Information and Knowledge Management for Disaster Risk Reduction (IKM4DRR) Framework and Scorecard

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UNISDR

The United Nations Office for Disaster Risk Reduction

Information and Knowledge Management for Disaster Risk Reduction (IKM4DRR) Framework

This framework was developed by the IKM4DRR Community, and validated in the first IKM4DRR Workshop, Global Platform for Disaster Risk Reduction, 20 May 2013

Purpose

Information and Knowledge Management for Disaster Risk Reduction (IKM4DRR) enables and sustains informed decision-making for managing disaster risk and is essential for coordinated action. Informed decision-making needs a solid information and knowledge base as well as dedicated and skilled professionals.

The purpose of an IKM4DRR Framework is to guide the initiation, creation and sustainability of information and knowledge management for DRR at all levels in order to address current issues in information and knowledge management, and improve the impact, efficiency and interoperability of IKM for DRR efforts.

Introduction

Over the past five years, the domain of disaster risk reduction (DRR) has evolved significantly and has emerged as an issue of global interest and importance. The global dialogues around climate change adaptation (CCA) are also closely linked to DRR.

As a result, there has been a corresponding development and evolution of information and knowledge management systems in the DRR and CCA domains at the global, regional, national, and community levels.

The proceedings of the third session of the Global Platform for Disaster Risk Reduction (2011) reference 28 calls and commitments to enhanced access to information, exchange of information, and improved coherence among information management systems from Regional and National Platforms for DRR, mayors and private sector to statements from children and vulnerable groups, to actors in preparedness, health, and climate change.

Definitions

Content management (CM)
The process of managing paper and electronic information through its life cycle creation, review, storage and dissemination all the way to their disposal as well as tracking and storing different versions

Information management (IM)
The collection, processing, organization, storage and dissemination of information for a specific purpose

Information intermediary
Enabling access to information from multiple sources

Knowledge management (KM)
Leveraging people, resources, processes and information in order to achieve a strategic objective

Knowledge translation
Helping people make sense of and apply information

Knowledge brokering (KB)
Improving knowledge use in decision-making processes

Innovation brokering
Changing contexts to enable innovation

IKM system
A system that provides specific users with the explicit information required, in the most appropriate form and in the way the user needs it

Disaster Risk Reduction (DRR)
The concept and practice of reducing disaster risks through systematic efforts to analyze and manage causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events (UNISDR terminology)

Principles and key concepts

The following are the key concepts and principles that are essential to developing effective Information and Knowledge Management initiatives for DRR:

Demand-driven

- All IKM systems should be based on a thorough user needs analysis

- Communication and collaboration with users and stakeholders is central and strategic

- Standards-based

IKM systems should support and embrace information standards including:

- Accessibility

- Interoperability and compatibility

- Terminology and ontology

- Quality control

Collaborative

- IKM systems should seek collaborative partnerships to avoid duplication of effort

- National and regional initiatives share data, expertise and information

- Local and national institutions and agencies share data, expertise and information

Sustainable

- IKM systems should be recognized as beneficial knowledge products

- Needs of the business must be addressed

- Systems must be managed and maintained up-to-date

- Effective hand-over, migration or integration procedures must be in place

- Sustainable funding mechanisms must be identified

Transparent

- Risk information should be transparent and open to all to enable analysis, education and improved management for risk reduction

- Good practice, failures and lessons learned should be shared

- Information should be captured and made freely available for analysis, co-creation and synthesis where appropriate.

Monitored

- IKM systems should systematically use participatory surveys and assessments

- Regular evaluation should ensure that systems are applied, consistent, accessible, reliable and credible.

Issues in Information and Knowledge Management

The following issues were identified by the IKM4DRR community and underline the need for a systematic approach to guide the development of IKM systems at all levels:

- Information is scattered among various agencies and institutions with limited coherence, coordination and sharing.

- Information about hazard events, exposure, vulnerability, and the impacts of disasters is often not systematically collected.

- Limited analysis has been done to understand the trends, spatial and temporal impacts of potential disaster risks and their impacts.

- Risk information is not systematically used for policy and decision-making

- There are no agreed upon standards and shared definitions in IKM for DRR and CCA.

- There is little integration of knowledge systems at regional, national and community levels.

- There is inadequate collaboration between the different organizations working in DRR or related areas such as CCA and the environment.

- Civil society and private sector involvement is often limited.

- Information is often collected in different languages but insufficient resources are allocated or used for translation.

- Cultural context as a major influence to approaches in disaster risk reduction and disaster risk management is rarely considered.

- Incentives and political backing for information sharing are insufficient or lacking, and responsibilities and accountabilities for IKM are not defined.

- Issues of power and competition at institutional and other levels get in the way of sharing information.

- Dedicated capacity and skill development in information and knowledge management are lacking.

- Resources are not committed for sustainable IKM initiatives.

Elements of a successful system

A successful and sustainable IKM4DRR system should be owned by the community and should seek to change society in a way such that the risk from disaster is diminished.

Stakeholder engagement and awareness creation

There should be engagement and communication with all concerned stakeholders, (i.e., governments, parliaments, citizens, organizations) and across all sectors (private, public, UN, etc.), with special attention given to local leaders, indigenous communities, the disabled, the elderly, children, and women.

Ensure communication and engagement addresses:

- Awareness about disaster risk, vulnerability, and DRR

- Stakeholder networks and communities

- Improved understanding between scientists and researchers and other actors

Identifying stakeholders that fit within the following groups:

- Management - creates an enabling environment (financial frameworks, legal frameworks, institutional frameworks).

- Producers of information - feed the IKM4DRR system with information, ensure information reliability and translate information to suit various cultures, contexts and languages.

- Users of information - identify the information needs, set the information priorities, identify information applications and co-produce solutions.

- Communicators of information – create awareness and advocate for IKM

Design and planning

IKM systems should be carefully planned and designed. Supply driven project plans should be avoided.

IKM4DRR system demand analysis

- Establish a business case with a view of all user needs, objectives and priorities

- Assess level of readiness

- Do regular user testing and elicit quality feedback

- Engage IKM and communications professionals at the start

Engage all stakeholders including and beyond system users

- Target users and build trust

- Communicate with and promote services to target users

- Use accessible and culturally sensitive language

- Respect indigenous knowledge

- Provide training to both users and system developers and administrators

Technology

- Address user technology constraints and adapt technology to local context

- Use data standardization while respecting the local context

- Ensure interoperability

- Promote open data and use open source technology where appropriate

- Integrate social media and social services where appropriate

- Integrate communication systems (alternative, public and private) where appropriate

- Design and test interfaces and interactions for usability

Sustainability

- Budget for the entire IKM4DRR effort and plan for the long-term

- Identify multiple sources of funding

- Partner with other organizations owning similar technology and/or engage in agreements for co-development of interoperable systems

- Ensure adequate and appropriately skilled human resources

- Ensure ongoing data and information quality

Content Types

The following are a number of content types currently captured to help facilitate analysis and make sense of the disaster risk reduction domain:

- Disaster loss and risk information
- Documents and publications
- Fact sheets
- Methodologies and tools
- Terminology for DRR
- Projects and initiatives
- Policy, plans, statements and legislation
- Institutional contacts, capabilities and professional expertise
- Risk assessment studies and projects
- News and announcements
- Country profiles
- City profiles
- Descriptions of national and regional coordination mechanisms
- HFA and other DRR progress reports (national, regional and local)
- Event calendar of meetings, conferences, training and workshops
- Networks and communities of practice
- Academic programmes
- Jobs
- Educational materials
- Maps (hazard, risk, vulnerability and capacity)
- Analysis and packaging, with thematic, hazard and/or georeference as appropriate
- Social media (microblogs, blogs, networks, wikis)
- Links to related websites and databases

Monitoring and evaluation

The relevance and utility of IKM systems is dependent on regular monitoring and evaluation.

Formulate and use SMART (specific, measurable, attainable, relevant and time-bound) indicators based on action and change

- Differentiate between IM and KM indicators

- Differentiate between qualitative and quantitative indicators

Evaluate regularly (typically 6 months – 1 years – 2 years afterwards)

- Evaluate impact after project has taken place, not during when it is too early to measure

- Communicate evaluation results

Conduct participatory appraisals

- Use varied and appropriate approaches and tools that help to make the right impact attributions

- Consult all concerned stakeholders

Ensure transparency of the monitoring and evaluation (M&E) system

- Budget for M&E at the beginning

- Develop M&E partnerships

- Ensure independence of the M&E system

- Communicate activities both internally and externally

Ensure sustainability of the M&E system

- Build the M&E capacity of knowledge workers

- Analyze costs and benefits of the M&E exercise

Learning from failures and good practice

- Design methods and approaches that

- Facilitate the capturing of good practice and flow of information and knowledge

- Develop smart practice templates

- Take stock of both failures and successes

- Ensure adequate resources are available to communicate lessons learned

Enabling environment

Policy and legislative frameworks

To be effective, IKM needs to be embedded in policy and legislative frameworks. Barriers to effective IKM4DRR can include politics, social divisions, power relations, differing cultures, systematic corruption and attitudes towards risk. In this sense, legislation and policy frameworks that address these issues are key to the adoption and success of IKM initiatives.

Legislation and policy frameworks should:

Include an IKM accountability framework

- Specify the path of implementation by the responsible institutions and governmental agencies, not only the objectives (i.e., state the need to do something)

- Make demonstrated accountability and responsibility an incentive for all actors

Support the obligation of information sharing

- Stimulate and incentivize various actors and institutions to work together towards common goals, in particular public-private collaboration

- Develop a DRR business case shared by both private and public sectors

Be championed and sponsored by high-level advocates and leaders

- Identify, target and maximize heads of state and ministers to advocate for coordinated IKM for effected disaster risk reduction implementation

Be supported by leading agencies

- Develop an understanding of institutional protocols and processes

- Establish quality controls that verify information before use, to ensure credibility

Use a common vocabulary regarding risk and vulnerability for DRR and CCA

- Use appropriate and widely accepted, clear terms and messages associated with DRR and CCA to ensure impact that reduces risk and vulnerability to disasters

- Use culturally appropriate language to fit the context

Professionalization

- Effective IKM systems are dependent on professionally trained and dedicated staff.

Ensure sufficient capacities and human resources for all initiatives

Provide training, education and capacity development in relevant competencies, such as:

- Information research, data collection and data mining

- Cataloguing and Archiving

- Knowledge and application of information standards

- Communication skills.

- Sensitivity to multiple and diverse cultures

- Enabling open access to data

- Technological skills

- Interdisciplinary skills to integrate DRR information with information from other related fields and networks

- Cooperation with media and public communication agencies

Cultivate information and knowledge professionals in DRR

- Develop performance evaluation framework and measure performance against appropriate indicators of success.

- Provide public education to enhance awareness and user/audience capacity

- Involve other mature sectors in IKM, such as the Health and Private Sectors

Communicating impact

IKM systems require their own communication strategies.

- Develop a strategic communication plan - externally and internally

- Design communication and knowledge sharing initiatives that aim at concrete and measurable impact

- Be clear about the purpose and contents of DRR information products and promote widely to target audiences and groups.

- Forge linkages with related thematic areas.

- Share successes, challenges and opportunities for improvement in 'lessons learned'

- Communicate regularly with stakeholders (including key groups such as politicians) and users – capture their stories

- Use social media to reach target populations, as appropriate

- Use conventional media to reach target populations, as appropriate (alternative, public and private)

- Use clear and user-friendly language: use terms and tags that are already being used by others, free of institutional jargon

- Control information quality on ongoing basis

IKM4DRR Scorecard

Information and Knowledge Management for Disaster Risk Reduction (IKM4DRR) Scorecard

This scorecard was tested by the IKM4DRR Community, and validated in the first IKM4DRR Workshop, Global Platform for Disaster Risk Reduction, 20 May 2013

Purpose

The purpose of an IKM4DRR Scorecard is to assess the implementation of the IKM4DRR Framework principles in disaster risk reduction (DRR) and climate change adaptation (CCA) programme design and delivery.

How to use the IKM4DRR Scorecard:

The Scorecard provides the IKM4DRR Framework in question format. Thinking about a specific information or knowledge management programme or system, answer each of the questions to get a sense of whether you are following recommended practice in addressing each of the Framework components.

Key:

- **Yes answers** show a high level of IKM good practice;

- **Partially answers** show progress in IKM good practice and should aim for yes;

- **No answers** show potential weaknesses or obstacles to good practice implementation.

Principles and key concepts

The following are the key concepts and principles that are essential to developing effective Information and Knowledge Management initiatives for DRR and CCA:

Do you employ these principles and key concepts in your situation?			
	Yes	Partially	No
Demand-driven			
» All IKM systems are based on a thorough user needs analysis			
» Communication and collaboration with users and stakeholders is central and strategic			
Standards-based			
» IKM systems support and embrace information standards			
» Accessibility standards are followed			
» Interoperability and compatibility standards are followed			
» Terminology standards are followed			
» Quality control standards are in place			
Collaborative			
» IKM systems should seek collaborative partnerships to avoid duplication of effort			
» National and regional initiatives share data, expertise and information			
» Local and national institutions and agencies share data, expertise and information			
Sustainable			
» IKM systems are recognized as beneficial knowledge products			
» Needs of the business are addressed			
» Systems are managed and maintained up-to-date			
» Effective hand-over, migration or integration procedures are in place			
» Sustainable funding mechanisms have been identified			

Do you employ these principles and key concepts in your situation?			
	Yes	Partially	No
Transparent			
» Risk information is transparent and open to all to enable analysis, education and improved management for risk reduction			
» Good practice, failures and lessons learned are shared			
Monitored			
» IKM systems systematically use participatory surveys and assessments			
» Regular evaluation ensure that systems are applied, consistent, accessible, reliable and credible			

Issues in Information and Knowledge Management

The following issues were identified by the IKM4DRR community and underline the need for a systematic approach to guide the development of IKM systems at all levels.

Does this describe your situation?			
	Yes	**Partially**	**No**
Information among various agencies and institutions is coherent, coordinated and shared			
Information about hazard events, exposure, vulnerability, and the impacts of disasters is systematically collected			
Analysis has been done to understand the trends, spatial and temporal impacts of potential disaster risks and their impacts			
Risk information is systematically used for policy and decision-making			
There are agreed upon standards and shared definitions in IKM for DRR and CCA			
There is integration of knowledge systems at regional, national and community levels			
There is collaboration between the different organizations working in DRR or related areas such as CCA and the environment			
Civil society and private sector are involved			
Information is collected in different languages and sufficient resources are allocated or used for translation			
Cultural context as a major influence to approaches in disaster risk reduction and disaster risk management is considered			
Incentives and political backing for information sharing are in place, and responsibilities and accountabilities for IKM are defined			
Issues of power and competition at institutional and other levels do not get in the way of sharing information			
Dedicated capacity and skill development in information and knowledge management is provided			
Resources are committed for sustainable IKM initiatives			

Elements of a successful system

A successful and sustainable IKM4DRR system should be owned by the community and should seek to change society and reduce disaster risk.

Stakeholder engagement and awareness creation

Do you ensure stakeholder engagement and awareness in your situation?	Yes	Partially	No
Communication and engagement addresses awareness about disaster risk, vulnerability, and DRR			
All concerned stakeholders (i.e., governments, parliaments, citizens, organizations) and across all sectors (private, public, UN, etc.) are engaged			
All IKM systems are based on a thorough user needs analysis			
All identified stakeholder networks and communities analyzed			
Improved understanding between scientists and researchers and other actors is addressed			

There should be engagement and communication with special attention given to local leaders, indigenous communities, the disabled, the elderly, children, and women.

Have you identified stakeholder groups in each of the four areas?	Yes	Partially	No
Management - creates an enabling environment (financial frameworks, legal frameworks, institutional frameworks).			
Producers of information - feed the IKM4DRR system with information, ensure information reliability and translate information to suit various cultures, contexts and languages.			
Users of information - identify the information needs, set the information priorities, identify information applications and co-produce solutions.			
Communicators of information - create awareness and advocate for IKM			

Do your stakeholder groups consider inclusion of special groups?	Yes	Partially	No
Local leaders			
Indigenous communities			
The disabled			
The elderly			
Children			
Women			

Design and planning

IKM systems should be carefully planned and designed. Supply driven project plans should be avoided.

In your situation, does your design and planning …?	Yes	Partially	No
Analyze IKM4DRR system demand			
» Establish a business case with a view of all user needs, objectives and priorities			
» Assess level of readiness			
» Regularly test users and elicit quality feedback			
» Engage IKM and comms professionals at the start			
Engage all stakeholders incl. and beyond system users			
» Target users and build trust			
» Communicate with & promote services to target users			
» Use accessible and culturally sensitive language			
» Respect indigenous knowledge			
» Provide training to both users and system developers and administrators			
Assess technology			
» Address user technology constraints and adapt technology to local context			
» Use data standardization while respecting the local context			
» Ensure interoperability			
» Promote open data and use open source technology where appropriate			
» Integrate social media & social services where appropriate			
» Integrate communication systems (alternative, public and private) where appropriate			
» Design and test, interfaces and interactions for usability			
Plan for sustainability			
» Budget for the entire IKM4DRR effort and plan for the long-term			
» Identify Multiple sources of funding identified			
» Partner with other organizations owning similar technology and/or engage in agreements for co-development of interoperable systems			
» Ensure adequate and appropriately skilled human resources			
» Ensure ongoing data and information quality control			

Content

Information should be captured and made freely available for analysis, co-creation and synthesis where appropriate. The following are a number of content types currently captured to help facilitate analysis and make sense of the disaster risk reduction domain:

- ☐ Disaster loss and risk information
- ☐ Documents and publications
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- ☐ Projects and initiatives
- ☐ Policy, plans, statements and legislation
- ☐ Institutional contacts, capabilities and professional expertise
- ☐ Risk assessment studies and projects
- ☐ News and announcements
- ☐ Country profiles
- ☐ City profiles
- ☐ Descriptions of national and regional coordination mechanisms
- ☐ HFA and other DRR progress reports (national, regional and local)
- ☐ Event calendar of meetings, conferences, training and workshops
- ☐ Networks and communities of practice
- ☐ Academic programmes
- ☐ Jobs
- ☐ Educational materials
- ☐ Maps (hazard, risk, vulnerability and capacity)
- ☐ Analysis and packaging, with thematic, hazard and/or georeference as appropriate
- ☐ Social media (microblogs, blogs, networks, wikis)
- ☐ Links to related websites and databases

Monitoring and evaluation

The relevance and utility of IKM systems is dependent on regular monitoring and evaluation.

In your situation, do you…?	Yes	Partially	No
Formulate and use SMART indicators (specific, measurable, attainable, relevant and time-bound) indicators based on action and change			
» Differentiate between IM and KM indicators			
» Differentiate between qualitative and quantitative indicators			
Evaluate regularly (typically 6 months – 1 years – 2 years afterwards)			
» Evaluate impact after project has taken place, not during when it is too early to measure			
» Communicate evaluation results			
Conduct participatory appraisals			
» Use varied and appropriate approaches and tools that help to make the right impact attributions			
» Consult all concerned stakeholders			
Ensure transparency of the monitoring and evaluation (M&E) system			
» Budget for M&E at the beginning			
» Develop M&E partnerships			
» Ensure independence of the M&E system			
» Communicate activities both internally and externally			
Ensure sustainability of the M&E system			
» Build the M&E capacity of knowledge workers			
» Analyze costs and benefits of the M&E exercise			

Learning from failures and good practice

In your situation, do you …?	Yes	Partially	No
Design methods and approaches that facilitate the capturing of good practice and flow of information and knowledge			
Develop smart practice templates			
Take stock of both failures and successes			
Ensure adequate resources are available to communicate lessons learned			

Enabling environment

Policy frameworks and legislation

To be effective, IKM needs to be embedded in policy and legislative frameworks.

In your context, do you have policy or legislative frameworks that mandate the sharing of disaster and risk information?			
Issue addressed	Yes	In progress	No
IKM accountability framework included in policy			
» Accountability and responsibility is demonstrated and an incentive for all actors			
» Path of implementation by the responsible institutions includes plan of action beyond a statement of objectives			
The obligation of information sharing is supported			
» Various actors and institutions are stimulated and incentivized to work together towards common goals, in particular public-private collaboration			
» A DRR business case shared by both private and public sectors is developed			
High-level advocates and leaders champion and sponsor IKM			
» Heads of state and ministers identified, targeted and maximized to advocate for coordinated IKM for effective disaster risk reduction implementation			
IKM support provided by leading agencies			
» Understanding of institutional protocols and processes developed			
» Quality controls that verify information before use, to ensure credibility established			
Common vocabulary regarding risk and vulnerability for DRR and CCA is used			
» Appropriate and widely accepted clear terms and messages associated with DRR and CCA are used to ensure impact that reduces risk and vulnerability to disasters			
» Culturally appropriate language is used to fit the context			
» Investment made in translation to local languages			

Professionalization

Effective IKM systems are dependent on professionally trained and dedicated staff.

In your situation, how professionalized is IKM for DRR? Do you…?			
Issue addressed	Yes	In progress	No
Ensure sufficient capacities and human resources for all initiatives			
Provide training, education and capacity development in relevant competencies			
» Information research, data collection and data mining			
» Cataloguing and archiving			
» Knowledge and application of information standards			
» Communication skills			
» Sensitivity to multiple and diverse cultures			
» Enabling open access to data			
» Technological skills			
» Interdisciplinary skills to integrate DRR information with information from other related fields and networks			
» Cooperation with media and public communication agencies			
Cultivate information and knowledge professionals in DRR			
» Develop performance evaluation framework and measure performance against appropriate indicators of success			
» Provide public education to enhance awareness and user/audience capacity			
» Involve other mature sectors in IKM, such as the Health and Private Sectors			

Communicating impact

IKM systems require their own communication strategies.

In your situation, do you…?	Yes	Partially	No
Develop a strategic communication plan - externally and internally			
Design communication and knowledge sharing initiatives that aim at concrete and measurable impact			
Be clear about the purpose and contents of DRR information products and promote widely to target audiences and groups			
Forge linkages with related thematic areas			
Share successes, challenges and opportunities for improvement in 'lessons learned'			
Communicate regularly with stakeholders (including key groups such as politicians) and users – capture their stories			
Use social media to reach target populations, as appropriate			
Use conventional media to reach target populations, as appropriate (alternative, public and private)			
Use clear and user-friendly language: use terms and tags that are already being used by others, free of institutional jargon			
Control information quality on ongoing basis			