National Disaster Management Centre

Department of Cooperative Governance and Traditional Affairs

National Education, Training and Research Needs and Resources Analysis (NETaRNRA) – Consolidated Report

Compiled by

National Disaster Management Centre

Consolidated Report

The purpose of this chapter is to give an overview of the National Education, Training and Research Needs and Resources Analysis.

Table of Contents

1 Introduction

The objective of the National Education, Training and Research Needs and Resources Analysis was to conduct an education, training and research needs survey and analyse the results with the view to make recommendations on the development of the National Disaster Management Training and Education Framework and Strategic Research Agenda. The study involved amongst others line functionaries involved in disaster management in the national and provincial organs of state, municipal entities, private organisations and NGOs involved in disaster management. The Consolidated Report gives a high level view of the work carried out by each of the five work streams, namely:

- Work Stream 1: Research Management and Quality Control
- Work Stream 2: Training Needs
- Work Stream 3: Education Needs
- Work Stream 4: Education and Training Resources
- Work Stream 5: DRM Research

It includes the abridged work stream reports as well as their findings. At the end of this document is a section giving consolidated recommendations based on the individual recommendations made by each of the work streams.

2 Project Background

South Africa launched the White Paper on Disaster Management (policy document) on 19 January 1999. The White Paper underscores the importance of preventing human, economic and property losses as well as avoiding environmental degradation. The Disaster Management Act (No. 57 of 2002) (herein after referred to as the DM Act) gives effect to the White Paper on Disaster Management. The requirements of the DM Act stipulate that Provinces and Municipal entities must implement their DRM strategies and plans by July 2006.

The challenge has been the implementation of the DM Act and associated National, Provincial and Municipal Disaster Management Frameworks, effectively and efficiently in all spheres of government. The outcomes of this project will contribute to the achievement of the objective of *Enabler 2* of the *National Disaster Management Framework of 2005* (**dplg**, 2005:156), namely:

> Promote a culture of risk avoidance among stakeholders by capacitating role players through integrated education, training and public awareness programmes informed by scientific research.

This education, training, public awareness and research objective is an indication of South Africa's commitment to the priorities for action set out in the *Hyogo Framework for Action 2005-2015*, specifically Priority 3, which calls on the international community to use knowledge, innovation and education to build a culture of safety and resilience at all levels (ISDR, 2005:9):

> Disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities.

Towards the achievement of Priority 3, the ISDR suggested activities related to information management and exchange; education and training; research and public awareness.

According to the National Disaster Management Framework 2005 (NDMF), a National Education, Training and Research Needs and Resources Analysis must be conducted to determine the disaster risk management education, training and research needs of those involved in disaster risk management across sectors, levels and disciplines.

- The needs and resources analysis must include an audit of existing resources.
- The design of the analysis must be based on scientifically acceptable research principles and methods and not on perceived needs.

The NDMF thus empowers the NDMC to undertake a national education, training and research needs and resources analysis and to facilitate the process.

The results of such analysis should:

- Inform the development of appropriate education and training programmes that not only build on existing strengths but are responsive to Southern Africa's changing disaster risk management needs and fit within all appropriate learning areas.
- Address all disaster management learning areas and be the main input for the National Disaster Management Education and Training Framework as well as the Skills Development Plan.

In achieving the above, the National Disaster Management Centre, through its Directorate of Capacity Building, Public Awareness and Research, embarked on a public tender process in which a suitable service provider was sought to implement a National Education, Training and Research Needs and Resources Analysis. DMS (Disaster Management Solutions) was adjudged as the most suitable applicant to manage and implement this process.

The successful implementation of the project was dependent on a number of critical factors, namely:

- **Stakeholder management and communication** – The project entailed conducting a national needs analysis stretching across national departments, agencies and parastatal organisations; 9 provinces and their departments; 47 district municipalities and 6 metros with their respective departments; 230 local municipalities; NGOs and CBOs.
- **Project management principles** – To deliver this project within the specified time frame strict project principles were applied.
- **Scientific process and methodology** – Each of the five work streams identified had to adhere to sound scientific processes and methodology whilst close attention was paid to the verification of results and processes to ensure that monitoring and evaluation of the results can be undertaken in future.
- **Supporting web based system** – In order to handle the large volumes of data received, a scientific web-based system was deployed for the workshops as well as to conduct the national surveys.

Key project milestones:

- The project commenced when the project directive was approved on 18 December 2008. This included the agreement on the methodology to be employed in the project.
- A one-day session was held at the NDMC on 20 January 2009 with the Senior Manager: Capacity Building, Public Awareness and Research (**dplg**, NDMC), in order to develop a high-level strategy for the department. This opportunity was used to demonstrate the electronic tool that was to be used in the needs analysis process.
- A presentation to key stakeholders and senior management in the Disaster Risk Management arena was made during the National Disaster Management Advisory Forum (being the official body that provides a mechanism for relevant role players to consult one another and to co-ordinate their activities with regard

to disaster risk management issues[1]) meeting of 17 February 2009. The goal of this presentation was to obtain buy-in and support for the national strategy developed in phase 1, as well as to obtain support and commitment for the National Training and Education Needs Analysis project. The first phase of role clarification was also done at the workshop. This workshop was very interactive and the participants took part in a number of sessions facilitated through the selected software. Participants also worked in smaller cluster groups to optimise understanding and maximise the outputs from the workshop.

- 9 provincial workshops were subsequently conducted between February and April. These were aimed at getting all the relevant role players' buy-in and to kick-start the process for all the work streams, with special emphasis on work stream 2. Participants had the opportunity to familiarise themselves with the operation of the software and to participate in smaller cluster groups to optimise understanding and maximise the outputs from the workshop. The workshops were conducted on the dates indicated in table 1.

Table 1: Dates of the Provincial Workshops

Province	Date
KwaZulu-Natal	27 February 2009
Free State	03 March 2009
Northern Cape	04 March 2009
North West	05 March 2009
Limpopo	09 March 2009
Mpumalanga	11 March 2009
Eastern Cape	13 March 2009
Gauteng	16 March 2009
Western Cape	03 April 2009

- From April 2009, a detailed stakeholders' analysis was done to ensure that all relevant stakeholders were included in the study. Based on the stakeholder mapping, a detailed communication plan was developed to ensure continuous communication, also that stakeholders remain informed. This included the use of a newsletter, a call centre, feedback on project meetings and an online communication and feedback system.
- One newsletter was produced in May 2009, to keep participants abreast of the activities within the project. This was distributed to all stakeholders via email and through the share portal website.
- Data gathering, analysis and report writing occurred from June to October 2009.
- Several key close-out presentations were held, namely:
    - NDMC – Management Team on 26 October 2009;
    - NDMC – Capacity Building and Research Technical Task Team on 5 November 2009; and
    - NDMC – National Disaster Management Advisory Forum on 12 November 2009.
- The NDMC accepted the report and comments were noted.

[1] NDMF 1.3.1.1

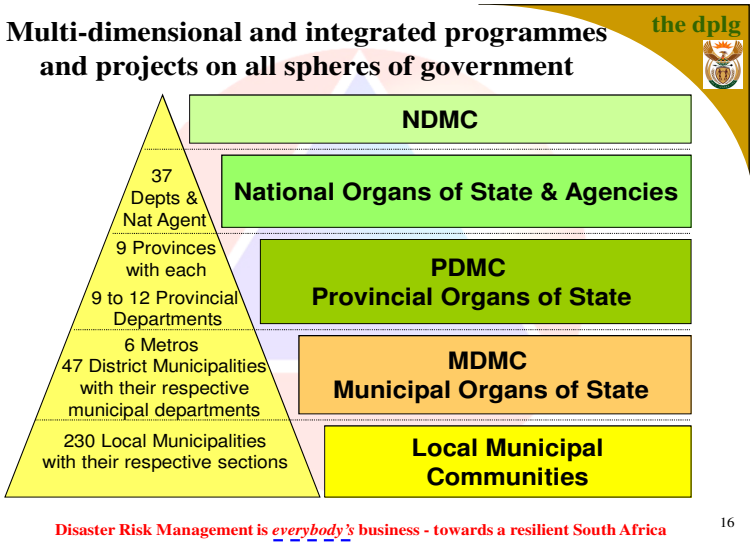
3 Project Implementation

In order to conduct a comprehensive training and education needs analysis, the different role players at all relevant levels (see Figure 1) had to be determined and their roles and responsibilities described.

At the National level, the National Disaster Management Framework (**dplg**, 2005:23-24) calls for the integration of disaster risk management responsibilities into the routine activities of the various sectors and disciplines within the relevant organs of state and their substructures. These responsibilities must be reflected in the job descriptions of the relevant role players and appropriate key performance indicators must be provided. The Public Service Regulations (2001) oblige state organs, in terms of Section I.1 and Section I2, to ... *establish a job description and job title that indicate- (a) the main objectives of the post or posts in question; (b) the inherent requirements of the job*; and to *review job descriptions and titles ... at least once every three years ... and redefine them to ensure that they remain appropriate and accurate*.

Figure 1 shows the complexity of the various role players in Disaster Risk Management. It starts at the top with the NDMC, followed by the National Organs of State, then Provincial and Municipal Organs of State and the Local Communities at the bottom. Since disasters always take place at local level, it shows clearly the importance of the slogan: "Disaster Risk Management is <u>everybody's</u> business".

Figure 1: Integrated Multi-dimensional Spheres of Government



The NDMC, the 9 PDMCs as well as the MDMCs (metros and districts municipalities) deploy several disaster management personnel making use of different or non-standard structures and job descriptions. All these had to be identified, defined and transcribed into generic or standardised roles. Only when that had been achieved could a proper assessment of education and training needs be done.

Provincial organs of state as well as municipal organs of state were seen in a similar light as the national organs of state, where function plans need to be developed and executed. This again needs to be reflected in specific personnel's job descriptions.

To facilitate the execution of all the deliverables on time, covering the total scope, the work was divided among 5 logical work streams. Each work stream was headed by an experienced researcher supported by experts and facilitators.

A strategic communication strategy was developed to support the project with the intent to raise awareness of the project as well as the knowledge and understanding of the project intent, process and impact. The process was directed at key role players, stakeholders, nodal points and decision makers.

The process embraced stakeholder management and communication techniques and was conducted by a small task team appointed for this function. The process to conduct the required research was inextricably linked to the direct participation of the disaster management functionaries at national, provincial and municipal spheres. The outcomes and results of the project are a direct result of the actual participation of these functionaries. The project team, combined with the NDMC and the National Disaster Management Advisory Forum, were the heart of the stakeholder management communication process.

The communication team was faced with the following challenges throughout the project:

- Not all identified stakeholders had an interest in the project, which had an influence on the quality and quantity of involvement as well as responses received from the identified stakeholders.
- In many cases the key stakeholders delegated the activity of response to administrative people and other employees, which complicated the process due to the fact that the response did not come from the more senior person.
- Difficulties to contact stakeholders were pursued and all efforts were made to have at least one telephonic discussion with a key stakeholder to explain the project objectives and inputs required.
- Delayed response due to school holidays, the Confederations Cup, the national elections in April, work pressure and a lack of urgency were unfortunately a very real challenge.

Various strategies were applied to address these challenges:

- A series of one-on-one sessions were held with key stakeholders to improve on response;
- Additional workshops were scheduled and conducted;
- Additional call centre involvement and process was implemented;
- Additional resources were applied to assist with follow-ups; and
- NDMC and project owner intervention through letters and requests.

3.1 Work Stream 1: Research Management and Quality Control

3.1.1 Scope of Work

This component revolved around the principle that the total project needed to be based on scientific research processes, methodologies and expertise that needed to be verified and certified. A Principal Consultant was deployed with the necessary support staff to oversee the design, development and deployment of all the processes, methodology, sampling, questionnaire design, surveys, interviews, focus groups and research data analysis.

3.1.2 Methodology

This work stream directed the other work streams from a research point of view and conducted independent quality assurance activities, ensuring the implementation of all the processes in accordance with sign-off standards. The responsibility to perform quality control and verification exercises throughout the total process rested with this work stream. This resulted in all activities being checked and signed off at each milestone before the team could proceed with their next activities. In brief, the task of work stream 1 was to oversee the methodologies employed by all the other work streams as well as to carry out quality assurance on the results they produced.

In order to qualify a work stream's methodology, an analysis of all aspects of the selected methodology was carried out. The analysis fell under two broad categories, each with its own sub sections.

- **Scientific Basis of Selected Methodology**

In order for a given methodology to be passed off as being scientifically valid, a detailed analysis of the supporting literature was conducted. This involved verification that the methodology had passed peer review processes and that it is recent and still considered up to date.

All work streams had to conduct surveys in order to obtain data to feed the needs analysis exercise. An examination was made of the data collection processes. These ranged from telephonic conversations to on-line electronic surveys. Evidence of these data collection methods was reviewed and verified from the work streams' reports. This evidence would be in the form of log books of telephone calls, or faxes sent, or email invitations.

The processing of this data into intelligent information was also examined by this work stream. Statistical methods and various analysis tools were verified before the results and subsequent conclusions could be signed off.

- **Ethical Considerations**

It was important that throughout the project, the participants retain anonymity and freedom of thought in their submissions to the work streams. Participation in the surveys and questionnaires was voluntary. No personal details were included in any of the reports. This prevented bias and ensured that only the combined inputs of all participants were considered in reaching the conclusions and the proposed recommendations.

As the project progressed, a large database of individuals and their contact details was compiled. These details were not distributed to any mailing lists or third parties. This was done in order to preserve the participants' privacy and to comply with the undertaking made by the project team, during the data gathering stages, not to pass on personal details to any other parties.

3.1.3 Findings and recommendations

It is the considered view of work stream 1 that the research methodologies, processes, data analyses and reports of work stream 2, 3, 4 and 5 met all the requirements of scientific and research practice and ethics.

Criteria	WS 1 Compliance	WS 2 Compliance	WS 3 Compliance	WS 4 Compliance	WS 5 Compliance
Accepted Scientific Research/Methodologies:					
• **Clearly defined methodology**	Yes	Yes	Yes	Yes	Yes
• **Literature**					
○ Recency of literature	Yes	Yes	Yes	Yes	Yes
○ Authoritative literature	Yes	Yes	Yes	Yes	Yes
• **Empirical research**					
○ Survey process	N/A	Yes	Yes	Yes	Yes
○ Data collection	N/A	Yes	Yes	Yes	Yes
○ Data integrity / verification	N/A	Yes	Yes	Yes	Yes
• **Analysis**					
○ Appropriate techniques	Yes	Yes	Yes	Yes	Yes
○ Appropriate conclusions	Yes	Yes	Yes	Yes	Yes

Ethical Requirements					
• **Protection of participant autonomy**					
○ Participants not forced to participate	N/A	Yes	Yes	Yes	Yes
○ Individual response details not included in reports	N/A	Yes	Yes	Yes	Yes
○ Individual emails not distributed to mailing lists	N/A	Yes	Yes	Yes	Yes

3.2 Work Stream 2: Training Needs

3.2.1 Scope of Work

The activities of this work stream consisted of the following 3 components:

- Generic roles and competency requirements of communities on disaster risk reduction;
- NDMF implementation status; and
- Training needs analysis.

3.2.2 Methodology

Work stream 2 focused on the assessment of the training needs through specifically tracing individuals' and organisations' understanding of their roles, accountabilities and competencies. Work stream 2 activities consisted of three components:

- Literature review;
- Workshops; and
- Self Assessments.

Desktop research methodology was applied to identify and describe all possible activities involved in Disaster Management and used this as a basis to draw up profiles for specific designated groups.

A series of national and provincial workshops (one national and nine provincial) were held in February, March and April 2009 to introduce the NETaRNRA project as a whole, and the training needs survey in particular. Participants in the workshops were engaged in the following process with the aim to introduce the training needs survey:

1. Create an awareness of the disaster risk management responsibilities and roles of the organisation;
2. Determine which individuals in the organisation have to be surveyed to identify training needs regarding disaster risk management; and
3. Create an awareness of the responsibilities and tasks of the individual in the organisation to whom disaster risk management related duties are assigned to.

Self Assessment: With this approach, employees rated their own competencies by completing an electronic assessment instrument. The implicit assumption was that every employee possesses the knowledge, ability and integrity required to assess levels of workplace performance reliably.

3.2.3 Findings and recommendations

3.2.3.1 Literature Review into the Generic Roles and Competency Requirements of Communities on Disaster Risk Reduction

Literature shows that disaster risk reduction has become a global concern hence there are renewed and growing attempts to formulate strategies that mitigate the effects of disasters on local communities. The general gravitation is now towards community empowerment through education and disaster risk awareness programmes which are community-driven. As part of empowering communities, there has to be the establishment of early warning systems to reduce vulnerability. While research demonstrates that more participatory research is needed to unlock the institutional resources of communities and to formulate ways in which these can be harnessed for national disaster management programmes, it is vague on what generic roles communities should play in disaster risk reduction. Research is also silent on how different communities should respond to different calamitous phenomena such as armed conflict in different parts of the world.

In addition, while the literature review exercise conducted by this work stream had a generic focus, a clear gap exists when assessing the duplicability of the roles and competency requirements of communities in risk reduction in different localities, i.e. how local-based disaster risk initiatives can be duplicated in other communities and for other hazards or vulnerabilities.

3.2.3.2 Implementing the National Disaster Management Framework

Participants were not sure about the role of their organisations (e.g. coordinate, implement or involved) in the stages of the disaster management continuum (e.g. prevention; mitigation; preparedness; response; recovery and rehabilitation) with regard to those hazard(s) they have indicated their organisations are responsible for.

The lack of clarity with regard to responsibilities across the different spheres of government shows that there is currently no formal indication (i.e. *Gazetted* schedule) of which organ of state at which sphere of government should coordinate or manage what disaster and which organ of state at which sphere of government should perform a supportive role in the disaster.

There may be uncertainty with regard to responsibilities, but there is clarity with regard to the hazards prevailing in the country.

However, the fact that South Africa is considered a "low" to "medium low" risk country[2] (see PreventionWeb, 2009a) may contribute to a lack of urgency toward disaster risk reduction. Within the South African context, the question arises as to what constitutes vulnerability? In searching for an answer, two levels have to be considered, namely (1) what makes a geographical area vulnerable, and (2) what makes the people in the area vulnerable.

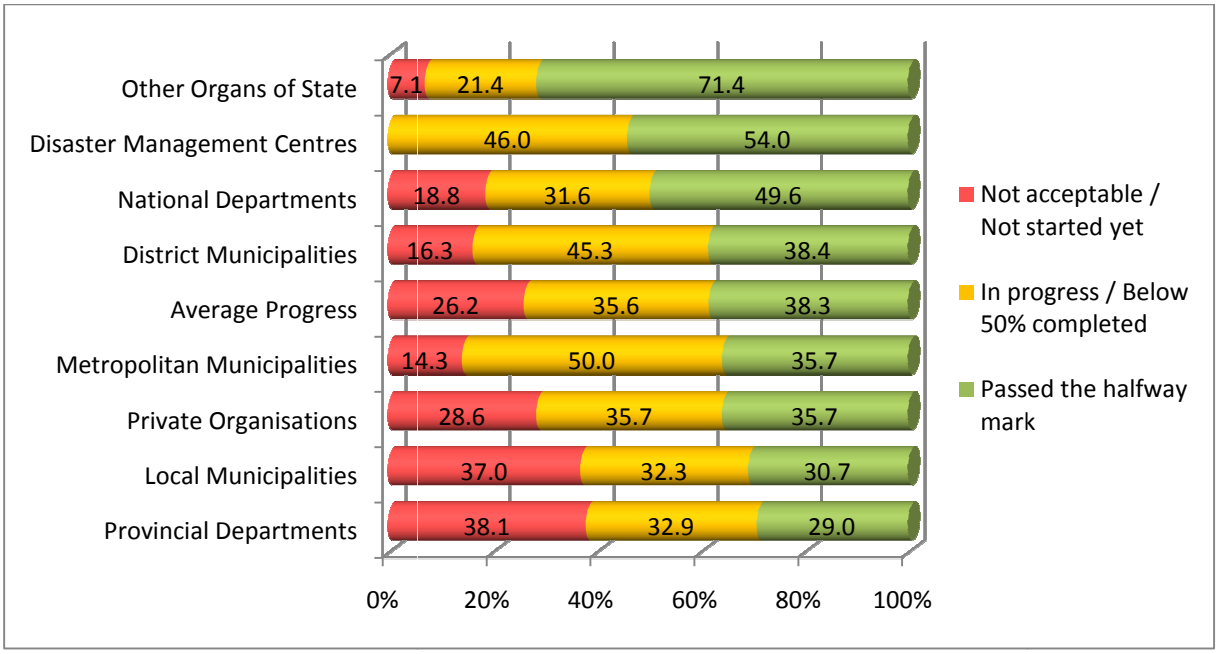
Monitoring, evaluation and reporting of whether organs of state comply with the Disaster Management Act and National Disaster Management Framework is not receiving the attention called for in the Disaster Management Act. The only official report on South Africa's progress with implementing the National Disaster Management Framework available at the time of writing this report was the Inaugural Annual Report 2006/07. South Africa was not one of the 62 countries that have completed an interim progress report using the online **Hyogo Framework for Action** Monitor Tool as of 28 February 2009.

Collective progress made with implementation of the National Disaster Management Framework reported at the NETaRNRA workshops in general is weak: more than a quarter of the representatives – from all the stakeholder

[2] On a logarithmic index with values ranging from 1 = negligible to 10 = extreme risk.

groups[3] that have participated in the workshops – indicated that the organisation has not started implementation yet. A further third is still below the halfway mark with implementation. Progress is uneven within and across national, provincial and local spheres of government. Other Organs of State; Disaster Management Centres; National Departments and District Municipalities show above average progress. Metropolitan Municipalities; Private Organisations; Local Municipalities; and Provincial Departments show below average progress.

Figure 2: Reported progress with the implementation of the Framework



Four years after the promulgation of the National Disaster Management Framework, around two-thirds of all stakeholder organisations are below the 50% completion/compliance mark with implementation.

A comparison between the average progress made by 62 countries with the implementation of the *Hyogo Framework for Action*[4] and the average progress made by 166 organs of state taking part in NETaRNRA in South Africa with regard to the implementation of the *National Disaster Management Framework* shows two important trends, namely:

- Globally, South Africa lags slightly behind with regard to the implementation of all five comparable Hyogo objectives.
- South Africa follows the order in which global progress is made, i.e. progress is best with regard to Priority 1/KPA 1 and worst with Priority 4/KPA 3.

Recommendations:

- Increase risk reduction governance to ensure implementation, enforcement and accountability. The various phases of the NETaRNRA have shown the need for a simultaneous "top-down" and "bottom-up" approach to DRM. Place the disaster risk management function at the highest possible level of political authority (i.e. The Presidency) in order to:

[3] n = 170 including 19 National and 60 Provincial Departments; 1 National and 8 Provincial Disaster Management Centres; 14 Other Organs of State (Parastatals, Regulatory and Research bodies); 6 Metropolitan Municipalities; 35 District Municipalities; 27 Local Municipalities; and 20 Private Organisations (4 Universities; 4 Private/Business Organisations; 6 NGOs; and 6 Associations).

[4] The ISDR launched its *2009 Global Assessment Report on Disaster Risk Reduction* in May 2009.

- Increase enforcement mechanisms;
- Integrate/link disaster risk reduction with economic development, social-cultural development, environmental development and land-use planning; and
- Integrate poverty and disaster risk reduction policy frameworks.

- Centralise hazard monitoring and risk assessment. Set a time frame to conduct comprehensive national multi-risk assessments to cover the entire country – at the smallest geographical/enumerator area as possible – with hazard maps and assessments, for natural disasters overlaying socio-economic profiles (i.e. poverty, unemployment, female and children headed households, population growth, homelessness/shack dwelling, urbanisation). Target the most vulnerable groups: identify risk prone communities and ring fence funding to strengthen the capacity of the local government in that geographical area to integrate sustainable development objectives and disaster risk management and increase community involvement.
- Improve tools and enhance capacities for monitoring disaster risk and progress being made in risk reduction. Institutionalise functions for tracking emerging trends in disaster risk and monitoring progress on risk reduction and climate variability.
- Include risk reduction in national development plans and budgets. Allocate funds for disaster risk reduction – in addition to priorities for response and preparedness related expenditure – in national, provincial and local budgets. Increase and permanently allocate budgetary and financial support, resources, and capacity development, particularly to local level and particularly to most vulnerable groups.
- Responsibilities and actions to be performed by each institution across different spheres of government should be clearly defined. The use of schemes and tables is suggested.

3.2.3.3 Training Needs Analysis

The main report on the training needs analysis consists of three main sections. In the first section, the system for skills development in South Africa is highlighted. A joint statement made by the Ministers of Education and Labour in 2007 invoked changes to the South African skills development arena. Most important of these changes are the establishment of the Quality Council for Trades and Occupations (QCTO) and the introduction of the registration and development of occupational qualifications linked to Organisational Framework for Occupations. The process to be followed to register standards and qualifications at the QCTO is also be highlighted.

The second section summarises the findings of the NETaRNRA training needs survey report. One of the objectives of the NETaRNRA project was to conduct a training needs survey among line functionaries involved in disaster risk management in national and provincial organs of state, municipal entities and other private and non-governmental organisations involved in disaster management. A total of 487 line functionaries involved in disaster risk management have participated in the survey. The result of an analysis of their responses is attached in Appendix 5A: *Training Needs Survey Report*. The last part of the section provides an overview of current disaster risk management related qualifications that could fulfil the training needs.

Finally, the implications of the changes to the South African skills development arena for skills development and professionalisation in the disaster risk management realm are discussed. The focus is on the process to develop and maintain occupational qualifications. It is recommended that the occupational qualifications development process or occupational learning systems' implications be considered for the development of a national disaster risk management education and training framework.

The training needs survey was based on outputs defined for disaster management practitioners. Participation in the process indicated a lack of clearly defined responsibilities of both practitioners and line functionaries. This

implies that the development of disaster management practitioners should not start with asking what training is required, but rather with what their output should be.

The recent developments in the skills development arena in South Africa are pivotal in informing the road ahead for developing disaster management practitioners. Capacity building should be needs driven and fit the purpose of the specific occupations' outputs. A body that accepts responsibility to define what industry needs (e.g. the Capacity Building and Research Technical Task Team) and how these needs should be addressed would go a long way in ensuring training and development is streamlined in the disaster management fraternity.

The mentioned body could fulfil all the legal requirements stipulated in relevant acts, whilst building on the proud reputation of the community of expert practitioners already operating in the world of work. This building on the proud reputation forms the key to professionalising the industry. Professionalising implies specific occupations have been identified for an industry; the occupations' outputs were clearly defined; behaviour and conduct associated with the outputs is defined; and the defined occupation outputs are regularly updated to ensure relevance in the world of work. The mentioned attributes of a professionalised industry is entrenched in the development of occupational qualifications, which is aimed at providing competent practitioners for specific posts, not broad qualifications that could possibly impact post outputs.

The professionalised industry should also build a value proposition that is inviting. Association with the body representing the industry should be seen as an advantage, even honour, rather than a legislative licence to practice. Learning designed and maintained by the professional body should be aligned to culminate in Occupational Awards. Work places should, with the help of SETAs, be capacitated to be active participants in the learning process.

The training needs assessment is thus confirming that proper structures and processes should exist to sustain workplace output related to disaster management, before training gaps can be identified. The latter seems to be difficult to determine due to the absence of clearly defined outputs, which should be the responsibility of the proposed structures and processes.

3.3 Work Stream 3: Education Needs

3.3.1 Scope of Work

With regard to disaster risk management education, the *National Disaster Management Framework of 2005* states several objectives, including education for disaster risk management professionals and practitioners in associated professions as well as the integration of disaster risk reduction education in primary and secondary school curricula.

Notably the theme of the 2006 International Day for Disaster Reduction was "Disaster Risk Reduction Begins at School" (ISDR, 2006).

More recently, delegates to the DMISA Conference on Disaster Risk Reduction 2007, held 17 to 18 October 2007 at Mentorskraal, Jeffrey's Bay have adopted the following resolutions related to education:

- All places of learning and especially places of higher education should integrate disaster management into course materials across all subject matter and ensure that they have educators with relevant training presenting the disaster management subject.
- The SA National Minister of Education should strengthen disaster risk reduction in the school curriculum to develop future adults who are able to identify hazardous situations within their own community and ways of reducing disaster risk through proper application of sustainable developmental practices.
  Source: DMISA (2007)

3.3.2 Methodology

The overall aim with this research activity was to determine to what extent disaster risk reduction is integrated in the school curriculum and into course materials at places of higher education. The following methodologies were employed to achieve this objective:

- Interviews with relevant stakeholders at DMISA, the Council for Higher Education and the Department of Education.
- A survey of 400 primary and 120 secondary schools. According to the schools survey report, 512 were planned, 402 actually done proportionally sampled across provinces, urban vs. rural.

3.3.3 Findings and recommendations

There are schools in South Africa that are situated in disaster prone areas. The National Education Infrastructure Management System (NEIMS) indicates that nearly 15 per cent of all learners in South Africa are taught in environments that expose them to danger and to potential health hazards. Furthermore, at least 1 166 (4.7 per cent) of all schools in the country are at the risk of flooding. Data on risks that pose a threat to school infrastructure and people collected through the NEIMS is an invaluable source of information for risk profiling and disaster risk reduction planning.

Vandalism and a lack of maintenance – and not natural hazards – pose a greater threat (a third of schools) and can be dealt with through efforts to secure the premises (fencing) and the classrooms (burglar bars). It may be for this reason that the *National Policy for an Equitable Provision of an Enabling School Physical Teaching and Learning Environment* and the *National Minimum Norms and Standards for School Infrastructure* of the DoE focus more on security management than on disaster risk management.

Nearly half (46 per cent) of the respondents from the NETaRNRA school survey were of the opinion that there is no chance at all (e.g. once in 20 years) that a disaster could strike their community. Schools that are not prone to disasters will not have a sense of urgency to include disaster risk reduction and management related activities in safety and emergency planning or to go beyond what is expected through National Curriculum Statement directives.

The fact that fire drills are mostly used in emergency exercises, coupled with the relatively low incidence of the inclusion of disaster risk management related activities in developing emergency plans confirms the following conclusion from the Royal Society for the Prevention of Accidents: *while safety planning is familiar to schools, disaster planning is relatively new to the education sector*.

An analysis of the National Curriculum Statement directives shows a convincing alignment – in especially Learning Outcome 3 in Social Sciences (Geography) at Grade 7 – with the disaster risk management concepts and principles contained in South Africa's National Disaster Management Framework of 2005. Children will have a basic understanding and knowledge of disaster risk management concepts and principles if these curriculum directives are implemented in a skilful and creative manner in the classroom.

However, similar to emergency planning, the focus on fire in practical examples coupled with the low inclusion – on average less than a fifth of the respondents – of disaster risk management related activities, leads to the conclusion that coverage is generic and for the purposes of laying a basic awareness and understanding of, for example, tsunamis, earthquakes, tornados, floods and fires, and not necessarily focused on strengthening of behaviour that limits or prevents disaster risk.

Furthermore, the basis laid at primary school level is continued in secondary school curricula. However, the inclusion of disaster risk management concepts and principles are limited to a few learning areas (specifically

Geography) and Grades (Grade 12: Life Orientation). Disaster risk management education is therefore not reaching all senior secondary school children, because of learning area choices and high secondary school dropout rates. The lack of focus on cultivating disaster risk reduction behaviour is to be found in a lack of proper guidance and support to schools.

Funding, more specifically the lack of it, was mentioned as a challenge to implementation in virtually every case study in the ISDR's 2007 compilation of *Good Practices and Lessons Learned* from the first year of implementing the *Disaster Risk Reduction Begins at School Campaign*. This was confirmed by reports that insufficient financial resources hampered the school competition initiative of the Chris Hani District Municipality and hindered the roll-out of the *Disaster Management Guide Pack* of the Tshwane Disaster Management Centre to all English medium primary schools in Tshwane. It is furthermore confirmed by the fact that very few schools use additional resources (i.e. other than textbooks).

The fact that school management is still focussed mainly on safety planning and not encompassing disaster risk management as such, coupled with the fact that disaster risk reduction behaviour is not yet inculcated through hands-on, practical application of for example, identifying hazards and risks and how to deal with them, hampers the possibility that children in South Africa will contribute to building greater awareness of disaster risk reduction issues across entire communities.

Recommendations:

Identify and target schools in disaster prone areas for guidance and support to school management and teachers in disaster risk profiling and in developing disaster risk reduction planning. This could be done through the following activities:

- The Department of Education – with support from the NDMC – should develop disaster risk management directives for schools currently at risk of disaster such as flooding and sink holes. The directives should include guidelines for cooperation between Provincial Departments of Education and PDMCs and between school district management and MDMCs.
- A list of schools that are at risk – identifiable from the National Education Infrastructure Management System (NEIMS) database – can be provided to disaster management centres so that they can help school management and teachers with risk profiling and disaster risk reduction planning.
- Prioritising disaster prone schools for the distribution of additional resources on disaster risk reduction related activities (e.g. hazard mapping) funded from a budget other than/in addition to the budget for textbooks.
- Providing in-service training in disaster risk reduction and management concepts and principles to school management and teachers targeting schools in disaster prone areas as a priority.
- The Department of Education should be encouraged to incorporate disaster risk management concepts and principles on more levels to reach all primary and secondary school children.

Make the observance of International Day for Natural Disaster Reduction on the second Wednesday of October compulsory for all schools. The day could be used as a vehicle to promote a culture of disaster reduction, including disaster prevention, mitigation and preparedness among all children in general. However, activities in disaster prone schools should focus on the disaster(s) for which the school is at risk. Representatives from the National Department of Education, the NDMC, Provincial Departments of Education, PDMCs, school district management and MDMCs should come together to plan the launch of the annual observance of International Day for Natural Disaster Reduction.

A specific official or a unit should be made responsible in the Department of Education for disaster risk reduction in schools at national, provincial and local level. Disaster risk reduction in schools should be the purpose and

function of the post/unit – i.e. it must be more than the mere inclusion of disaster risk reduction in addition to the key performance areas of a line-functionary. Similarly, an official in disaster management centres at national, provincial and local level should be made responsible to interact with schools and to provide guidance and support to school management and teachers in disaster risk profiling and in developing disaster risk reduction planning.

The risk data collected by means of National Education Infrastructure Management System (NEIMS) should be included in/overlaid with risk profiles developed by disaster management centres at national, provincial and local level.

3.4 Work Stream 4: Education and Training Resources

3.4.1 Scope of Work

This work stream identified and listed Disaster Management related courses (modular or short); workshops; conferences/seminars; mentorships/learnerships provided at Universities, through SETAs, or by private service providers.

Section 6.4.8 of the National Disaster Management Framework (NDMF) stipulates: "The NDMC must establish a service provider register to regulate the quality and standards of training programmes. The NDMC must ensure that a register of facilitators, presenters, service providers and course materials is kept in accordance with the national disaster risk management education and training framework."

The goal of the work carried out by this work stream was to create the foundation on which the NDMC could build its database of service providers, in compliance with the above-mentioned section of the framework.

3.4.1 Methodology

Desktop research was conducted to assemble the following:

- A list of training providers, that provides courses that are specific to or related to Disaster Risk Management – this need not be a complete list, but must be representative of what is available and easily accessible.
- A list of registered short courses/unit standards/training programmes that are specific or related to Disaster Risk Management.
- A list of registered Learnerships that are DRM specific or related.
- A list of recent Workshops/Seminars/Conferences that are DRM specific or related.
- Classification of the above into various categories:
    - Registered or not (including body that they're registered with);
    - DRM Continuum (different aspects of DRM as defined by the DM Act and NDMF);
    - KPAs and Enablers (as specified in the NDMF); and
    - Hazard addressed.

To ensure that the classification of data was uniform and accurate, the following quality assurance and verification exercise was done:

- **Internal verification:** A random sample of entries in each of the data sets (unit standards, training providers and universities) was given to a researcher not involved in completing the classification. That individual's classification was then compared to the classification done by the individual primarily responsible for the data set.
- **External verification:** A panel of four individuals was selected. They attended a meeting where they were asked to classify a randomly selected number of unit standards and courses (each individual was provided

with the above list of definitions and explanation of classification criteria). The classification done was compared with that of the researchers. The correlation was acceptable, with minimal deviation.

3.4.2 Findings and recommendations

Comprehensive lists of unit standards and training providers were compiled. A trend observed with the unit standards is that very few lead to a full qualification in DRM but only contribute to modules within a wider field of study. Various service providers were identified and summaries of their course details were included in a database. It is recommended that the NDMC take charge of the database in order to ensure that it is kept up to date. Service providers should have the opportunity to register on this data base.

3.5 Work Stream 5: DRM Research

3.5.1 Scope of Work

The task of this work stream was to identify the disaster risk reduction research that has been conducted since the year 2000. Two important sources of information were applicable, namely:

- The publication lists of relevant university faculties regarding research products (i.e. accredited journal articles; non-accredited journals and articles; papers presented; research reports; working papers and dissertations); and
- Master's and Doctor's dissertations and other research funded through and registered with the NRF's (National Research Foundation) Register of Grants. The title, publication date and centre of origin (institute) of these research products were listed in an electronic database. The data was classified, analysed and reported in terms of themes identified from the titles.

3.5.2 Methodology

As part of the main NETaRNRA project, work stream 5 was tasked to facilitate the development of an integrated disaster risk reduction and management research agenda. In addition to indentifying risk reduction research carried out since the year 2000, workshops with relevant NDMC role players and university faculty heads were planned with the following objectives:

- To provide an overview of disaster risk reduction research conducted in South Africa, since 2000;
- To identify themes not covered or inadequately covered thus far in research initiatives;
- To identify and prioritise research priorities; and
- To develop a strategic disaster risk reduction research agenda and implementation framework for South Africa.

Due to the non-availability of the proposed members of the nominal group of experts, these workshops had to be cancelled and replaced by electronic (e-mails and online questionnaires) and telephonic correspondence. Following due deliberation it was proposed that the project continue using a Delphi technique on-line web based survey to at least implement the research-prioritisation process. The ThinkTank methodology that was to be used at the workshop incorporates the principles of the nominal group technique and the Delphi Technique.

The Delphi method is a process to collect data and information to solve non-analytical problems. It is used as a research tool. The process gathers knowledge from individuals and analyses and combines the information to obtain a group consensus.

The information is gathered in a series of questionnaires or surveys called rounds. The first round is exploratory in nature and presents the participant with a standard questionnaire. The second round then presents the

participant with the group response in addition to his or her response from the first round. The member has the opportunity to alter his or her answer or to voice his or her opinion about new issues collected in the previous survey. The third round, if necessary, will finalise the statistical response of the group to form a consensus.

3.5.3 Findings and Recommendations

Due to the fact that there was no formal consultative stage, this study has been modified and therefore it should be seen as a Working Paper and not a final research report.

Each member of the nominal group was asked to participate in the Delphi process for disaster risk reduction to help assess and prioritize research issues in the disaster risk reduction field in South Africa. The goal of this project was to identify the most critical issues or problem areas in need of future research investigation. The first questionnaire requested the participants to evaluate the importance and to rank issues affecting the disaster risk reduction field and to rate the stated research prioritisation criteria. The second questionnaire followed, and this displayed the group response of the first questionnaire and new issues collected. A third questionnaire would have been used, only if necessary, to eliminate gaps in the information collected in earlier rounds and to finalise the group response. However, due to time constraints a third round could not be undertaken.

After the second round, 57 issues, topics and themes were gathered through the participants. The issues were then ranked and the top 25 considered for further research. These issues must still be measured against the criteria for alignment with the research goals and objectives and the issues need to be formulated into clear research problems. Below is the list of the 25 issues that were brought up:

1. More evidence needed of cost-effectiveness of risk reduction initiatives.
2. Climate change and adaptation to reduce vulnerability.
3. Hazard scientists not consulted widely (by DRM practitioners).
4. The limited influence of disaster risk reduction principles and policy on integrated development planning and service delivery.
5. Need for earthquake related community awareness programmes in seismic active regions.
6. Inadequate political backing of DRM at Ministerial level.
7. There is a need for an IT research and development programme specifically focused on disaster risk reduction and management.
8. Lack of standardised systems for Disaster Management.
9. Active and meaningful community participation in risk reduction programmes.
10. Need for a mechanism for conveying the 'best' scientific information to the policy and decision makers.
11. Need for national baseline information and sharing on the SA risk profile.
12. No uniform relief policy, fund, guidelines.
13. Need for one central disaster contingency reserve.
14. Urgent need for DRM officials to develop an understanding, skills and competencies of development planning to ensure that the disaster management function has its intended statutory impact.
15. No uniform incident/response management system/standard for SA.
16. Allowing municipalities to manage their own contingency reserve.
17. Unknown and new hazards e.g. swine flu.
18. The need for more trans-disciplinary and inter-disciplinary research to reduce the fragmented and reductionist approach to disaster risk management.
19. The need for a more permanent strategy for the annual flood risks of informal settlements across the country.

20. Lack of coordination between ALL sectors of Government and across all spheres. (As well as: 33. Lack of communication between various spheres of government).
21. The need for proper information and education of the population starting at school level.
22. Lack of political will and public support for disaster risk management.
23. The need for a uniform approach to the placement of disaster management at both local and provincial spheres of government.
24. Lack of strong leadership in disaster risk management.
25. Roles and responsibilities of districts versus local municipalities are not clear or understood by all parties.

The trend over the past 15 years, in disaster management, has been an international realisation that to sustain and develop more resilient communities, additional efforts to avoid and prevent disasters and preparedness for disasters must also be factored into disaster risk management and risk reduction. To reduce risk, the reduction of vulnerability has now become the focal point in disaster management.

This evolving expansion of the disaster management function has created an opportunistic phase for the direct involvement and participation of many more disciplines and academic interests within the disaster management domain. This phase has created a greater need for multi-, inter- and trans-disciplinary research. The challenge that this multi-disciplinary nature of disaster risk reduction has now created is the need for collective scientific-based risk reduction policy, strategy and implementation activities.

Although there is currently no formal research policy for disaster risk management or disaster risk reduction, both the DM Act and NDMF contain statutory and policy imperatives on research requirements, clearly indicating many of the requirements, objectives and criteria for establishing a research policy which should contain guidelines on the research agenda and research prioritisation-setting principles and process.

A review of the research-relevant sections in the DM Act and NDMF showed that the basic structure and contents for a research policy can be established.

The purpose of this study was to find answers to the question: What research-worthy issues, topics and themes must be included in the research agenda to ensure that the critical priority knowledge and tools are provided from the research outputs that can contribute to the effectiveness of disaster risk reduction policy, planning and decision making?

There are a number of principles / issues that should guide the research prioritisation process; a number of different approaches that can be chosen for prioritisation; and there are different methods available in scoring or ranking the alternative research themes or topics.

For this study, as a point of departure an electronic database was developed of existing research activities and outputs containing key “disaster risk management” related wording. Once these research outputs had been identified they were categorised into the seven standard sections (KPAs and Enablers) that make up the National Disaster Management Framework. It was found that the concentration of master and doctoral and non-degree research output is on risk reduction (KPA 3) and risk assessment (KPA 2). The advanced nature of tertiary institutions is reflected in their uptake of the paradigm shift away from a focus on disasters to a focus on risks (reduction and assessment).

However, an analysis of the collective progress made with the implementation of the four key performance areas and the three supportive enablers by organs of state in South Africa has shown that KPA 3 is an area of concern, across all three spheres of government. It can be assumed either that research results do not filter through to practitioners or that the findings are not relevant.

The second step entailed formal consultation and engagement between the communities of disaster risk scientists and disaster risk reduction specialists to identify priorities for collaborative research and development. Disaster risk management practitioners, specialists, academics, NGOs and other relevant stakeholders were invited to form a nominal group to participate in a Delphi process to identify and prioritise research issues in the disaster risk reduction field in South Africa.

Thirty-five issues were initially identified from the DM Act and NDMF that should be considered when prioritising disaster risk reduction research issues, themes and initiatives for inclusion in a national strategic research agenda. An additional 23 issues were raised by nominal group participants. Participants were then requested to determine the importance of each individual issue (now 58) and then rank them from most important to least important, relevant to each other.

The five issues listed below are common in the top 15 issues both in terms of importance and in the ranking of issues:

- Need for a national baseline information and sharing of the South African risk profile;
- Need for a mechanism for conveying the "best" scientific information to the policy and decision makers;
- Active and meaningful community participation in risk reduction programmes;
- Lack of coordination between **all** sectors of Government and across all spheres; and
- The limited influence of disaster risk reduction principles and policy on integrated development planning and service delivery.

The availability of an indicative risk profile will assist in the ability to qualify and quantify communities with the same risk profile creating a matrix to guide research agenda and the prioritisation of research topics and finding international best practice to address the needs of communities at risk.

The lack of intergovernmental coordination can be ascribed to poor clarification of roles and responsibilities as was reflected by the results of the work stream 2 NDMF implementation report.

One of the most frequently indicated training needs mentioned by participants in the NETaRNRA training needs survey fall under Key Performance Area 2: Establish a uniform approach to assessing and monitoring disaster risks, that will inform disaster risk management planning and disaster risk reduction undertaken by organs of state and other role players across all spheres of government.

A stronger understanding of risk reduction will drive a stronger need for research.

There are numerous research resources in South Africa with a diverse range of expertise however there is no integrated research support of DRM.

The finding above provides a firm basis for the following recommendations with the premise of providing communities with the ability to become more resilient to disasters.

The availability of an indicative risk profile will assist in the ability to qualify and quantify communities with the same risk profile creating a matrix to guide research agenda and the prioritisation of research topics and finding international best practice to address the needs of communities at risk. A demanding decision-making exercise in the prioritisation process of selecting which hazards, extreme events and disaster management related issues to focus the available research infrastructure, human resources and funding on is needed.

The database developed for the purposes of work stream 5 is by no means exhaustive and needs to be expanded and maintained.

Finally, a strong training or awareness campaign needs to be initiated as a stronger understanding of risk reduction will drive a stronger a research programme.

4 Conclusion and Recommendations

Whist the Disaster Management Act (Act No. 57 of 2002), and the accompanying National Disaster Management Framework are globally considered to be exemplary in their content, they are in danger of being made impotent by the poor implementation progress by national departments as well as private organisations. The findings of the National Education, Training and Research Needs and Resources Analysis (NETaRNRA) have revealed the gaps that exist in the implementation of the DM Act and Framework and the current resources available to train DRM practitioners as well as to educate and empower learners and the communities they live in.

South Africa is not considered as a country prone to natural disasters (disasters that occur as a result of naturally induced hazards). This provides the NDMC and the country in general with the unique opportunity to practise "smart" disaster and risk management.

Three aspects are addressed through the project title however a fourth aspect evolved to as the project matured. The aspects are:

- Implementation of the Disaster Management Act;
- Training;
- Resources Analysis; and
- Research.

Conclusions and recommendations are discussed in detail below as per the above.

Implementation of the Disaster Management Act

Some of the most notable gaps were revealed in the monitoring and evaluation of DRM initiatives as well as in implementation, accountability and enforcement. The various phases of the NETaRNRA have shown the need for a simultaneous "top-down" and "bottom-up" approach to DRM.

The "top-down" approach would ideally involve the implementation of the NDMF and compliance with the DM Act itself by all the stakeholders identified in the Act. In addition to expediting compliance, Disaster Risk Management functions should be placed at the highest possible level of political authority in order to achieve the following objectives:

- Increase enforcement mechanisms;
- Integrate risk reduction with economic, social-cultural and environmental development as well as land use planning social; and
- Integrate poverty and disaster risk reduction policy frameworks through IDPs.

To address the shortcomings identified in monitoring and evaluation and to satisfy the second Key Performance Area of the Framework (Assessing and Monitoring Disaster Risks), centralised hazard monitoring and risk assessment systems should be put in place. This would involve setting a time frame within which a comprehensive risk profile for the entire country is developed. The national profile would be the summation of profiles of the smallest geographical/enumerator area possible. The risk profile would be the intersection of the hazards (natural and human induced) map and vulnerability assessments including socio-economic profiles e.g. poverty, unemployment, female and child headed households, population growth, homelessness/shack dwelling, urbanisation etc.

A component of the "bottom-up" approach would be to have the communities in the enumerator areas conduct regular hazard and risk monitoring in order to have up-to-date profiles as an example of community based risk assessments. By having residents of a community participate in risk assessments, this would not only foster

ownership and responsibility but increase the communities' awareness of DRM issues. A community driven risk assessment would also serve as an accurate guide to the allocation of funds for risk reduction initiatives. An opportunity would then arise to focus activities on "most-at-risk" communities.

Training

The training needs survey was based on outputs defined for disaster management practitioners. Participation in the process indicated a lack of clearly defined responsibilities of both practitioners and line functionaries. This implies that the development of disaster management practitioners should not start with asking what training is required, but rather with what their output should be.

The training needs assessment is thus confirming that proper structures and processes should exist to sustain workplace output related to disaster management, before training gaps can be identified. The latter seems to be difficult to determine due to the absence of clearly defined outputs, which should be the responsibility of the proposed structures and processes.

Whilst it is acknowledged that educators are already under immense pressure with the current school curriculum, it is a cause for concern that DRM issues are treated in a generic manner in the subjects that include them. This leaves learners in areas where specific hazards occur unprepared to deal with such events. Because of the different hazards native to different parts of the country, it is recommended that instead of a generic national approach, DRM issues in the school curriculum should be handled in the context of the risks that are present in particular provinces. Also of concern is the limited number of school grades with DRM related material in their courses. It was the findings of this project that grades 5, 6 and 7 were the ones that had the most in-depth coverage of DRM issues. This leaves learners with a very limited exposure to DRM issues in their secondary schooling.

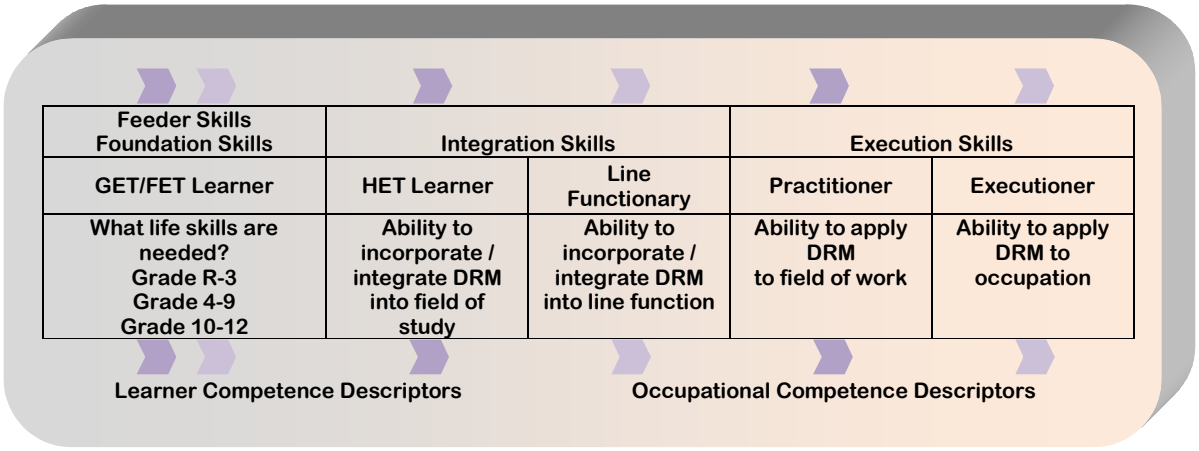
Disaster risk reduction pivots on creating a shared sense of responsibility in society. The following three main focus areas were identified as critical to the education sector to develop a sense of responsibility and inform the Disaster Risk Management Education and Training Framework:

1. Feeder / Foundation Skills
    - Children in school, sharing and living a basic disaster life skill orientation which is not only focussed on knowledge, but also behaviour that either reduces disaster risk or the effect of disaster, because: *children who are taught about natural hazard risks play an important role in saving lives and protecting members of the community in times of crisis*[5].
    - Communities and volunteers in support of inculcating a broad-based culture of risk avoidance that includes life skills and disaster risk reduction behaviour.
    - Line Functionaries who have to integrate disaster risk management into their line function but who were not exposed to any DRM education or training before.
    - The foundation skills for communities; volunteers and line functionaries can be provided in the form of learning programmes or as part of a learnership.
2. Integration Skills
    - HET learners, having the ability to relate their field of study to disaster risk reduction or disaster responses.
    - Employees in the workplace, i.e. Line Functionaries having the ability to relate their sphere of influence or work deliverables to disaster risk reduction or disaster responses.
3. Execution Skills

[5] Salvano Briceño, Director of UN/ISDR.

- Disaster Risk Officials and managers functioning at various levels in government structures to ensure reduced disaster risk and effective, co-ordinated disaster responses.

Figure 3: Disaster risk management skills programmes and occupational qualifications



Resources Analysis

Comprehensive lists of unit standards and training providers were compiled. It is recommended that the NDMC take charge of the database in order to ensure that it is kept up to date. Service providers should have the opportunity to register on this data base.

Research

The research component identifies key recommendations, that being, aspects of a research policy to be addressed and research needs participants identified as important research issues

Benchmarking the content and structure of existing research policies from various organisations and state agencies can act as a guide to developing a typical template for a standardised research policy. Set out below is an example of a typical structure of a research policy which is also an attempt to addresses the first research question: **How should a research policy be structured?**

Framework for the development of the research policy:

- Purpose, mission, and objectives of the policy
- Goals of the policy
- Institutional framework
- Priority setting for research
- Financing of research
- Capacity development
- Communication of the disaster risk reduction research

The research needs identified five issues a common in the top 15 issues both in terms of importance and in the ranking of issues:

- Need for a national baseline information and sharing of the South African risk profile;
- Need for a mechanism for conveying the “best” scientific information to the policy and decision makers;
- Active and meaningful community participation in risk reduction programmes;

- Lack of coordination between **all** sectors of Government and across all spheres; and
- The limited influence of disaster risk reduction principles and policy on integrated development planning and service delivery.

The sum of all the findings and recommendations of the NETaRNRA implore all organs of state; national, provincial and district departments and the various spheres of government and indeed, all private organisations, to implement the Disaster Management Act (Act No. 57 of 2002) wholeheartedly, using the NDMF as a working guide. This would require coordination and cooperation amongst the various stakeholders, and an awareness of what is required from each role player. It is important to note that all the above-mentioned organs/institutions are legally bound to implement the DM Act. A cause for concern is the seemingly blasé approach towards holding the heads of these institutions accountable for failing to comply with national legislation. If the current legislation and the framework were to be implemented, the nation would find itself with more resilient communities and safer infrastructure.