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Applying COSO Internal Control Framework to Disaster Management Evaluation According to Hyogo Framework for Action (HFA) In Iraq

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Abstract

The research aims to study at introducing internal control components of COSO framework and the Hyogo Framework for Action (HFA) ; evaluating internal control components namely (control environment, risk assessment, control activities , information , communication and monitoring)to manage disasters in the Iraqi environment according to the core indicators of the five priorities adopted in Hyogo Framework for Action (HFA) Building the resilience of Nations and communities to disasters 2005-2015 .with their activities under each indicator. Framework application report results 2013-2015 were used According to an answer for Ministry of the Environment in Iraq to the questions from the United Nations Office for Disaster Risk Reduction .The study comes up with results concerning internal control components. Control environment, risk assessment, control activities, information , communication and monitoring scored 50%, 17%,63%,35%and 20% respectively).

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Study Methodology

The problem of the study is non-evaluation of disaster management internal control by using COSO internal control framework According to the Hyogo framework for Action (HFA) in the Iraqi environment.

The study derives its importance through The significance of the study stems from that of COSO internal control framework which identifies five internal control components (control environment, risk assessment, control activities , information and communication and monitoring) and the disaster resilience framework which identifies five work priorities under each a set of indicators is listed .These indicators include activities that can reduce and

Introduction

The Iraqi environment has undergone many disasters due to terrorist acts and natural disasters such as floods, earthquakes in certain areas that caused human resources and economic losses .To reduce and face disaster risks, there should be efficient management that functions according to the disaster resilience framework priorities. This study evaluates internal control components of disaster management by using the Framework application report results 2013-2015 to identify the weaknesses in the framework priorities core indicators and in the COSO internal control components (control environment, risk assessment, control activities, information and communication and monitoring).

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for the disaster framework indicators (HFA) 2005-2015: for each priority that contributes to the identification of weaknesses in the implementation of the activities of these indicators at the level of each element of internal control according to the framework of COSO (Control environment, risk assessment, control activities, information and communication and monitoring activities).

- ✓ Assessing the commitment of disaster management in the Iraqi environment to the activities of the indicators (Hyogo Framework for Action) for each priority of the (HFA) that contribute to identifying the weaknesses at the level of each element of internal control according to the framework of COSO .

Study tools: Evaluate internal(COSO) control components for disaster management, used the (HFA) results report 2013-2015 in Iraq, scale of 0-5 is used to measure the level of the framework priority indicators Each score is given a rating as shown below: . Table (1)The levels of implementation of the indicator.

face disaster risks so as to rate each internal control component in applying Framework priorities to the Iraqi environment.

The study aims to:

- ✓ Introducing disasters, their management and COSO internal control framework components.
- ✓ Introducing Framework for Action (HFA) Building the resilience of Nations and communities to disasters2005-2015.
- ✓ Evaluating internal control components (control environment, risk assessment, control activities, information and communication and monitoring) by using (HFA) application report results 2013-2015 in the Iraqi environment according to the core indicators and the procedures falling under each framework priority.

The hypothesis of the study: The research based on the following assumptions:

- ✓ Assessment of the level of implementation of disaster management in the Iraqi environment

Within the priority

score	criteria for the score	Rating
5	all indicators and activities are available	Excellent
4	4 or more indicators and activities are available	Very good
3	3 or more indicators and activities are available	good
2	2 or more indicators and activities are available	moderate
1	1 or more indicators and activities are available	poor
0	None is available	Very poor

frequency for each priority within the (COSO) internal control components.

Internal control components have been evaluated by a total count of (yes – no) answers divided by total

disabled employees, housing arrangements for the recovery team, food service and alternate sources of supplies. A computer contingency plan, on the other hand, should have emergency, back-up, recovery, test and maintenance plans. Contingency planning should help companies to quickly regain their capabilities to process information and get back in business. As for the study by (Olowu, 2010:303) a number of questions were asked: What was the position of African countries on the framework of policy and planning, how should African countries involve a framework for securing human life and property against natural disasters? The study examines many of the questions, drawing on the lessons learned in Africa and its implications. The study examined the background of the Framework for Action and Progress in Africa, which is the impact of having a framework for disaster risk reduction and management in Africa. The study concluded that African countries are part of the Global Initiative for Disaster Risk Reduction and Management, with compliance and overall performance, and highlighted some deficiencies in the compliance of African States with the Agenda for Action, And that the lack of preparedness and coordination are the most difficult issues in African countries in terms of disaster management and reduction. The study of (Engwirda 2010:10) has dealt with aid sector .The study shows that this sector involves many donors and beneficiaries in times of disasters. In the wake of Tsunami disaster of 2004 ,INTOSAI established a working group to audit Tsunami related aids since a standardized information structure and an effective framework were absent .An overall picture was not possible to comprehend the disaster recovery procedures or finance .In addition ,those in need for such aid may not get it. Accountability of humanitarian aids are important to donors and beneficiaries .Absence of accountability and transparency increases the mismanagement of such aids or leads to ineffective distribution .Thus , beneficiaries may lose their lives. As for the WG,it aims at improving and increasing accountability practices with the support of international organizations and through setting standards to realize that end.

Previous studies

The study of (Louise K. Comfort, 2005:355) this review examines the policies and practices that address the evolving conditions of risk, security, and disaster management in U.S. society. Although each condition presents particular challenges to public agencies and the communities they serve. They represent varying states of uncertainty and require different approaches for informed action. This analysis reframes the issue of managing risk by focusing on the distinction between policies and practices developed in reference to natural and technological hazards and those developed to enhance security from hostile acts. The author concludes that building networks of organizations committed to a process of continual inquiry, informed action, and adaptive learning is a more flexible, robust strategy than the standard practice of establishing greater control over possible threats through administrative structures. Supported by methods of network analysis, computational simulation, information infrastructure, and long-term policy goals, networked strategies offer an important alternative to hierarchical structures that prove vulnerable in uncertain environments. Whereas study (Li& et al ,2005:1)The purpose of the study is to investigate potential social and economic factors that affect the resilience of a disaster-prone society .The results of this study reveals that quantifying the resilience of natural disasters provides guidance to vulnerable communities to learn from resilient communities to improve their plans and procedures. The resilience index developed in the study covers only the social and economic dimensions of the community in the areas where data are available. The political, security and information infrastructure dimensions must be integrated to build a comprehensive resilience index.As for the study by (L. Murphy, Smith, 2008:1) The study shows that devastated American businesses emphasize the importance of disaster recovery planning (DRP).In addition to the general emergency plan, companies must have computer emergency plans to protect critical information from loss ,destruction, theft and other risks. An effective DRP should provide for the recovery of vital records, alternative telecommunication systems, and evacuation of

resilience is a global priority. The study of (Enia, 2012:213) Given the increasing prevalence of large-scale natural disasters, why is the progress in implementing such a diverse (HFA)? This paper examines this question using an analytical framework developed in the literature of economic and political science on group action. Levels and their synthesis technologies, many of the inherent incentives associated with countries fulfill their commitments under a (HFA) and thus help to clarify why some of the priorities for the work of a (HFA) have been and will be more easily achievable.

The study conducted by (Sternberg&Batbuyan B. 2013:1) The Hyogo Framework for Action (HFA) stresses disaster risk reduction (DRR) provides guidance to vulnerable countries at the local, national and international levels. The framework aims at enhancing the capacity of adaptation, increasing resilience and reducing disaster risk in developing countries in particular. Mongolia is an example of the importance of disaster risk reduction and the challenge it faces in a country that is highly affected by climate changes. The disaster of 2010 resulted in losses in livestock and lives highlighted the effect of the disaster on communities. This paper considers the role and application of a (HFA) - in Mongolia and the obstacles faced by the country in effectively attaining the objectives of the Hyogo Framework for Action. The 2010 disaster is an opportunity to study disaster risk reduction, governance and governance in Mongolia. The study of (Pang et al, 2013:103) concludes that it is an efficient way for companies to reduce risk through decreasing the cost of internal control in risks monitoring and bettering the ability of preventing risks. To Increase penalties is something that can be effective only in the short term. Construction of a new mechanism for internal control reflects the risk management. It suggests that different kinds of risks become areas to focus on by internal control namely credit risk, financial risk and management risk. Risk management can lower the costs of inputs when enterprises activate the mechanism of internal control risk monitoring. Risk will be controlled within the acceptable range. The evidence from model analysis shows that investors should pay more attention to training and strengthen

The study by (Lee, 2012:64) the purpose of this paper is to show some strategies of crisis communication for countries in global society to effectively cooperate and coordinate among each other .through the theoretical elaborations , five strategic recommendations toward improving crisis communication are given in this paper .they are as follows: (1) a small active team to deal with world crisis communication need to be formed among neighboring countries . (2) to understand the neighboring country's crisis reality , there should be joint crisis communication entities to give true information about the crisis and the joint efforts exerted in each country. (3) There should be a suitable infrastructure with open and effective communication channels among various levels and across organizations to realize an effective management for crises. (4) The mass communication should carry out different tasks in community and make information available, explain events, and its impact, and the like in order to cooperate and coordinate the crisis management. (5) to have a sound understanding of the bordering country's crisis and problems , an education program that is multicultural need to be developed in the crisis communication system.

The study by (MastenS.&Angela J 2012:227) This study pinpoints progress over the past decade in studies on impacts of mass trauma experiences on children and youth; with special focus on natural disasters, war, and terrorism. Conceptual advances are examined in terms of common risk and resilience frameworks that direct primary research. Recent evidence on common elements of these models is assessed like dose effects, mediators and moderators and the individual or contextual differences that predict risk or resilience. Modern research trends with effects on health and well-being are discussed namely those related to models for biological embedding of extreme stress. Strong consistencies are noted in this literature, suggesting guidelines for disaster preparedness and response. At the same time, there is a notable shortage of evidence on effective interventions for child and youth victims. Practical and theory-informative research on strategies to protect children and youth victims and promote their

the study. Whereas study by(Whittier, 2017:1) study clarified the scope of the internal auditor's responsibility to include all funds allocated under common law. The internal auditor is responsible for detecting and preventing fraud, waste and misuse of programmes administered by contractors, as well as coordinating alleged fraud investigations with law enforcement agencies for the state and federal agencies. This responsibility includes reporting to the Office of the General Inspector. The study also clarifies the functions of the internal auditor, who design audit programs and conduct audits to determine whether funds are spent within the limits and standards of the disaster recovery program and all relevant guidelines. To detect and prevent waste, fraud and misuse in all aspects of the disaster recovery program, to include administrative, financial and operational capabilities, as well as to ensure that funds are spent in appropriate compliance and established guidelines, and investigate In any reports related to waste, fraud or misuse, and shall proceed to its final resolution, with the notification of the designated officials. These cases shall be published in public.

Theoretical framework :

✚ Internal control COSO

Internal control: According to ISA 400 Internal control system is defined as all the policies and procedures (internal controls) used by the entity management to assist in realizing management's goals particularly ensuring the sound and effective conduct of its business along with implementing management policies, protecting assets, fraud and error prevention and detection , maintaining accurate and complete accounting records and to timely prepare the financial information(ISA 400,2006).

Internal control under the 2013 "is defined as a process, carried out by the company's board of directors, management, and other employees, designed to provide reasonable assurance in achieving objectives related to operations, reports and compliance) KPMG,2013:1(

Internal control standards committee)INTOSI 9100,2004:6(defined Internal control as an integral

the capacity of finding rent-seeking continuously. Constructing a new mechanism for internal control that reflects risk management.

The study by (Niekerk, 2015:397) " Disaster risk governance in Africa" aims at a n ex post assessment of progress by comparison with the Hyogo Framework for Action (2000-2012) .This assessment aims at defining achievements, good practices, gaps and challenges against certain indicators of HFA (the first Priority.(Design/methodology/approach)

The study adopted a qualitative approach despite the fact that quantitative data were used to attain the objectives of the research. The literature available (scientific articles, research and technical reports) concerning disaster risk governance constituted the main research data. A selected number of African countries was utilized by the research as a basis for analysis (Burundi, Kenya, Mozambique, Nigeria, Swaziland and South Africa). Through examining literature on disaster risk governance, the author developed an analytical framework .The framework guided the assessment of the achievements, , gaps , challenges and good practices in applying disaster risk governance to the African continent since the formulation of the HFA in 2005.The research concludes that African countries have been achieving a progress in implementing disaster risk governance by comparison with theoretical indicators. Africa has a few international best practices from which others can benefit. There are still some gaps and challenges that are hindering the better progress in reducing disaster risks. Assessing the African progress in disaster risk governance can assist, to a large extent, to formulating international and national policy, legislation and implementation in the future.

The study conducted by (Ali, 2017:1) The objective of this research is to introduce the COSO framework and determine the compatibility between it and the internal control system applied in the Oasis(Wahat) Mills Corporation. The study found that the internal control system in the Oasis Mills Corporation has elements of the internal control system according to the COSO framework, but it is not of the same quality and effectiveness provided by the latter and does not meet all the needs of the institution, subject matter of

Control environment is a group of standards, procedures and structures that constitute the basis for implementing internal control in the organization. The control environment includes integrity and ethics of the organization as well as criterias used by the board to perform its governance controlling responsibilities. Also , the organizational structure and vesting authority and responsibility, bringing developing, and keeping competent individuals in addition to paying attention to performance measuring , incentives, and rewards to make employees aware of the importance of performance.

b. Risk assessment:

Risk assessment is a changing and recurring process to define and assess risks that are related to the attainment of goals. Risks across the organization are measured as per risk tolerances. Thus, risk assessment would be the basis for deciding on risk management method .Risk assessment needs studying the effect of potential changes external and internal environment this may lead making the internal control ineffective. (Hirth 2015: 17)

c. Control activities:

Control activities is the policies and procedures that are placed to face risks and to achieve the enterprise goals, and to make the control activities effective it must be relevant, and low costs, inclusive, reasonable and integrated with enterprise goals.

d. Information and Communication:

The information and reporting are fundamentals to achieve all internal enterprise goals , so it must decide a variety of information that are relative to the subject and which is characterized by credibility and to be informed in appropriate format and time in which it can be employed in performing the internal control and other responsibilities .(INTOSI 9100,19)

e. Monitoring Activities:

Continuous or separate evaluations, or both are useful to know if each one of the of internal control five components is in place and properly works. Results are measured against the standards set by prudent standard setters or bodies known for standard-setting

process performed by an entity's management and personnel in pursuit of the entity's mission and is designed to provide reasonable assurance that the following general objectives are being achieved:

- ✓ Executing orderly, ethical, economical, efficient and effective operations.
- ✓ Fulfilling accountability obligations
- ✓ Complying with applicable laws and regulations.
- ✓ -Safeguarding assets against loss.

Committee of Sponsoring Organizations (COSO ,2013:4) defined Internal control as a set of processes influenced by an entity's board ,management, and other staff developed to provide reasonable assurance on the achievement of objectives relating to operations effectiveness and efficiency ,reporting reliability , and adherence to applicable regulations. The key components of internal control are: control environment, risk assessment, control activities, information and communication and monitoring.

COSO Internal Control Framework

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) issued the new version of the integrated internal control framework in May, 2013.(COSO framework 2013).The first version was issued in 1992 was accepted and is widely used around the world. In order to ease the process of systemically moving towards applying the new framework ,COSO announced the start of the new framework application instead of the 1992 version as of December ,15,2014.these efforts contribute to the enhancement of the COSO mission i.e. improving the institutional performance and governance and to control fraud. Many improvements were achieved due to the amendments made to the original version of the framework namely: emphasizing the nonfinancial reporting (such as integrated reports and sustainability reports and the like), stressing on the growing significance of IT and a tackling fraud risks. Components of internal control according to COSO framework.

COSO framework 2013 consists of 5 key components. They are defined as follows :

a. control environment:

terms of disaster resilience .The conference gave a unique opportunity to come up with a systemic strategic approach to reduce weak points and vulnerabilities. It identifies methods to assess the ability of communities and nations to face disasters .It includes key activities falling under each one of its five priorities .countries, organizations both regional and international and other parties concerned should carry out them in a way that conforms to their conditions and capacities. These priorities below :) UNISDR, 2005)

First Priority: is to make sure that reducing disaster risk is a national and a local priority with a strong institutional basis for implementation.

Second Priority: is to identify, assess and monitor disaster risks and ensure that early warning is in place.

Third Priority: is to utilize knowledge, innovation and education to have a culture of safety and resilience built at all levels.

Fourth Priority: is to reduce the identified risk factors.

Fifth Priority: is to enhance disaster preparedness to facilitate effective response.

🚩 Evaluation Internal Control to Disaster Management According to Hyogo Framework for Action (HFA) In Iraq.

Below is the scoring for internal control components as per key activities within each indicator and at the level of each priority within the (HFA).

▪ Control environment

First priority: From table 2, it is noted that this priority score is 4 (very good).

or management and the board. Shortcomings are reported to the management. (Hirth 2015: 18.)

🚩 disaster management:

A disaster as defined by (Guha&al e, 2016: 7) is "a situation or event that affects the capacity of a certain community , demanding aid at the national and international levels .It is an unpredictable, sudden event that results in severe damage and destroys infrastructures and causes human suffering. The criteria that should be met as a prerequisite for including a disaster within the database, are as follows :to report that 10 or more people were killed-to report that 100 or more people were affected – a state of emergency is declared –a call for global aid .IFRC defines a disaster as follows: A serious halt that constitutes a grave , common threat to human life, human health, property and the environment as well , no matter what the cause arising from is be it accident or human activity or act of nature , whether it happens all of a sudden or as the result of long term processes, but excluding war (ifrc.org,2007:6(

Disaster management means resources and responsibilities organization and management for dealing with all emergencies humanitarian aspects namely disaster preparedness, disaster response and disaster recovery in order to lessen their impacts (www. ifrc.org).

A disaster is the occurrence of a damage that causes suffering that exceeds the ability of the affected community to cope with.(WHO/EHA, 2002).

:2.3World conference on disaster reduction (WCDR) was held in Kobe – Hyogo

Japan from 18- 22 January 2005-2015.The framework examines the capacity of nations and communities in

Table (2) results of the first priority of the (HFA)

Indicators and activities		Yes	No
Core indicator 1 a national ,political and legislative framework is in place to reduce disaster risks with a decentralization of responsibilities and capacities at all levels			
1.	Is disaster risk reduction (DRR) integrated in the national development plan?	✓	

2.	Is disaster risk reduction integrated in sector strategies and plans?	✓	
3.	Is disaster risk reduction integrated in climate change strategies and policies?	✓	
4.	Is disaster risk reduction integrated in poverty reduction strategic papers?	✓	
5.	Is disaster risk reduction integrated in civil defense policies, emergency strategies and planning?	✓	
6.	Is disaster risk reduction integrated in the national evaluation jointly conducted by the country and the UN/ UNDAF?	✓	
7.	Are legislations and laws enacted to manage disaster risk ?	✓	
	indicator implementation level		5
	Frequency		7 0
Core indicator 2: earmarked and adequate resources are available for carrying out disaster risk reduction plans and activities at all administrative levels.			
1.	Is a percentage of budget appropriation allocated to reducing risks for disaster recovery and reconstruction ,from the national or sub national budget?	✓	
2.	Are dollars set for risk investment, auditing and sectoral development?	✓	
	Indicator implementation level		0
	frequency		0 2
Core indicator 3: participation and decentralization of community is ensured through the vesting of authority and providing resources to local rule agencies.			
1.	Are there specific legislations for the local government with a mandate to reduce disaster risks?	✓	
2.	Are there allocations for local governments to reduce disaster risks	✓	
	Indicator implementation level		1
	frequency		1 1
core indicator 4 : an effective multi sectoral national system in place to reduce disaster risk			
1.	Are civil societies, national planning and financing entities as well as key institutions in the economic sector are presented in a national programme?	✓	
2.	Is the leading institution to coordinate disaster risk reduction is an independent agency?	✓	
	Indicator implementation level		0
	frequency		0 2
	The level of implementation of the priority (Very good)		4

Priority 3: Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

The level of implementation of the first priority (4) with a very good grade contributes to the achievement of the control environment component

score is 2 and the rating is moderate.

Table 3 depicts the (HFA) priority 3 results .The

Table (3) results of the priority (3) of the (HFA)

Indicators and activities		Yes	No
Core indicator 2: curricula, education material and related trainings contain concepts and practices on disaster risk reduction and recovery.			
1	Are disaster risk reduction and recovery incorporated in primary and secondary school curricula, educational material and training courses?	✓	
2	Is disaster risk reduction incorporated in secondary school curricula?	✓	
3	Is disaster risk reduction incorporated in university curricula		✓
4	Are there specialized educational programs to reduce risk disaster?		✓
Indicator implementation level		2	
frequency		2	2
Core indicator 3 : there are Research methods and tools for multi-risk assessments and cost - benefit analysis that are prepared and enhanced			
1	Is disaster risk reduction incorporated in national and scientific applied budget and programs in research projects and projects?		✓
2	Are research and products results applied?		✓
3	Are there studies on cost and feasibility to reduce disaster risk?		✓
Indicator implementation level		0	
frequency		0	3
level of implementation of the priority (moderate)		2	

concerned such as Ministries of Interior ,Planning ,Finance, Environment and other related ministries. There is also failure in implementing priority 3- core indicator 2 activities for, disaster risk reduction is not included in university curricula in addition to the lack of risk disaster reduction specialized program .Core indicator 3 is not being met because no research methods have been developed and research results are not being made use of .

The level of implementation of the third priority (2) with an average grade is to a certain extent contributing to the achievement of the control environment element.

As for the level of control environment element it has Control environment component has a percentage of 50 despite the fact that priority 1 results for indicator 1 was excellent. The failure in other indicators is represented by the fact that there is neither independent entity that is concerned with disaster management nor finance under a disaster reduction item .Annually, amounts are allocated for emergencies .Also, there is poor coordination between entities

"priority 2 results" priority 2 is classified as poor and the score is 1

▪ **Risk assessment**

priority 2 Identify, assess and monitor disaster risks and enhance early warning from table 4

Table (4) results of the priority (2) of the(HFA)

Indicators and activities	Yes	no
Core indicator1 : the availability of national and local risk assessments depending on risk data and exposure information . They include risk assessments for main sectors		
1 Risk assessment for multiple hazards		✓
2 Data classified as per kind in assessing the vulnerability and capacity assessment		✓
3 Unified national standards agreed upon for multiple hazards		✓
4 Risk assessment made by the leading organization central inventory		✓
5 A common form for risk assessment		✓
6 Customization of risk assessment form by users		✓
7 Is there an assessment for future risks?	✓	
Indicator implementation level	1	
frequency	1	6
Core indicator 4: risk assessments levels the local and national consider regional/transboundary risks, in order to enable regional cooperation on risk reduction		
1 has your country participated in regional or sub regional arrangement to reduce disaster risk reduction via assessing regional and sub-regional risks?		✓
Indicator implementation level	0	
frequency	0	1
level of implementation of the priority poor	1	

Priority 4: Reduce the underlying risk factors: from the table below we notice that this priority score is 1 (poor).

The level of implementation of the second priority (1) is low and therefore does not contribute to the achievement of the risk assessment element.

Table (5) results of the priority (4) of the(HFA)

Indicators and activities	Yes	No
Core indicator 6: Procedures are available to assess the disaster risk effects of big development projects i.e. Infrastructure.		
1 Are disaster risks caused by big development projects assessed?		✓
2 Is cost/ benefit analysis of disaster risks considered when designing and operating development projects by taking into account disaster risks when assessing the environmental impact?		✓
3 Is cost/ benefit analysis of disaster risks considered when designing and operating development projects by national authorities and sub national authorities and institutions?	✓	
4 Is cost/ benefit analysis of disaster risks considered when designing and operating development projects by effective international development entities?		✓
Indicator implementation level	1	
frequency	1	3
The level of implementation of the priority poor	1	

also due to the poor implementation of core indicator 6 .The reason behind is the lack of procedures to assess the disaster risk impacts of major development projects by effective international development entities when assessing the environmental impacts.

▪ Control activities

Priority 4 :Reduce the underlying risk factors Table 6 shows that this priority has scored 4 (very good).The strengths are concentrated in core indicator 2 with a rating of (very good)while indicator 2 has a rating of moderate .Weaknesses are concentrated in indicators 3&4 .Their score is 2 (moderate).

The level of implementation of the fourth priority (1) degree is poorly assessed and thus does not contribute to the achievement of the risk assessment element.

At the level of control element the Risk assessment has a percentage of 17 .It is a low one due to poor implementation of priority 2 indicators 1&4 .The priority scored 1 (poor)i.e. lack of national standards and estimates for risk assessment. In addition, there is no data and information on risks, financial budgets and poor national coordination .Iraq has not taken part in disaster risk reduction by assessing national and sub national risks. The priority scored 1(poor)

Table (6) results of the priority (4) of the (HFA)

Indicators and activities	Yes	No
Core indicator 1: reducing disaster risk is a significant goal of policies and plans related to environment, such as for land use, natural resource management and adaptation to climate change.		
1 Is there a mechanism for protecting and restoring regulatory system services related to wetlands, trees and forests in protected areas legislation?	✓	
2 Is there a mechanism in place for protecting and restoring regulatory system services related to wetlands, trees and forests that includes payments against environment system services?		✓
3 Is there a mechanism in place for protecting and restoring regulatory system services related to wetlands, trees and forests that includes integrated planning?		✓
4 Is there a mechanism in place for assessing environmental impacts?	✓	
5 Are their projects and programs for adaptation to climate change?	✓	
Indicator implementation level	3	
frequency	3	2
Core indicator 2: Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.		
1 Are there social security networks for improve the ability of families and communities most at risk to face disasters through crop and property insurance?	✓	
2 Are there temporary schemes for ensuring employment?	✓	
3 Through conditional and unconditional transfers of money to face disasters?	✓	
4 Are small projects financed (saving and loans) to face disasters?	✓	
5 Are there social security networks for improve the ability of families and communities most at risk to face disasters through micro insurance?		✓
Indicator implementation level	4	
frequency	4	1
Core indicator 3: the implementation of economic and productive sectoral policies and plans to have the vulnerability of economic activities reduced.		

1	Is cost and feasibility study integrated in economic development planning?		✓
2	Are there investment systems at the national and sectoral levels that include disaster risk reduction?	✓	
3	Are there infrastructure protection investments that include schools and hospitals?	✓	
	Indicator implementation level	2	
	frequency	2	1
Core indicator 4: incorporating disaster elements, including enforcement of building codes in planning and management of human settlements risk reduction.			
1	Are there investments in place for sewage system infrastructure to reduce risks in vulnerable urban areas that are at risk of floods?		✓
2	Are there investments to reduce risks in vulnerable urban areas at risk of landslides?		✓
3	Are planning and management in place to train masons to construct safe buildings?		✓
4	Are there planning and management to provide low income families and local communities with safe lands and housing?	✓	
5	Are there investments to reduce risks in vulnerable urban in terms of regulating risk sensitivity in land zoning and real estate development?		✓
6	Are planning and management in place to regulate property titles?	✓	
	Indicator implementation level	2	
	frequency	2	4
	The level of implementation of the priority(Very good)	4	

Table 7 shows that the priority score is 4 (very good).the weaknesses are concentrated in the core indicator 3 the score of which is 2 (moderate).

The level of implementation of the fourth priority (4) degree is very good grade, it contributes to the achievement of the control activities.

Priority 5: Strengthen disaster preparedness for effective response at all levels

Table (7) results of the priority (5) of the (HFA)

Indicators and activities	Yes	No
Core indicator1: Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective, are in place.		
1 Are there national plans, disaster preparedness policies and emergency planning and response through integrating DRR within these policies and plans?	✓	
2 Are there national plans disaster preparedness policies and emergency planning and response through existing institutional mechanisms to mobilize resources when disasters take place by means of supporting civil society and private as well as public sector ?	✓	
3 Are there national plans or policies to ensure protecting schools and hospitals in times of emergencies? Activities?	✓	
4 Are drills and rehearsals held in schools and hospitals for disaster preparedness?		✓
5 Are future disaster risks predicted by means of scenarios and planning for preparedness by making scenarios for potential risks while climate change forecasts are being considered?	✓	
6 Are future disaster risks anticipated through scenarios and planning for preparedness to regularly update the plans based on future risk scenarios?		✓
Indicator implementation level	4	
frequency	4	2
Core indicator 2: Disaster preparedness and emergency plans are available at all administrative levels, and regular training drills and rehearsals are made in order to verify and develop programmers for disaster response’.		
1 Are there plans and arrangement in place to deal with disasters via developing plans and programs among genders?		✓
2 Are there plans and arrangement in place to deal with disasters via risk /emergency plans management to continue rendering basic services as well as through communication and operation center?	✓	
3 Are there plans and arrangement in place to deal with disasters via communication and operation center	✓	
4 Are there precautionary plans, procedures and resources to deal with disasters via search and rescue squad?	✓	

5	Are there precautionary plans, procedures and resources to deal with disasters via relief supplies stockpile?	✓	
6	Are there precautionary plans, procedures and resources to deal with disasters through securing shelters?	✓	
7	Are there precautionary plans, procedures and resources to deal with disasters through securing medical facilities?	✓	
8	Are there precautionary plans, procedures and resources to deal with disasters through securing supplies needed by elderly and those of special need in terms of relief ,shelter and emergency medical facilities?	✓	
9	Are there precautionary plans, procedures and resources to deal with disasters through proactive engagement of partners in planning and securing of shelters?		✓
	Indicator implementation level	4	
	frequency	7	2
Core indicator 3: the availability of funds and contingency procedures to facilitate achieving the effective response and recovery when needed.			
1	Are there financial arrangements to deal with disasters via disaster emergency funds?	✓	
2	Are there financial arrangements to deal with disasters via considering future risk reduction when using disaster funds?	✓	
3	Are there financial arrangements to deal with disasters via insurance and reinsurance facilities?		✓
4	Are there financial arrangements to deal with disasters via catastrophe bonds and other capital market instruments?		✓
	Indicator implementation level	2	
	Frequency	2	2
	The level of implementation of the priority	4	Very good

that scores 2 (moderate) due to the lack of investment in flood threatened areas to reduce sewage risks and in the infrastructures, planning and management to train masons on safe construction of real estate development. Although priority 5 scored 4(very good),there is a weakness in implementing the activities of core indicator 3 that scored 2 due to the lack of financial arrangements to deal with disasters via

The level of implementation of the fourth priority (4) degree very good grade and thus contribute to the achievement of the control activities.

At the level of control element the control component has a percentage of 63despite the fact that priority 4 has an implementation score of 4 (very good).The weakness identified is in implementing the activities of core indicator 4

that priority 2 score is 3 (good) .Weaknesses are concentrated in core indicator 4 the score of which is (0)(very poor).

insurance and reinsurance facilities or via catastrophe bonds.

▪ **Information and Communication**

Priority 2: Identify, assess and monitor disaster risks and enhance early warning Table 8 shows

Table (8) results of the priority (2) of the (HFA)

Indicators and activities	Yes	no
Core indicator 3 :the availability of early warning systems for all threats and are accessed by all communities		
1 Do vulnerable local communities receive timely clear warnings on expected disasters and do they effectively respond to them?	✓	
2 Do vulnerable local communities receive timely clear warnings on expected disasters to be ready to them at the local level?	✓	
3 Do vulnerable local communities receive timely clear warnings on expected disasters via applied communication system and protocols?		✓
4 Do vulnerable local communities receive timely clear warnings on expected disasters via the engagement of the media in disseminating early warnings?	✓	
Indicator implementation level	3	
Frequency	3	1
Core indicator 4 :National and local risk assessments consider regional/transboundary risks to facilitate regional cooperation on risk reduction		
1 Does your country take part in regional and sub-regional risk assessment that takes account of DRR via regional or sub regional early warnings methods?		✓
2 Does your country take part in regional and sub-regional risk assessment that take account of DRR via developing and applying tranboundary information sharing protocols?		✓
Indicator implementation level	0	
Frequency	0	2
The level of implementation of the priority good	3	

Priority 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels. Table 9 shows that priority 3 score is 2 (moderate) .the weaknesses are

The level of implementation of the second priority (3) degree with good grade and thus contribute to some extent the achievement of information and communication component.

indicator 1 with a score of 2 (moderate). found in indicator 4 with a score of 1 (poor) and

Table (9) results of the priority (3) of the (HFA)

Indicators and activities	Yes	No
Core indicator 1: Relevant information on disasters is available and accessible at all levels, to all stakeholders through networks, development of information sharing system.		
1 Are information is readily disseminated and provided (not just when required)?	✓	
2 Are there already mechanisms in place to have access to DRR information e.g. Internet, TV etc...?	✓	
3 Is information made available with proactive directives to manage disaster risks?		✓
Indicator implementation level	2	
Frequency	2	1
Core indicator 4: Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.		
1 Do awareness raising campaign on directed to vulnerable communities and local authorities include disaster risk?		✓
2 Are central rule agencies trained?		✓
3 Do awareness raising campaign on disaster risks directed to vulnerable communities and local authorities include preparedness and emergency response?	✓	
4 Do awareness raising campaign on disaster risks include, preventive risk management and vulnerability?		✓
5 Do awareness raising campaign on disaster risk include directives to reduce risks?		✓
6 Are information on DRR practices available at the national level?		✓
Indicator implementation level	1	
Frequency	1	5
The level of implementation of the priority (moderate)	2	

Priority 5: Strengthen disaster preparedness for effective response at all levels Table 10 shows that the priority score is 0 (very poor).

The level of implementation of the third priority (2) with an average grade contributes less than partial the achievement of the information and communication component.

Table (10) results of the priority (5) of the (HFA)

Indicators and activities	Yes	No
Core indicator 4: the availability of the procedures needed to share relevant information in times of disasters, to carry out post-event reviews.		
1 Are Agreed technique and arrangement to assess damage and losses adopted when disaster occur via methods of loss and damage assessment?		✓
2 Are Agreed technique and arrangement to count damage, losses and needs adopted when disasters take place which include directives concerning gender issues?		✓
Indicator implementation level	0	
Frequency	0	2
The level of implementation of the priority (Very poor)	0	

disaster risk ,preventive risk management ,vulnerability and risk reduction directives .Also ,there is lack of information concerning DRR practices at the local level .Priority 5 score is(0) (very poor).The weakness lies in core indicator 4 because no agreed technique or arrangements are adopted in times of disasters to assess losses ,damage and needs via methodologies and capacities to assess losses and damage .No directive are in place concerning gender issues.

▪ Monitoring Activity

Priority 2: Identify, assess and monitor disaster risks and enhance early warning.

Table 11 shows that this priority score is 1 (poor).core indicator 1 has a score of 1 (poor) while core indicator 4 has a score of 0 (very poor) within the monitoring component.

The level of implementation of the fifth priority (0) grade is very poor; it does not contribute to the achievement of information and communication.

At the level of control element :The control component "information and communication "percentage is 35.The weakness lies in the implementation of priority 2 core indicator 4 activities .the score is 0 (very poor). Iraq hasn't taken part in any regional or sub regional arrangement for DRR neither via regional or sub regional early warnings nor the development and application of transboundary information sharing protocols. Priority 3 scores 2 (moderate).The weakness lies in core indicator 4 the score of which is 1 (poor)due to the absence of awareness raising campaigns directed to vulnerable communities and local authorities that include

Table (11) results of the priority (2) of the (HFA)

Indicators and activities	Yes	No
Core indicator 2 :Systems are available to monitor, archive and disseminate information on main threats and exposures		
1 Disaster losses data are available and periodically updated		✓
2 Reports that are utilized in planning by ministries of Finance ,Planning and other ministries of sectors that are generated from database in times of disaster/information system		✓
3 Risks are permanently monitored in different areas within the boundary of the country.	✓	
Indicator implementation level	1	
Frequency	1	2
Core indicator 4: National and local risk assessments take account of regional/transboundary risks, with a view to regional cooperation on risk reduction.		
1 Does your country take part in regional and sub regional arrangement for DRR via developing system to regionally monitor risks?		✓
2 Does your country take part in regional and sub regional arrangement for DRR via disseminating and financing regional and sub regional strategies and frameworks?		✓
Indicator implementation level	0	
Frequency	0	2
The level of implementation of the priority(poor)	1	

The level of implementation of the second priority (1) degree with a low grade does not contribute to achieve the monitoring activity element.

Priority 4: Reduce the underlying risk factors Table 13 shows that at priority 4 score is 1(poor)due to the same score for the indicator .

Table (12) results of the priority (4) of the (HFA)

Indicators and activities	Yes	no
Core indicator 5: integrating disaster risk reduction measures into the process of post disaster recovery and rehabilitation .		
1 Does post disaster rehabilitation include a budget for DRR to ensure secured and sustainable resilience by means of strengthening local authorities' capacities to disaster response and resilience?	✓	
2 Does post disaster rehabilitation include a budget for DRR to ensure secured and sustainable resilience by means of a pre and post resilience risk assessment and through planning for reconstruction?		✓
3 Are measures taken to tackle gender issues in terms of rehabilitation?		✓
Indicator implementation level	1	
Frequency	1	2
The level of implementation of the priority (poor)	1	

Table 14 shows that the score of this priority is 0 (very poor).the weaknesses lie in two activities within core indicator 6.

The level of implementation of the fourth priority (1) degree with a low grade does not contribute to the achievement of the monitoring activity element.

Priority 5: Strengthen disaster preparedness for effective response at all levels.

Table (13) results of the priority (5) of the (HFA)

Indicators and activities	Yes	no
Core indicator 4: Procedures for sharing relevant information during disasters and for conducting post-event reviews are available.		
1 Are agreed method and arrangement adopted to assess losses, damage and needs when disasters occur by means of post disaster need assessment?		✓
2 Are agreed method and arrangement adopted to assess losses, damage and needs when disasters occur that ensure identifying and training of human resources?		✓
Indicator implementation level	0	
Frequency	0	2

The level of implementation of the priority (Very poor)

0

and sub regional levels. Priority 4 indicator 5 score is 1(poor) due to the fact that post disaster rehabilitation programs lack a budget for secured and sustainable DRR by means of a pre and post disaster resilience and planning for reconstruction. In addition no procedures are being taken to tackle gender issues in terms of rehabilitation.

Priority 5 implementation score is 0(very poor).the reason lies in the low score of core indicator 4 which is 0 (very poor)due to non-adoption of agreed method or arrangement to assess damage ,losses and needs in times of disaster by means of post disaster need assessment or through identifying and training human resources.

The level of implementation of the fifth priority (0) grade is very weak and thus does not contribute to achieve the monitoring activity element. At the level of control element has :The percentage of monitoring component is 20 .The weaknesses lie in non-implementation of core indicator 2 .the score of indicator 2 is 1(poor) due to non-availability and non-updating of disaster losses data .In addition ,no information system are in place to facilitate monitoring process .The score for core indicator 4 is 0(very poor)due to the fact that Iraq has not taken part in regional and sub-regional arrangements for DRR through developing a monitoring system to regionally monitor risks .Iraq hasn't also disseminated and financed strategies and frameworks at regional

Figure (1) depicts a summary of internal control evaluation results of the internal control components as per indicators within the framework priorities in the Iraqi environment.

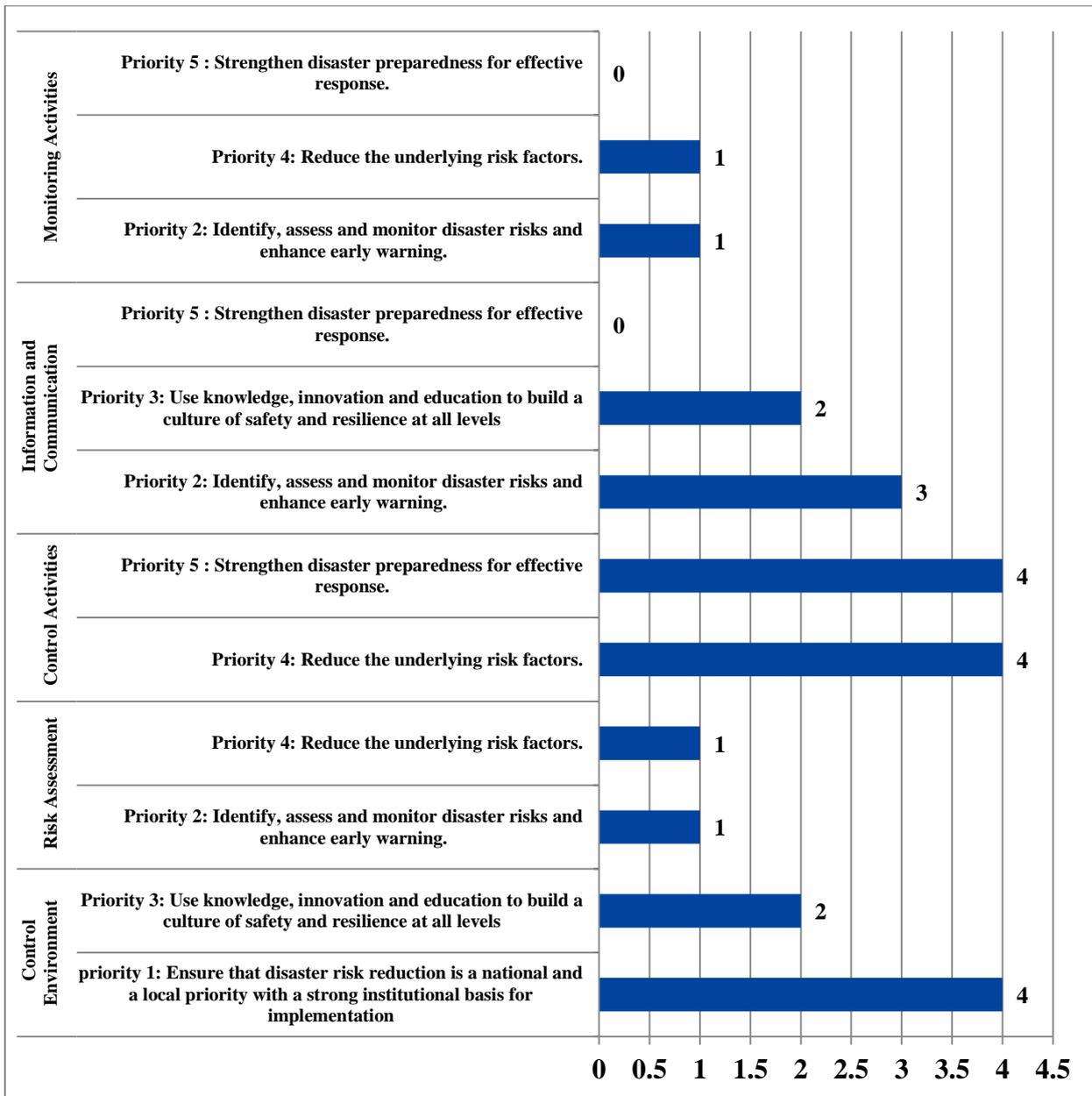


Table (14) depicts Disaster Management internal control evaluation results according to the indicators of each priority within the Framework for Action (HFA) Building the resilience of Nations and communities to disasters 2005-2015.

Monitoring Activities		Information and Communication		Control activities		Risk assessment		control environment		Number of activities	Indicator	Priorities
No	Yes	No	Yes	No	Yes	No	Yes	No	Yes			
								0	7	7	Core indicator 1 a national political and legislative framework is in place to reduce disaster risks with a decentralization of responsibilities and capacities at all levels	1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
								2	0	2	Core indicator 2 Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels.	
								1	1	2	Core indicator 3: Community participation and decentralization is ensured through the delegation of authority and resources to local rule agencies.	
								2	0	2	core indicator 4 : an effective multi <u>sectoral</u> national system in place to reduce disaster risk	
						6	1			7	Core indicator 1 : National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors	2: Identify, assess and monitor disaster risks and enhance early warning.
2	1									3	Core indicator 2 :Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities	
		1	3							4	Core indicator 3 :Early warning systems are in place for all major hazards, with outreach to communities	
2	0	2	0			1	0			5	Core indicator 4:National and local risk assessments take account of regional <u>transboundary</u> risks, with a view to regional cooperation on risk reduction	
		1	2							3	Core indicator 1 :Relevant information on disasters is available and accessible at all levels, to all stakeholders through networks, development of information sharing system.	3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
								2	2	4	Core indicator 2: School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices	
								3	0	3	Core indicator 3 : Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened	
		5	1							6	Core indicator 4: Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.	

Monitoring Activities		Information and Communication		Control activities		Risk assessment		control environment		activities	Indicator	Priorities
No	Yes	No	Yes	No	Yes	No	Yes	No	Yes			
				2	3					5	Core indicator 1: Disaster risk reduction is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change.	4 :Reduce the underlying risk factors
				1	4					5	Core indicator 2 : Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.	
				1	2					3	Core indicator 3: Economic and productive <u>sectoral</u> policies and plans have been Implemented to reduce the vulnerability of economic activities.	
				4	2					6	Core indicator 4: Planning and management of human settlements risk reduction incorporate disaster elements, including enforcement of building codes.	
2	1									3	Core indicator 5: Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation process.	
						3	1			4	Core indicator 6:Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.	5 : Strengthen disaster preparedness for effective response.
				2	4					6	Core indicator1:Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective, are in place .	
				2	7					9	Core indicator 2: Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmers'.	
				2	2					4	Core indicator 3: Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.	
2	0	2	0							4	Core indicator 4: Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews.	
8	2	11	6	14	24	10	2	10	10		Total frequency	
10		17		38		12		20			Total activities	
80	20	65	35	37	63	83	17	50	50		percentage%	

6. The control component has a percentage 63. The lack of investment to reduce risks and lack of financial arrangements to deal with disasters via insurance and reinsurance facilities or via catastrophe bonds.

7. The control component "information and communication "percentage is 35. The Iraq hasn't taken part in any regional or sub regional arrangement for DRR neither via regional or sub regional early warnings nor the development and application of transboundary information sharing protocols. the absence of awareness raising campaigns directed to vulnerable communities and local authorities that include disaster risk ,preventive risk management ,vulnerability and risk reduction directives .Also ,there is no information concerning DRR practices at the local level . no agreed technique or arrangements are adopted in times of disasters to assess losses ,damage and needs via methodologies and capacities to assess losses and damage ..

8. The percentage of monitoring component is 20. The non-availability and non-updating of disaster losses data .no information system are in place to facilitate monitoring process. Iraq has not taken part in regional and sub-regional arrangements for DRR through developing a monitoring system to regionally monitor risks .Iraq hasn't also disseminated and financed regional and sub regional strategies and frameworks. due to the fact that post disaster rehabilitation programs lack a budget for secured and sustainable DRR by means of a pre and post disaster resilience and planning for reconstruction. In addition no procedures are being taken to tackle gender issues in terms of rehabilitation. non-adoption of agreed method or arrangement to assess damage ,losses and needs in times of disaster by means of post disaster need assessment or through identifying and training human resources.

Conclusions

1. The five internal control components of (COSO) (control environment, risk assessment, control activities, information and communication and monitoring) for disaster management are not functioning in the Iraqi environment in general. The highest score is for control activities with a rating of mode rate whereas control environment score is fair and other components have a score of poor.

2. The strengths of Disaster Management lie in priority 1 core indicator 1 within control environment given the fact that there is a national political and legislative framework in place. The weaknesses lie in priority 1 core indicator 2 within control environment as well as in the poor implementation of priority 3 core indicators 2&3.

3. The weaknesses of the control component of risk assessment lie in priority 2 core

4. Control environment component has a percentage of 50. The failure in an independent body to deal with disaster management. There is no funding under disaster reduction and poor coordination between the relevant authorities. Disaster risk reduction is not included in the university curricula. Specialized programs for disaster reduction and research methods are not developed and applied research results are not being made use of.

5. Risk assessment has a percentage of 17. Lack of national standards and estimates for risk assessment. In addition, there is no data and information on risks, financial budgets and poor national coordination .Iraq has not taken part in disaster risk reduction by assessing national and sub national risks. The lack of procedures to assess the disaster risk impacts of major development projects by effective international development entities when assessing the environmental impacts.

5. To achieve the effectiveness of the information and communication component, attention must be paid to the following:

- The need for early warning systems with advanced technology and training on their use.
- Dissemination of timely disaster data must be secured in addition to participation in regional and sub-regional disaster risk reduction measures through information exchange protocols.
- Public awareness campaigns on disaster risks must be launched and preventive measures must be conducted.
- Assessing damage and losses.

6. In order to achieve the effectiveness of the risk assessment component, attention must be paid to the following:

- Databases on damage and losses need to be made available .They need to be constantly updated, archived and published.
- Participating in regional and sub-regional disaster risk reduction measures as well as in following up risk monitoring and funding strategies.
- There should be information systems in place for risks, losses and damage.

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Recommendations:

1. Paying attention to internal control component of COSO framework to reduce disasters is important.
2. To achieve the effectiveness of the component of control environment, the following need to be taken into account:
 - Forming an independent body with allocations from the public budget the responsibility of which is to coordinate between the relevant agencies to reduce disaster risk.
 - Incorporating disaster risk reduction in educational curricula for all levels of study, training courses and seminars.
 - Supporting applied research in the field of disaster risk reduction.
3. To achieve the effectiveness of the component of risk assessment, the following must be taken into consideration:
 - Benefiting from countries' experiences in preparing disaster risk assessments to be prepared for them.
 - Cost and benefit analysis is taken in to account when designing and operating projects to reduce disaster risk.
4. To achieve the effectiveness of the control component, the following are to be taken into account:
 - Developing measures to protect ecosystems including trees, forests and land.
 - Paying attention to building codes and conduct training on safe construction.
 - Developing national programs for disaster risk reduction.
 - Conducting drills and fake exercises to respond to disaster risks.

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