IDRC DAVOS 2014

"Integrative Risk Management - The role of science, technology & practice"

Davos Summary

on Science and Technology, Education and Training, and Implementation for Disaster Risk Reduction

gaps • weaknesses • options

24-29 August 2014
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SAMPLE

GLOBAL RISK FORUM
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DAVOS SUMMARY ON SCIENCE AND TECHNOLOGY, EDUCATION AND TRAINING, AND IMPLEMENTATION FOR DISASTER RISK REDUCTION – GAPS • WEAKNESSES • OPTIONS

THE IDRC DAVOS SUMMARY SERVES AS A CONTRIBUTION TO UNISDR'S PROPOSED ELEMENTS FOR CONSIDERATION IN THE POST-2015 FRAMEWORK FOR DRR (UN WCDRR SENDAI, 14–18 MARCH 2015)

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The United Nations Office for Disaster Risk Reduction

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Participants of the IDRC Davos 2014 post-conference expert workshop of 29 August 2014

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GLOBAL RISK FORUM GRF DAVOS

The Global Risk Forum GRF Davos promotes the worldwide exchange of know-how and expertise, creates solutions and fosters good practices in integrative risk management and climate change adaptation. Aiming for an improved understanding, assessment and management of disasters and risks that affect human safety, security, health, the environment, critical infrastructures, the economy and society at large.

1. INTRODUCTION

1.1 INTEGRATIVE RISK MANAGEMENT – THE ROLE OF SCIENCE, TECHNOLOGY AND PRACTICE

Integrative Risk Management IRM: interconnection of social, political, financial, environmental, physical, and technological risks

The 5th International Disaster and Risk Conference IDRC Davos 2014 was held with the special focus on Integrative Risk Management – The Role of Science, Technology and Practice. Integrative risk management aims to reduce and mitigate risks throughout the whole cycle of risk management (cp. Figure 1). Focusing equally on all the phases of risk reduction and disaster management (prevention, preparedness, intervention and recovery), the IRM approach helps to identify risks, reduce, cope with and transfer risks as well as manage the residual risks. For such a risk reduction approach, it is not only mandatory to reduce the direct risks of natural and man-made disasters, risks having their roots in poverty, corruption and bad governance are equally important factors in need for sustainable management. Taking into account all different risk factors and reducing them to the most efficient and effective minimum results in a "human secure" society, resilient to resist the very large disasters of the future.

1.2 THE HYOGO FRAMEWORK FOR ACTION POST 2015

Building upon the Hyogo Framework for Action HFA1

The adoption and implementation of the Hyogo Framework for Action 2005-2015 (HFA1), "Building the Resilience of Nations and Communities to Disasters," has marked a milestone in catalysing national and local efforts to reduce disaster risk and in strengthening these. Considerable progress has been made, but there is still a long way to go to reduce the many different risks and limit the extent of disasters. The Hyogo Framework for Action therefore, shall be followed by another long-term period of intensive efforts to achieve resilient, sustainable societies.

Input towards the post 2015 Framework for Disaster Risk Reduction on Science & Technology, Education & Training and Implementation

In support of providing input to the "Proposed Elements for Consideration in the Post 2015 Framework for DRR (HFA2)" by the UN SRSG for DRR, GRF Davos with its 5th IDRC Davos 2014 aimed to serve as a platform for intense discussions on the needs and gaps to be addressed in a post-2015 Framework for DRR from the perspective of science, technology, education and training, and implementation. Managing risks and disasters require a variety of instruments and initiatives at local, national, regional and global levels to enable more effective risk management. In cooperation with and under the auspices of the UNISDR Scientific and Technical Advisory Group (STAG), GRF Davos aims to feed this 5th IDRC Davos 2014 Outcomes Report into the 2nd UN Preparatory Conference for the WCDRR and therewith contribute to the Post-2015 Framework for DRR.

2. BACKGROUND

Based on contributions towards the 5th International Disaster and Risk IDRC Davos 2014 Conference

The input provided with this document is based on the analysis of various contributions requested from conference participants prior and during the 5th IDRC Davos 2014 conference, held 24 – 28 August 2014 in Davos with 750 registered participants from 80 countries. It is also based on a Plenary Session (Monday, 25 August 2014) which was particularly dedicated to outcomes of international conferences on DRR which have taken place in the first half of 2014, on a Special Session (Monday 25 August 2014) on the specific needs of the UNISDR Platforms and Networks, and finally on a specific Post-Conference Expert Workshop with some 30 international experts on 29 August 2014, held also in Davos, Switzerland. The goal of the expert workshop was to draft this report on science and technology, on education and training, and on implementation. All the various background documents[1] can be downloaded from the GRF Davos website: www.grforum.org.

1. IDRC Davos 2014 Special Issue of Planet@Risk eJournal (Vol. II, No.5) – www.planet-risk.org; IDRC Davos 2014 Extended Abstract Collection; IDRC Davos 2014 Personal Statements; IDRC Davos 2014 Session Chair Summaries – available to download at www.idrc.info.

3. GAPS, WEAKNESSES AND OPTIONS – CONSIDERATIONS FOR THE POST 2015 FRAMEWORK FOR DRR

The following will list considerations for Science and Technology, Education and Training and for Implementation related to gaps, weaknesses and options. Before focussing on each sector, some general cross cutting issues are addressed that need a special focus within research, education and implementation within DRR.

3.1 CROSS CUTTING ISSUES

3.1.1 DISABILITY INCLUSIVE DISASTER RISK MANAGEMENT

People with disabilities, women, children and older persons are the most vulnerable in disaster situations and bear the heaviest burden of disasters' impact. Disaster managers ought to commit to devote better tools for people with disabilities to anticipate risks and to respond to disasters. The design of strategies and plans, as well as decision-making processes for disaster risk reduction should actively involve people with special needs at all the stages of the disaster management cycle in an inclusive, participatory manner. "To design measures WITH", and not "to design measures FOR" is crucial for disability inclusive DRR.

Strategies, plans and processes shall actively include people with disabilities. Acting WITH not just FOR people with disabilities

3.1.2 DISPLACEMENT AND MIGRATION

Human displacement and migration due to the negative impacts of slow- and sudden-onset disasters have huge impacts on local, regional, national and global vulnerabilities. Displaced people and migrants have to be included into disaster risk management frameworks. There are still major gaps in policy and implementation whilst addressing various issues of people on the move. For example, the lack of inclusion of community relocations in the disaster risk reduction framework. Currently, there is no institutional framework to guide communities, local, regional and national government agencies in the steps which must be taken to relocate an entire community in order to reduce the risk of a disaster. There are also no standards which identify the environmental signals which would warrant a community relocation in order to prevent disasters.

Inclusion of displaced people and migrants into DRR frameworks

3.1.3 HARMONIZING DRR AND CCA ACTIVITIES

Since first initiatives launched e.g. at the IDRC Harbin 2007 as the so called Harbin Initiative, progress has been made in harmonizing climate change adaptation strategies and disaster risk reduction and management strategies. However, a lot still has to be done, in particular on the implementation side. To link actors and measures in CCA and DRR remains key to achieve the SDGs.

Harmonizing CCA and DRR remains key

3.1.4 DRR AND HEALTH: ONE HEALTH

A risk based One Health Concept promotes an integrative approach to global health, which focuses on healthcare for humans, animals, and the environment, and which is able to ensure food safety and security through effective and efficient agriculture and to provide access to water (e.g. WASH). The approach helps to understand the interconnectedness of the different risks; supports the early detection of potential threats (e.g. Ebola outbreaks); and provides a basis for measuring the outcomes and evaluating the impacts of global, regional and local risk reduction measures.

A risk based One Health approach: Integrating human - animal - and environmental health

3.2 SCIENCE AND TECHNOLOGY

3.2.1 SOME INTRODUCTORY REMARKS ON THE CURRENT STATUS OF SCIENCE AND TECHNOLOGY

Most of today's deficiencies in DRR are due to a lack of governance and political will for implementation

Some areas of well-established research and knowledge in DRR are at a point where the marginal returns of continued efforts appear to be diminishing. Science in DRR has emerged over decades. Considerable knowledge and skills now exist for example regarding single hazards process analysis, forecasting, and efficient measures to cope with. Although the application and dissemination of this knowledge still remains geographically uneven. Most of the today's deficiencies in DRR are not due to a lack of science but are due to a lack in governance and political will for rigorous implementation.

Trans-disciplinary research is needed for increased vulnerability reduction and resilience increase

Redirection of efforts and resources to emerging areas of DRR is likely to yield greater marginal outputs. In particular, the analysis of complex and interrelated multi-hazards, critical infrastructures and services and their interdependencies, protection targets, the evaluation of effectiveness and efficiency of measures reducing vulnerability and increasing resilience, human agency aspects of risks, and interactions with ecological, social, and political systems remain challenging, and require further research. The growing interconnectedness of critical infrastructures and services means that even minor and superficially harmless disruptions can trigger chain reactions capable of causing damage to the entire system.

Applying existing skills and knowledge more effectively – Resources in science to be shifted from the "WHAT" to the "HOW"

Recognizing the gaps in implementation, the need to refocus research activities to new areas acknowledges that a transition in thinking is required, redirecting the "science of what" to a "science of how" and applying existing skills and knowledge more effectively. This includes addressing emerging problems in multidisciplinary, applied and justified ways. The innovation in DRR management due to technological progress should nevertheless be pursued even for issues of DRR where the scientific knowledge is deemed satisfactory. The vulnerability of our critical infrastructures and services continuously shows how important it is for business and society to be able to adapt in the face of major adverse events.

3.2.2 KNOWLEDGE CONNECTED TO IMPLEMENTATION: THE SCIENCE OF HOW

From research to practice – focussing on transformation science

Failures in DRR are not primarily due to lacking scientific knowledge but are a consequence of not knowing how to translate it into applicable know how at the "last mile". Emergent research using scientific approaches to the examination of knowledge application, deeper understandings of complex systems, and that integrate human and ecological systems, offer considerable possibilities for new approaches. Direct attention to knowledge translation as a valid and indeed necessary component of DRR suggests that physical science needs to work directly with social science in all its many facets. The emphasis should be on transformation science consisting of integrated and interdisciplinary systems understanding of hazard/risk - society interactions, and strengthening risk governance at all levels. Clear objectives of what should be accomplished in what time frame (orientation knowledge) are equally important. Transformation science should also integrate the implementation know-how of what types of interventions and instruments are effective, efficient and sustainable within the context in which they are applied.

3.2.3 IMPROVED SCIENTIFIC AND TECHNOLOGY KNOWLEDGE TRANSLATION AND MANAGEMENT

Future research should focus on the communication and translation of science and technology skills and knowledge into a format that is understood by the corporate sector (relating to monetary values), the political sector (relating to political goals and power), and the civil society sector (relating to their values and aspirations). This should be supported by the adoption and use of appropriate and more commonly used language for communicating to the media, the locally affected communities and the public at large. Providing information in ways that are valued by decision makers is of high importance.

Multidisciplinary knowledge translation and management are key

Additionally, incentive systems should be better understood and put in place for businesses to increase their resilience. This will help to ensure that values and incentives for all users are aligned with DRR outcomes. These efforts should be supported by the establishment of key indicators which allow the evaluation progress in vulnerability reduction and resilience increase. Another focus should be set on metrics and analysis of failures and successes beyond immediate project completion, including an independent evaluation of the factors that have caused success or failure. Within these goals, the full integration of behavioural, economic, ecologic and political sciences into DRR is mandatory.

Indicator based evaluations with tools for event analysis including full integration of multi-disciplinary sciences

Information about prevailing risks is key for the awareness raising of particular stakeholders and society at large. Access to information at local level is important, but also the collection of local knowledge to be incorporated into decision making processes.

Local level knowledge for advanced decision making

3.2.4 A PROBLEM-BASED APPROACH, AND APPLICATION VIA SCENARIO TESTING

While fundamental science approaches will continue to be valid, the nature of DRR now requires "flipped" demand and solution driven approaches dealing directly with identifying, assessing, and treating risk reduction problems in a holistic way. These research and technology approaches shall be inherently multidisciplinary, spanning natural, engineering, social and economic sciences, invoking a duty of care resulting in activities being effectively used and implemented. They shall be directly linked to implementation, including definition of protection targets, feasibility analysis, development of business cases, linking with decision makers, and including scenario testing. Also, research and technology approaches shall link methodology with development and the appraisal of DRR scenarios that include ecological and human concerns. This will help to invoke ex-ante responsibilities for decision makers.

DRR Science: demand and solution driven to identify, assess and reduce risk

Research and technology approaches should be deployed via improved organization and coordination of existing networks of researchers and practitioners that draw upon and build capacities of local and regional institutions and universities, tailored to regional needs. Business feasibility and cost benefit analysis should also be included to establish action interventions. This supports the understanding of the long-term values that resilience adds to businesses and to society.

Make use of existent platforms and networks of researchers and practitioners

3.2.5 LIVING LABS – A NOVEL COMMUNITY BASED RESEARCH AND EDUCATION APPROACH

Enhancing capabilities and capacities for DRR require collaboration between the researchers and various stakeholders. Living laboratories are novel approaches with a user-centred, demand driven research concept. Research therefore has to work closely with all different kinds of stakeholders and get direct access to DRR related problems to be solved in a territorial context (e.g. city, agglomeration, region, etc.). Living labs can support integrating concurrent research and innovation processes within a public-private-people partnership. Besides a regular and effective dialogue and feedback between stakeholders and researchers, a living lab can make research more effective and substantially contribute to the science of how.

Livings labs as demo cases for the science of how: multi-stakeholder collaboration, knowledge generation, and application

Connecting science with the end users

Stakeholder-driven research emphasizes research undertaken in partnership with stakeholders including marginalized population. The stakeholders' participation within the scientific research framework provides a stakeholder/end user centred solution process. Learning from practice and from being embedded in the socio-political context are essential benefits for the researcher, who will also be faced with multi-level governance approaches. Within the framework of living labs, researchers have the responsibility to explain research outcomes to the end users and to implement them directly into practice.

3.3 EDUCATION AND TRAINING

Education and training for successful capacity building

Education, training and capacity building programmes constitute a critical part for risk reduction and disaster management. There is an imperative need to improve the transfer of knowledge, technology and expertise and the sharing of successful practices and lessons learned that shall help to enhance capacity building.

3.3.1 ALL INCLUSIVE EDUCATION AND TRAINING

All inclusive disaster risk reduction education and training through increased international cooperation and standardisation

Education on DRR can be partially realized by social networks, including family and relatives, neighbourhood, distance learning, local NGO networks, the media, etc.. An all-inclusive approach with robust capacity building methods and sound and disaster-proven know how has to be established. A special focus should be given on people living in hazardous areas, or in heavily populated urban informal settlements characterized by substandard housing. To successfully raise awareness and educate the society at large ethical questions, religious concerns, gender issues, the integration of disabled and elderly people, pets, and livestock have to be addressed. In order to better share information and knowledge cooperation between local, national, and even international NGOs and international organizations has to be established and increased. Standard terminologies on DRR will also help the increase of common DRR understandings and behaviours.

3.3.2 SCHOOL BASED YOUTH EDUCATION FOR DISASTER RISK REDUCTION

Education programmes to support the resilience to disasters

Education on hazards and risk reduction should be provided mandatorily from pre-school to university level. These education activities should support children and students obtaining capabilities to increase their own resilience to disasters, and to support their schoolmates, relatives and neighbours. Both teaching staff and students should be involved in regular drilling exercises.

3.3.3 INTER- AND TRANS-DISCIPLINARY UNIVERSITY BASED EDUCATION AND TRAININGS

Development of extended multi-disciplinary curricula

Risk reduction and disaster management require many skills and professional backgrounds. High quality graduates already exist with a strong and specific background in one or the other sectors related to DRR. However, to cope with risks and disasters the demand for inter- and trans-disciplinary skills is increasing. Various academic disciplines from natural, social, medical, and engineering sciences have to develop extended curricula and offer close insights into other relevant disciplines by multi-disciplinary master courses for DRR, post-degree continuous education courses, or certified advanced study courses. For example, engineers may complement their academic background with specific insights and tools from social sciences, and the insurance sector.

3.3.4 OPEN ACCESS EDUCATION

Free access to the state of the art for developing countries

It is of utmost importance that academic education in developing countries has free access to latest knowledge, skills, tools, and data. The access to existing and new technologies, e.g. with e-learning courses, the free access to software, staff "teachers without borders", or courses should be enabled.

Production of comprehensive DRR text books

Comprehensive text-books on integrative DRR are missing and have to be elaborated, providing up-to-date knowledge on DRR, integrating the various disciplinary perspectives, and the various national and local experiences. These text-books might need country and risk specific adaptations.

3.3.5 EDUCATION AT PRACTITIONER'S LEVEL

Education at practitioner's level with the necessary incentives

Practitioners should periodically follow continuous education courses and get a chance to progress within their career. The establishment of a standardized, international certificate or a post graduate degree could represent the necessary incentives for further trainings. Continuous education is of particular importance for people who have responsibilities in early warning, or in disaster response and recovery phases.

3.3.6 EDUCATION AND TRAINING FOR THE MOST VULNERABLE

Revising existing methodologies and tools WITH (not just for) the most vulnerable

Alternative education approaches, e.g. unified symbols for not fully educated people, for minority groups, or for foreign-language groups should be considered. Education and training programmes should provide a special focus on disabled people, devising alternative involvement methodologies for them. In addition, handbooks for implementation of disaster risk reduction should be especially compiled and widely circulated considering the most vulnerable.

3.3.7 TRAININGS AND DRILLS FOR PROFESSIONALS AND COMMUNITIES

Organize regular DRR drills and trainings with comprehensive assessment of success. Ensure immediate implementation of lessons learned into operational and organisational structures

At local and community level, continuous education on hazards and risks combined with adequate training can substantially reduce losses and damages in case of a severe event. For example, raising awareness for hazard mapping and land-use planning, teaching house owners on how to build a house disaster proof, or providing practical trainings and drill exercises may substantially strengthen DRR activities. If possible, drills should involve all the relevant blue light organizations (police, fire-fighters, civil protection, ambulances, and technical services) but in particular also the public and the media. Lessons learned from such drills should be implemented without delay into the operational and organisational reality. For future drills it is also essential to incorporate lessons learnt from recent disasters and drill exercises. Technicians and relief workers should also be regularly trained for a better support in disaster relief. Rotating the lead in such drills might increase the flexibility and professionalism in decision making and rapid response, and improve cooperation. Emphasis should also be put on leadership built-up in local community to increase their organizational capacities.

Specific training programs should be designed and provided to governmental officials at all levels and to politicians to make them qualified in the processes of developing their risk reduction strategies, their policies and disaster management plans, and their decisions.

3.4 IMPLEMENTATION AND PRACTICE

3.4.1 REDUCE UNDERLYING RISK FACTORS

Underlying risk factors to be reduced and DRR implementation strengthened

The knowledge gained by science and technology; such as a better understanding of hazards and risks, of methodologies, tools, technologies created, and lessons learned from forensic disaster investigations, etc.; to reduce risks and vulnerabilities and increase resilience have to be further implemented into practice. Focus of activities should be put on transition and implementation approaches. The main aim of implementation has to be the reduction of risks, and the avoidance of new risks to be created. The primary goals are to protect and save lives, and to protect livelihoods and assets. While there is increased awareness on the benefits of engaging in risk reduction at all levels, progress is still required in reducing underlying risk factors that will in turn contribute to a significant reduction of risks.

Implementation of science and technology efforts will need to thoroughly focus on reducing underlying risk factors. The following key aspects should be emphasized.

3.4.2 HUMAN RIGHTS ARE CENTRAL

Establishment of legal frameworks, roles and responsibilities.

Every individual's basic human rights have to be fulfilled in a manner that their lives, livelihoods and assets are protected from adverse events[2]. However, disasters are of increasing concern for humankind, due to their frequency, complexity, or scope and destructive capacity. A main objective of a nation therefore shall be to ensure and regulate that its development guarantees safe access of its population to all necessary services such as education, jobs, healthcare, food, housing, or culture. These services are often also provided by the private sector. Most important is that all these services provided to the people are – as far as possible – protected from adverse events. If citizens are actively engaged in the implementation of disaster risk reduction approaches, they are also ready and capable – based on their self-responsibility – to contribute to reduce existing risks and to avoid to build-up new risks.

DRR is not only humanitarian aid- it is a powerful component of sustainable development and resilient livelihood.

A legal framework and clearly defined roles and responsibilities of all different stakeholders at local to national level are useful to protect the many services from adverse effects. Therefore, DRR and reducing vulnerabilities as a consequence are clearly beyond a purely humanitarian approach, and have to become unique focus of a sustainable development process and resilient livelihood approach. DRR is a cost-effective tool to reduce poverty and to make progress towards sustainable livelihoods.

3.4.3 DISASTER PROOF CONSUMER GOODS

Access to safe products and services

Ensure that the types and quality of services provided to people contribute to their resilience against adverse events. It is beneficial to push service providers to offer products labelled "safe from disasters". For this to be effective, there is a need for the private sector to be aware of the need for people to have access to safe products and services that will withstand disasters better, but also for companies to ensure that their lines of production or services are built in such a manner that they are protected from disasters. For example, in many parts of the world, people are now requesting safe houses, safe schools and safe hospitals. This in turn leads to the fact that construction companies are changing the nature of their practices to ensure that they stay in business. It is believed that the more companies will advertise their products and services as having benefits in reducing risks or being safe from natural hazards, the more people will get used to demand such features in all products and services.

2. Adverse events are disasters or change processes with devastating consequences that are the result of man-made, technological or natural causes

Based on the increased awareness of citizens to engage in risk reduction activities, a more proactive approach has to be stimulated and developed. Citizens have to play a more decisive role within the overall DRR strategies, asking for higher safety standards directly to service or goods providers, rather than simply expecting that governments or local authorizes implement mitigation strategies. The more people are aware of the hazards and risks, the more they will ask for services and products which are not subject to threats.

Foster citizen empowerment and engagement and increase public-private partnerships for risk reduction

Within the private sector approach of supplying the demand of adverse events proven goods, the role of the government will remain crucial. On the one hand, governments have to regulate the relationship between the people/consumers and the private sector that is providing the various types of products and services to people to enable them to strive in their lives in the pursuit of happiness; on the other hand, the government must ensure a clear and comprehensive framework of information (e.g. hazard maps), in order to support people/ consumers to make healthy decisions based on scientific knowledge and at the same time preventing asymmetries in the new market for the safer goods.

Focus on public-private partnerships and establish financial instruments for the generation of innovations

Incentives should be created for socially critical businesses that were able to demonstrate an increase in their resilience, based on a standardized resilience monitoring system. It could also influence the behaviour of those businesses that failed to take measures, by e.g. penalising them with higher insurance premiums, or additional levies. That is in particular true for businesses which might cause environmental emergencies, i.e. sudden-onset disasters or accidents resulting from natural, technological or human-induced factors, causing a severe environmental damage as well as loss of human life and property. Ex-post forensic investigations and responsibilities of the business sector should be replaced by ex-ante responsibilities of all stakeholders. Also the government must ensure basic infrastructure for public safety which cannot be provided through market, such as hurricane forecasts and maintenance of dykes.

Incentives for resilience increase in critical business sectors

3.4.4 CONSIDER THE DYNAMICS OF RISKS – STRATEGIC MONITORING AND CONTROLLING

Hazards, the exposure of values and their vulnerabilities are not constant but changing factors. Whereas awareness has risen for climate change influencing the pattern of meteorological hazards in terms of frequency and intensity, little attention is paid to the increase of values exposed to hazards and of the vulnerability of societies and their critical infrastructures and services. Risks therefore have to be continuously monitored, and tools developed to enhance and harmonize the monitoring process. Knowing the characteristics and amount of risks will enable the decision makers to choose effective and efficient DRR measures. Integrative DRR should implement the most effective, cost-efficient measures, be they permanent risk reduction measures, preparedness measures for better response, risk transfer measures by insurances, etc. Similar tools are needed to measure progress in DRR. Indicators used should be consistent with the targets and indicators of the Sustainable Development Goals (SDGs).

Careful monitoring of values exposed to hazards and of the vulnerability of societies and systems is important.

3.4.5 THE ROLE OF SCIENCE AND TECHNOLOGY IN IMPLEMENTATION

A multi-stakeholder approach is needed for the successful implementation of risk reduction strategies and techniques at national levels. The scientific community in each country must provide easily understandable, evidence based information on risks and hazards to the private sector, the citizens and the government, so as to further raise awareness and to encourage proper choice of products and services. It is also important to provide knowledge for the drivers and incentives that push such implementation strategies and services forward. The "science of HOW" as described above has to provide support on how to raise awareness for DRR, on how to incentivise DRR, on how to prove evidence for DRR, etc.

Science in support of a multi-stakeholder and multi risk approach at the national level.

Improved coordination of existing platforms and networks

Existing international platforms and networks should be used for sharing knowledge, expertise and experiences. Such platforms and networks already exist within the UNISDR system and will continue to benefit from coordination and support by the ISDR Secretariat. They are complemented by existing international conferences and workshops, where science presents latest research findings, or where science meets practice.

4. CONCLUSIONS

Consolidation of the post 2015 global frameworks

Managing risks and disasters require a variety of instruments and initiatives at local, national, regional and global levels to enable more effective risk management. The post 2015 framework for disaster risk reduction will provide the global framework for disaster risk reduction. Nevertheless, the international community has to embark on an increased effort to connect the existing elements of Disaster Risk Reduction with those of the Sustainable Development Goals and the agendas of land degradation, global environmental change, health and climate change.

Focus on the provision of basic human rights to each individual

The considerations and recommendation on science and technology, education and training and implementation within the post 2015 Framework for Disaster Risk Reduction all centre on the individual which needs to be protected from adverse events. This protection is guaranteed if the basic human rights of each individual are provided. This is on the one hand the responsibility of the state but also of the respective service providers (compare Figure 1). Science and technology, education and training and implementation processes should all focus on the provision of these basic human rights towards the individual, and by the demands of the individual for these rights and services.

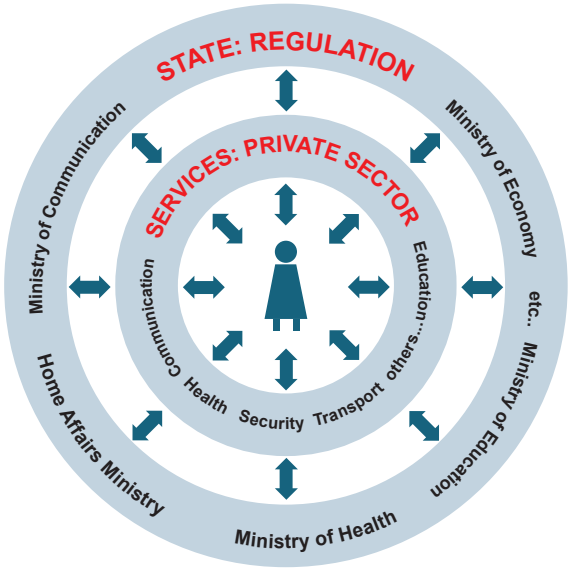

Figure 1: The individual in the context of public and private services

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