable quick and systematic initiatives. The Asian countries affected by the 2004 tsunami mostly had rudimentary policies for disaster management with little integration of HR planning with the disaster management policies. Some countries

like India and Thailand did have a policy in place for disaster management, but despite this, most nations were not prepared for such a large-scale disaster. During the 2011 disaster, Japan had well drafted policies and disaster plans in position and this enabled the country to manage the disaster in a highly efficient manner. However, in the present study it emerged from the response of the respondents that in terms of flexibility of policies there is much that still needs to be done. Rightly so, the Japanese Government, in the aftermath of the disaster has made several modifications in this direction.

- Adequately integrating HR planning with the policies can go a long way in reducing the impact of disasters. The respondents felt that minuscule efforts have been made to integrate HR planning with the policy. In view of the foregoing, efforts should be made to integrate HR planning with policy. There is an immediate need for a common international framework for human resource management for effective disaster management and better coordination between the different stakeholders such as governments, international agencies, disaster management experts etc. The framework for human resource management should ideally include a plan and a common systems approach to explain, describe and detail the work that is required from different sectors to make communities resilient to disasters.
- The community should be an integral part of the process of framing and implementation of policies at least to some extent. The study revealed that only one-third of the experts felt that the community was involved/consulted in the process of framing and implementation of the policies. The feedback of the community after the disaster should be taken into cognizance and the policies framed/modified accordingly. It was evident in the aftermath of the 2004 Tsunami that the experience of the community is very important and if this is utilized, the policies drafted are definitely better. Continuous modification of the policies, keeping in mind the communities' needs and aspirations, is required for effective resilience binding.
- Women constitute half of the total human resource of any Nation and, therefore, it is logical to expect that they should also be active partners in policy making. However, the gender divide does exist to varying degrees in several countries that were affected by the disaster. In Japan also, as per the responses of the present study, it was observed that only one-fourth of the respondents felt that women are included as active members in the policy making process. This indicates that there is a necessity for inclusion of more women members as policy makers. This was also evident in the post GEJE survey carried out by the Cabinet Office, Japan during the period between Nov. 2011 and March 2012 on the disaster response from a gender equality perspective, wherein the results showed that there was a lack of women involvement in taking responsibility for the operation of evacuation sites. It was observed that the request and opinions of women were not given appropriate weightage. The traditional stereotype view of the gender responsibilities dominated post-disaster. Men were considered to clear the debris and were paid in return, while women were supposed to do in-house chores like cooking etc. and were generally considered for unpaid jobs, leaving women without any compensation for their

work that they performed in the evacuation centers (Source: Disaster Prevention and Reconstruction from a Gender Equal Society Perspective- Lessons from the GEJE. From the 'White Paper on Gender Equality 2012; Cabinet Office, Government of Japan).' However, women participation was encouraged by the Government of Japan in the reconstruction work. Various policies and measures were taken which took care of women's opinions and encouraged participation. Further, post-GEJE, employment and entrepreneurship support was also provided to the women in the affected areas. The vocational training centres had well developed infrastructure and the capability and support from the Government of Japan to support the disaster victims.

- In the survey carried out as a part of this study, it was revealed that training given to the workers, engaged in post-disaster reconstruction in Japan, was effective. Building databases, availability of qualified and trained human resource is important to ensure quality of data and facilitate proper implementation of policies and other rules and regulations. It is imperative to impart training not only to responders, general health professionals, but mental health experts and IT experts etc. It has often been observed that following disasters, several employees lose their jobs. It becomes necessary to train and retrain employees to handle entirely new jobs/assignments or additional jobs. From the responses received it is evident that training was imparted to the employees to handle entirely new/additional jobs, in case they lost jobs post-disaster. However, there is further scope for improvement.
- Training given to the local people and in different organizations was useful in reducing the impact of the 2011 disaster in Japan. In Japan, the training received by the local people helped them move to higher ground upon learning that the tsunami could be approaching. The local people not only helped their family, neighbours, but also special needs people, including children, sick and aged people and thus saved many lives. However, in some coastal areas the community felt so confident and safe in view of the tsunami measures in place in their towns that they did not act swiftly and were overwhelmed by the destruction that ensued. Lack of a leader who could guide volunteers for relief and rescue work resulted in unutilized human resource. In sharp contrast, after the 2004 tsunami, there was a surge of volunteers but how they could be utilized appropriately in an organized manner was a big issue. This area needs attention in coming years, as there is a lot that needs to be done in disaster-prone communities around the globe. In some cases e.g., in the Andaman and Nicobar islands relief could reach only after a gap of several hours, as the islands were severed from satellite link to mainland India and the tsunami had swept the islands off the communications map. Establishment of communication networks like VSAT (very small aperture terminal) connectivity were crucial in ensuring that relief reached the affected community. The role of the local community cannot be underestimated; as responders they served food, took care of the injured and sick and even disposed off the dead before organized help was received. This highlights the importance of the local community, who despite no formal training can contribute immensely. With some formal training they can help

save several lives. There is a need to establish continuous sensitization trainings for the coastal communities.

- The outcome of the present study has shown that vocational training helps in revival of the livelihood and reconstruction of employment as has been demonstrated in the aftermath of the 2004 Indian Ocean tsunami and 2011 Japan tsunami. Such training should be given to the populations leading to development of resilient human resource within the nation. Vocational training imparted to the young people acted as a safety net in securing/retaining employment and helped the young graduates find suitable jobs. Nearly one-fourth of the respondents felt that this indeed was the case following the 2011 Japan disaster.
- It was observed that post-disaster (the 2004Indian Ocean tsunami), vocational training was very effective in acting as an employment security net in securing/retaining employment. During interviews carried out at the Vocational Training Centre, Sendai, Miyagi Prefecture it was found that the disaster affected people who received vocational trainings were substantially benefitted. The skills, which were certified by the Vocational Training Centre and Hello Work, were enhanced and helped the disaster victims in job placement. Special curriculum was framed by the Vocational Training Centre so that the needs of the job seeking post-disaster can be met. Ability Development Data System (ADDS) was very effective post-disaster and helped the disaster victims who could not go to the Hello Work due to connectivity problems post-disaster or were unable to contact Hello Work due to damaged telephone lines. Efforts were made by the Vocational Training Centres to enhance the skills of the people so that they could obtain employment in their own local areas. These endeavours were effective in reducing the migration of job seekers to larger cities in search of jobs.
- Establishment of the “support system for job seekers” was effective to the job seekers, especially who were unable to receive unemployment benefits, in acquiring early employment through vocational skill development and livelihood support to some extent in the post-disaster situation. Mobile Hello Work services were launched, which visited the evacuation shelters and gave them information about insurance, provided the disaster victims with counselling and career guidance for the type of work the disaster affected people can either do or get. Even after more than two and a half years since the disaster and these activities were still being continued. Special programmes were also launched for the people who do not get the employment insurance. Support system for job seekers is an effective tool under disaster scenarios.
- Only a small number of respondents agreed that training to adapt to the changing nature of work was sufficient. Hello Work also identified the changing nature of work post-disaster. The interviewed officials said there were several reasons for the changing nature of work and the decreasing labour force:
    - loss/decrease in permanent assets;
    - people living in temporary shelters had difficulty in commuting to work; they were unable to commute by themselves. Their vehicles were either

flooded or lost in the tsunami; shelters did not have enough parking space, thus people in shelters could not keep their own vehicles to jobs on their own;

- Family structures changed. Grandparents and women took the responsibility to support their families financially. Those who worked earlier were jobless, thereby increasing the unemployment in the area and increasing the burden on the family;
- Many people who were due to retire from work were of the age of 60 or more years and they did not want to continue their jobs further;
- Some decided to take premature retirement from their work early as they were afraid of working near the sea.

- One-third of the respondents agreed that currently provisions exist for enhancing skills through retaining, development and educational programs for workers already employed.
- A substantial number of respondents argued (86%) that community disaster training and mock drills are effective tools in reducing casualties. The experience previously gained was found to be highly effective and successful during the 2011 disasters also. To quote an example, on the occasion of the anniversary of the 1933 Sanriku earthquake and tsunami (March 3, 2011), an evacuation drill involving the local residents and school children was performed just days before the tsunami hit Japan. Such drills are commonplace in Japan and this resulted in immense benefit to the local population as the populace sought shelter immediately in the nearest evacuation buildings and the evacuation route in close proximity, immediately when they felt the tremors. Such forms of regular training in disaster education can go a long way in saving precious human lives.
- Governments have a duty to ensure adequate livelihood of people following the disaster as people get unemployed. Nearly one-third of the respondents of the present study opined that the Japanese Government's efforts to ensure livelihood of the affected people following the disaster were adequate. The study also revealed that there should be more linkage of Government with industrial agencies for job creation for the local people in the disaster affected areas. In post-GEJE, it was clear that the Government and the companies/industries joined hands to generate more employment in the disaster affected areas. Hello Work officials' response in the interviews conducted also supported that linkages were forged between the government and the private sector through different schemes (e.g. employment insurance system, subsidy for the employment adjustment etc.), which benefitted people as well as the companies.
- Nearly 80% of the respondents felt that there is a need for the Government to strengthen efforts in this direction. This area can be explored more to leverage the existing HR plans for implementation during/post-disaster situations. Approx 40% of the respondents felt that partnership of the Government with the donor agencies is adequate. The partnership of the government and the donor agencies/NGOs need to be strengthened and a database developed to form a close integrated network,

which can be utilized for better management of HR during disaster situations. A large majority of the respondents from Japan opined that the Government should foster partnerships with International agencies for unemployment reconstruction. In the case of 2004 Indian Ocean Tsunami also this type of partnership was felt necessary as many of the countries did not have the requisite infrastructure to ensure employment reconstruction as the damage caused was massive and unprecedented. In the case of Japan disasters, the country was self-sufficient to a large extent in handling employment reconstruction on its own.

- A vast majority (>80%) of the respondents felt that collective measures to develop the livelihood through local economic development programs are needed. The key elements of reconstruction and rehabilitation work will have to be the revival of local economy by reestablishment and regeneration of local markets, businesses, industries and facilitating local employment, and integration of intelligent land-use planning, enforcement of resilient building codes and mandatory insurance. Disaggregated sex and age-wise data of the skilled human resource with complete information of the current employment status is very important and should be collected so that it can be used in crisis situation and local human resource can be utilized for the reconstruction work. Efforts in this direction go a long way in making the reconstruction task economical as well as providing employment to the local residents of the affected area.
- More than 50% of the respondents felt that labour-based reconstruction and maintenance created opportunities for the affected people. Such endeavours are useful in post-disaster scenarios.
- More than 45% of the respondents agreed that the model used for the people catered to the needs like: time management (shifts prioritization), sharing of work functions, counselling, compensation, willingness of individual to get job/transfer from the affected area, jobs for the migrants from the affected areas), while 43.59% were neutral and approx. 10% disagreed. This shows that to a large extent the model was successful.
- With respect to the question whether emergency employment service centre set up in the affected prefectures were effective, one-third of the respondents agreed. It was felt by the respondents that the location of the Emergency Employment Center should be such that the local people in the affected area can easily access and take benefit of the services. In post-disaster scenarios, care should be taken to ensure that the location of the Emergency Employment Center should be nearby, and easily accessible rather than far away for the benefit of the disaster affected people.
- Approximately one-fourth of the respondents felt that job creation for the local affected population met their needs making them self-reliant. This indicates that there is much that is desired in terms of employment creation for the locally affected population. The jobs created in the local areas were mainly for the construction industry; while most of the local people either lacked the skills for the construction work or were interested in white-collared jobs. Due to the increased requirement of construction post-disaster, specifically, there was a mismatch of the

demands of HR in construction industry and the availability of the skilled labour force in the local area. In the aftermath of any disaster, post-disaster reconstruction construction work increases substantially, therefore, skill development of the community in construction related work should be enhanced.

- Though a large number of respondents were neutral, upon personal interviews the respondents felt that the job card system played a crucial role and was somewhat helpful in acquiring of jobs in the aftermath of the 2011 disasters. During personal interviews with the Hello Work Officials and the Officials at the Vocational Training Center also, it emerged that the Job Card system was indeed useful for the job seekers. It served as an inventory of their career and the level of training they possess. The link between needs and skills was remarkable and encouraging. These can be strengthened by incorporating the lessons learnt and from this disaster to meet the unforeseen demands of the future disasters.
- Similarly, Hello Work to support new graduates was also partly effective in supporting employment of University students, as per the respondents, with only 24% agreeing and 47% being neutral. The work done by the Hello Work was commendable, but due to the large scale of the disaster Hello Work was overwhelmed by the load of employment generation.
- Similarly, only a fraction (18%) of the respondents agreed that job opportunities were matched with the interested skilled candidates (internal resources and skills). Due to the increasing demand and shortage of jobs in their local respective areas, interest in taking assignments outside their areas and meeting the needs of jobs of the migrants, it was perhaps difficult to match the job opportunities with the interested skilled candidates.
- With respect to the question whether basic working conditions and standards for the healthy and safe environment were maintained, one-third of the respondents agreed. Maintaining basic working conditions and standards for a healthy and safe environment are prerequisites and need to be given due attention.
- Approximately one-fourth of the respondents agreed that employment generation for unemployed women who take the responsibility to support for the livelihood of their family was appropriate. A large number of women were trained by the Vocational Training Centers and efforts of Hello Work for the placement of women in jobs meeting their interests, needs and skills was remarkable and encouraging. These can be strengthened further by incorporating the lessons learnt from this disaster to meet the unforeseen demands of the future disasters. Women should be an integral part in formulating and framing the policies, programmes so that the needs of women are met and the untapped talents of the human resource can be utilized.
- One-fifth of the respondents agreed that career counselling support was appropriate, while nearly 50% were neutral. Hello Work provided the job seekers with adequate career counselling support. Post-disaster this was very useful for the job seekers as the job seekers were confused, stressed and overwhelmed by the sudden changes in the work profile, role change in the families and sudden loss of jobs. Job

Counsellors helped the candidates to prepare their application documents according to the skills they mentioned in the job card. The candidates could meet the advisor/career counsellors, notice their positive and negative traits/skills and prepare better documents for the application. Experts were also provided by the Hello Work to render advise in planning their career and candidates could stress and utilize the chosen skills possessed by them. The candidates came to know about their abilities and hiring companies could easily understand their skills. This system proved to be efficient in the dynamic, stressful, demanding situations which were confronted post-GEJE.

- One-third of the respondents agreed that flexible hours were permissible, while another one-third were neutral. During post-disaster situations, paucity of human resource, increased stress and increase in work load a hindrance in implementing measures for flexible hours. Special policies should be framed to meet the demand of the employees to cope with the adverse work conditions.
- Nearly one-third of the respondents agreed that equal wages for equal work for both men and women were considered. However, there is much scope for improvement to bring gender parity in terms of equal wages for equal work.
- Regarding the issue of measures to appropriately handle sexual harassment/abuse at the work place, nearly half of the respondents were neutral in their responses, while one-fifth agreed that appropriate measures were taken. This is a grey area during disasters and crisis situations as the incidents rise during such scenarios post-disaster. Following the 2004 Indian Ocean tsunami, in several countries, women faced such problems as adequate infrastructure was lacking in the disaster affected areas. Even in Japan, women felt that the paths leading to toilets should be in safe and well lit places near the shelters to avoid any untoward incidences.
- Following disasters, family structures keep on changing. Programs to support changing family situations were taken in Japan and nearly one-fourth respondents agreed. Hello Work and Vocational Training Centres had launched placement services, training programmes, which catered to the needs of the changing family structures post-GEJE. It was also seen that the older members and women in the families took on the responsibilities to support their families.
- The respondents felt that facilities such as crèches and recreational centres were provided to a lesser extent in the work place than generally in community as a whole. The facilities were available in the communities, but the idea of facilities such as crèches and recreational centres was less common at the work place. With the changing role post-disaster and more women opting for work, the demand increased for such facilities. The hard core situations of the disaster, however, made it difficult for the community to support such facilities. To overcome such situations, some women in the temporary shelters provided crèche services voluntarily. Recreational services were also provided by some NGOs in temporary shelters. Ingenuity and individual/collective efforts, based on the prevailing situation, often work best under such situations.

- One-fourth of the respondents felt that "Mother's Hello" Services (suitable and sufficient job information and job placement services; day care services and information on childcare) were helpful to the job seeking mothers, while (>58%) were neutral. Mother's Hello work services proved to be of great importance in helping the working mothers but due to the increased demand of such services post disaster, many could not be benefitted as the hello work was overwhelmed with the increase in demand for job placements and services provided by the Mother's Hello services.
- Nearly one-third of the respondents opined that job opportunities were provided to the retired people to support their family. Japan has a fairly large old population, many of them retired people) and they often have to support their family. Under such circumstances, it becomes necessary to provide support to them in order for them to be able to support their family (livelihood). Support was provided to the retired people by the Government and some Non-profit Organizations (NPOs) also worked actively in this area. They were supported by providing small job openings in their local areas. Endeavours were made to ensure that job provided to them was matched to their needs and ability to work e.g., some jobs of guarding, gardening, inventory mangers etc.
- More than one-fourth of the respondents felt that programs were undertaken to retain old and experienced employees in the organization (through financial benefits, insurance, incentives, grade pay, medical coverage etc.). Retention of experienced employees is important from Japan's point of view as the senior population is an integral part of the country's population. Nearly one-fourth of the respondents agreed that the measures for training and retraining of older employees were undertaken.
- Approximately one-seventh of the respondents agreed that programmes were mentored to ensure that the skills of experienced managers are passed on to the new managers. Such activities are extremely necessary and should be made a part of the system.
- From the present study it can be concluded that in the final analysis though disasters are inevitable, efficient management of human capital and drawing up of plans for proactive preparedness, coupled with resilience building in the community utilizing human resource at all levels can change the face of disasters and help build safe and resilient nations.

SECTION 5

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4-8-23, Kamishakujii, Nerima-ku, Tokyo, Japan, 177-8502

2013