

PRE-DISASTER RISK FINANCING INSTRUMENTS AS A STRATEGIC FINANCING OPTION FOR DISASTER RISK REDUCTION IN THE KENYAN NATIONAL DISASTER PLATFORM

Oseno Ben 

Department of Disaster Management and Sustainable Development,
Faculty of Disaster Management and Humanitarian Assistance,
Masinde Muliro University of Science and Technology, Kenya
boseno@mmust.ac.ke

Jacob W. Wakhungu

Department of Disaster Management and Sustainable Development,
Faculty of Disaster Management and Humanitarian Assistance,
Masinde Muliro University of Science and Technology, Kenya
jwakhungu@mmust.ac.ke

Abstract

The paper aimed at determining the implications of pre-disaster risk financing instruments on disaster risk reduction in the Kenyan national platform. Pre-disaster risk financing instruments are the financial sources which are often structured in an organization's financial model prior to an event of a disaster. These financing instruments are risk transfer mechanisms, reserve fund, calamity fund, budget contingencies and contingent debt facility. Disasters pose daunting barriers to development in poor countries such as Kenya and the human and material losses resulting from disasters further impoverish the already poor population. These third world countries are inadequately prepared due to weaknesses of their economy, high level of indebtedness and rigid budgetary processes which do not allow them to reallocate budget post disaster. The study targeted the public and private organization employees, where a sample size of 60 key respondents was obtained with both primary and secondary data being collected. Correlational research design was adopted while statistical analysis employed was Pearson's co-efficient of correlation and multiple regression analysis. The study found out that pre-disaster

risk financing instruments have direct implications on disaster risk reduction in the Kenyan national disaster platform. These findings may inform policy decision on disaster risk financing in the third world countries and adds to the existing literature on disaster risk financing and risk reduction. Therefore the paper recommends the establishment of a disaster risk revolving fund in Kenya which is structured along the pre-disaster risk financing sources identified in the study.

Keywords: Pre-disaster risk financing instruments, Strategic financing option, Risk reduction and Kenyan national disaster platform

INTRODUCTION

Disaster risk financing is a unique endeavor involving strengthening institutions, building resilience and sustainable recovery (Association of Southeast Asian Nations, 2011). It is a financial protection strategy model which mobilizes the resources to be invested in disaster risk reduction, given the ever increasing number, scale and severity of disasters. Resource mobilization and allocation are essential elements in disaster risk reduction. The government, development partners and other stakeholders avail human, material and financial resources to prevent, prepare, manage and mitigate the effect of disasters (Government of Kenya, 2002).

Disaster risk financing is increasingly at the nexus of disaster risk reduction perhaps as a causal factor in disaster risk reduction (DRR). Globally, DRR is being given a high priority, for example, the World Bank (2005) concluded on the Hyogo declaration which contends that “states have the primary responsibility to protect the people and their property on their territory from hazards and to give high priority to disaster risk reduction in national policy, consistent with their capacities and resources available to them”.

In view of the foregoing, the reactive emergency aid business model may not help much hence the need to adopt a proactive disaster risk financing option; examining financing sources and priority areas in the utilization of funds for disaster risk reduction. Ban Ki-Moon (2010) explains that reducing disaster risk and increasing resilience to natural hazards through effective utilization of funds in different development sectors can have multiplier effects and accelerate achievement of the Sustainable Development Goals (SDGs). Wise investment can spur disaster risk reduction, protecting largely the population and the national coffers from losses (Wahlstrom, and Anders, 2010).

Cummins and Mahul (2009) argue that governments generally have access to various sources of financing following a disaster. These sources can be categorized as Pre-disaster risk and post-disaster risk financing instruments. Pre- disaster risk financing instruments require

proactive advance planning and include reserve and calamity funds, budget contingencies, contingent debt facility and risk transfer mechanisms. Ghesquiere and Mahul (2010) explain that risk transfer instruments are instruments through which risk is ceded to a third party, such as traditional insurance and reinsurance, parametric insurance where insurance payments are triggered by pre-defined parameters such as the wind-speed of a hurricane. Also included in the risk transfer mechanisms are the Alternate Risk Transfer (ART) instruments such as Catastrophe (Cat) bonds. Post-disaster risk instruments are sources that do not require advance planning. These instruments include budget reallocation, domestic credit, external credit, tax increase and donor assistance.

Twigg (2004) emphasizes that the design of an efficient disaster risk financing strategy is essential for governments interested in strengthening their response capacity which will generally have to combine a number of complementary financial instruments and policies. Experience suggests that a government facing a natural catastrophe will not require funding for its entire recovery and construction program immediately following the event. While immediate resources will be necessary to support relief operations, the bulk of needed funds will only be required several months later, when the actual construction program starts.

It is against this back-drop that this paper sought to investigate the implications of pre-disaster risk financing instruments on the disaster risk reduction in the Kenyan National Platform. United Nation International Strategy for Disaster Reduction (UNISDR,2009) defines the national platform for disaster risk reduction as national mechanisms for co-ordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

The Hyogo framework recognizes the role of national platform on disaster risk reduction since DRR requires the knowledge, capacities and inputs of a wide range of sectors and organizations including United Nations (UN) agencies present at the national level. National platform provides a means to enhance national action to reduce disaster risks and they represent the national mechanism for the international strategy platform on disaster.

In Kenya, the national platform on disaster management as outlined in the proposed National Policy on Disaster Management (NPDM) – 2002 consist of the National Aids Control Council, National Operations Centre, Arid Land Resource Management Project and the Department of Relief and Rehabilitation. There are also specialized units which have roles on search, rescue, anti-terrorism, evacuation, planning and management, enforcement of crowd control, conflict resolution and fire fighting. These units include the Police, the Department of Defense, National Youth Service, County government fire brigade, hospitals, the directorate of labour, occupational health and safety Services and the Kenya Wildlife Services. Further the

policy recognizes the ministries responsible for agriculture and rural development, natural resources and environment, labour and human resource development, trade and industry, health, roads and public works, transport and communication, information and tourism, energy, finance and planning, land and settlement, education, science and technology are involved in disaster management. In addition, International Authority for Development (IGAD), UN Agencies and other bilateral partners and international Non-Governmental Organizations (NGOs) play significant role in disaster management in Kenya.

In the Kenyan National Platform, the government agencies, ministries, departments, communities and civil society have been involved in the efforts to mitigate, enhance preparedness and advocacy to protect livelihoods and the assets of communities and individuals from the impact of hazards. The study adopted the following indicator of disaster risk reaction; state of preparedness, establishment of early warning systems, coping capacity level, state of capacity development, mitigation measures adopted and resilient levels.

Preparedness action is carried out within the context of disaster risk reduction and its aimed at building capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Concerns (2004) noted that preparedness plans often include capacity buildings and are usually knowledge based involving early warning systems that monitors and predict the occurrence of hazards, the contingency plans for effective response and recovery which can be implemented by the community, implementing partners, the government and others (CRED, 2009).

Mitigation is the lessening or limitation of the adverse impact, of hazards and related disasters. The scale and severity of the adverse impact of hazards often cannot be prevented fully but can be substantially lessened by various mitigation strategies and actions. DFID (2005) stated that mitigation measures are divided into infrastructural and non-infrastructural measures that reduce the frequency, intensity, scale and impact of hazards.

Early warning systems (EWS) is the set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. Concern (2005) explains that there are three elements found within any EWS: It must be able to forecast when a hazard is going to occur and predict its scale and intensity. The hazards must be identified through risk and vulnerability assessments and to retain credibility, the forecasts must achieve a high degree of accuracy. Another element is that the forecast must be communicated within and to, communities that are at risk from hazards impact. The third element is that there must be a sensible response to the

warning by communities and other players including the local authorities, central government and international organizations.

Coping capacity is ability of people, organizations and systems using available skills and resources to face and manage adverse conditions, emergencies or disasters. Appropriate mobilization of financial resources is an integral part of coping capacity more especially the pre-disaster risk financing instruments which are sourced prior to adverse conditions, emergencies or disasters (UNISDR, 2009).

The capacity to cope requires continuing awareness, resources such as financial resources, and good management, both in normal times as well as during crisis or adverse conditions. Coping capacity may contribute to the reduction of disaster risks (GoK,2010).

Capacity development is the process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals including through improvement of knowledge, skills, systems and institutions. Capacity development is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time (Mitamoto, 2008). It involves learning and various types of training but also continues efforts to develop institutions, financial resources, technology, systems and the wider social and cultural enabling environment.

Resilience means the ability to “resile from” or “spring back from” a shock. The resilience of community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need (UNISDR, 2008). Resilience also refer to the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

PRE -DISASTER RISK FINANCING INSTRUMENTS

NEDA-UNDP-EU (2008) describes the pre- disaster risk financing instruments as sources which require proactive advance planning by mainstreaming financing decision in a country’s development plan. The pre- disaster risk financing instruments are reserve fund, or calamity funds budget contingencies, contingent debt facilities and risk transfer mechanisms (World Bank, 2010).

i) Reserve and Calamity Funds

Coombs and Jenleins (2002) argue that there are four approaches to the financing of capital expenditure; financing from revenue, financing by borrowing, financing by leasing and financing from reserves. Financing from reserves involve using sources of finance that have been built up

in the past. The reserves may have been built up from a variety of sources such as contributions from revenue the sale of assets or charitable contributions.

Coombs et al (2002) points out that financing from reserves insulate the organization from harm outside world which may be characterized by high interest rates. Besides, they avoid the cost of associated with servicing and managing debt.

Munish Climate Insurance Initiative (MCII) (2009) outlined that catastrophe reserve funds are typically set up by governments, or may be donated to cover the costs of unexpected losses. Government, particularly in small states, are generally reliable to accumulate sufficient reserves to respond to major events Ghesquiere et al (2010) explain that beyond the opportunity cost of short-term liquidity sitting in an account, competing demands and political considerations make it virtually impossible for governments to build reserves beyond a certain level, for funding major catastrophic events.

ii) Contingent Debt Facility

Wild, Subramanyam and Halsey (2007) explain that contingent liabilities as potential claims on a company's resources can arise from litigation, claims arising from product warranties or defects and catastrophic losses of property. However, a loss contingency must meet two conditions for it to be recognized in the company books as a loss: it must be probable that an asset will be impaired or a liability is insured and the amount of loss must be reasonably estimatable.

Paish (1968) defines contingent debt facility as finance by borrowings which mean finances provided by those who do not take part in the ownership but merely lend capital. Finance by borrowing consists of short term and long term capital. Mandida et al, (2010) argue that short term capital include trade creditors who have supplied resources without immediate payment and professional suppliers such as banks, such loans are normally repayable either on demand or after a period of not more than one year.

Debt capital refers to borrowed capital by an entity to finance its operations. They include loans from Banks, non-bank financial institutions, international financial institutions like the World Bank among others. Cespedes, Gonzalez, and Molina, (2010) observed that lenders of these monies retain titles to the funds lent and expect the same to be repaid within the stipulated time with interest thereon of a pre-determined rate. The amount of interest paid by a firm is a deductive expense for computing corporation income taxes. The Trade-off Theory by Myers (1984) states that there is an advantage of financing with debt-the tax benefits of debt.

iii) Budget Contingencies

Ghesquiere et al (2010) argue that budget contingences usually represent 2 to 5 percent of government expenditure (Vietnam, Indonesia or Colombia) and are not earmarked only for

natural disasters. Vietnam, for example, has experienced several cases where a major cyclone hit the country in November, when the contingency budget had already been fully exhausted.

GoK (2012) provision that the responsibilities of the management of contingencies fund on the National Treasury. The contingencies fund consists of monies appropriated from the consolidated Fund by an appropriation Act in any financial year. Every fiscal year, there is money allocated to the contingencies fund. The Cabinet Secretary may make advances from the fund on the basis of the laws relating to disaster management and other set criteria process and operational guidelines.

iv) Risk Transfer Mechanisms

Risk transfer is the process of shifting the burden of financial loss or responsibility for risk financing to another party, examples would be through insurance, reinsurance legislation or other means (Mahul and Stucley, 2010). Hofman and Brukoff (2006) posit that risk transfer instruments are financial assets through which risk is beeded to a third party; Caballero (2003) gives the examples of risk transfer instruments as traditional insurance and reinsurance, parametric insurance and alternative Risk Transfer (ART) instruments such as catastrophe (Cat) bonds.

Lane and Mahul (2009) explain that the role of insurance is to serve as a recipient of risks and to diversify the risks by pooling losses among many policy holders. The statistical foundation is the law of large numbers. Intuitively, the observed average loss (Per policy) gets closer to the statistical expected loss (per policy) as the size of the insured population increases. Therefore it means that an insurer can almost predict the average loss (per policy) and thus charge the policy holder accordingly.

However, the risk of natural disasters such as earthquakes and hurricanes are not easily diversifiable because many policyholders are affected at the same time (Lawe and Mahul 2009). Moreover, the premium collected every year is generally small compared to a potential payment. (Ommins and Mahul 2008) emphasis that as a result of small collection from the premiums, insurers have to maintain risk capital provisions for beyond their expected annual loss to ensure that they will be able to disburse large indemnity payouts after a catastrophic event. These provisions generates substantial costs to the insurer and are passed to the policyholder (A catastrophe load is added the expected annual loss)

Munich Climate Insurance Initiative (MC11) (2009) outlined different types of risk transfer mechanisms as insurance, risk polling insurance-linked securities and micro-insurance. Insurance is a contractual obligation that guarantees financial protection against potentially large loss in return for a premium. Insurance is common across developing countries and

covers many types of “Peril” such as fire and theft insurance to protect property, automobile liability insurance. Risk pooling allows individual risk holders to spread their risk geographically. For example Caribbean Catastrophe Insurance Facility (CCRIF), which allows Caribbean governments to purchase coverage for earthquake and/or hurricanes security US \$ 110 million of reinsurance capacity in addition to its own reserves?

The Government of Vietnam formulated the National Strategy for Natural Disaster prevention, Response and Mitigation 2020 which includes a strategy on the development of catastrophe risk financing solutions such as insurance to complement other disaster risk management measures. The Climate Change Master Plan of Thailand seeks the creation of a financial mechanism to support the implementation of adaptation for coping with the negative effects of climate change (Global Facility for Disaster Reduction and Recovery 2011).

CONCEPTUAL FRAMEWORK AND HYPOTHESIS

This paper was guided by the conceptual framework in figure 1 below.

Figure 1: Conceptualizing the relationship between pre-disaster risk financing instruments and disaster risk reduction in the Kenyan national disaster platform

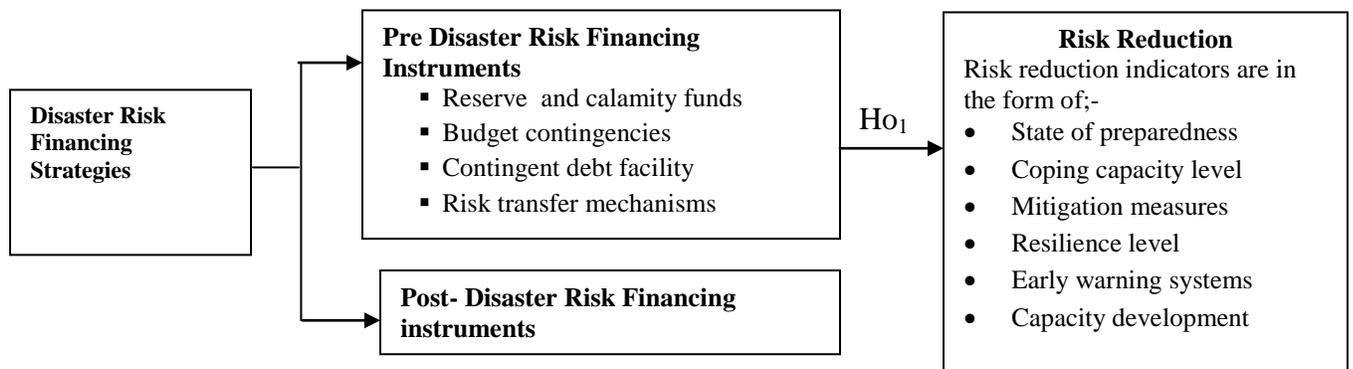


Figure 1 conceptualizes the relationship between pre-disaster risk financing instruments and risk reduction. The pre-disaster risk financing instruments are reserve fund, calamity fund, contingent debt facility, budget contingencies and risk transfer mechanisms. While risk reduction was measured in terms of state of preparedness, mitigation measures, level of capacity development and coping ability and resilient level as well as established early warning systems. The hypothesis formulated and tested was in null form: **H₀₁** there is no significant relationship between pre-disaster risk financing instrument and risk reduction in the Kenyan national disaster platform.

RESEARCH METHOD

The study was conducted in Kenya and it targeted the employees from both the private and public organizations engaged directly and indirectly in disaster risk reduction activities. Sample sizes of 60 key respondents were obtained by purposive sampling and the research design adopted was correlation research design. The researcher wanted to establish a cause – effect relationship between pre-disaster risk financing instruments and risk reduction in the Kenyan national platform. The primary data was collected using questionnaires and interview schedules while secondary data was collected through document analysis. The statistical analysis employed was Pearson's co-efficient of correlation analysis and multiple regression analysis.

RESULTS AND DISCUSSIONS

Sources of Disaster Risk Financing Instruments Adopted in the Kenyan National Disaster Platform

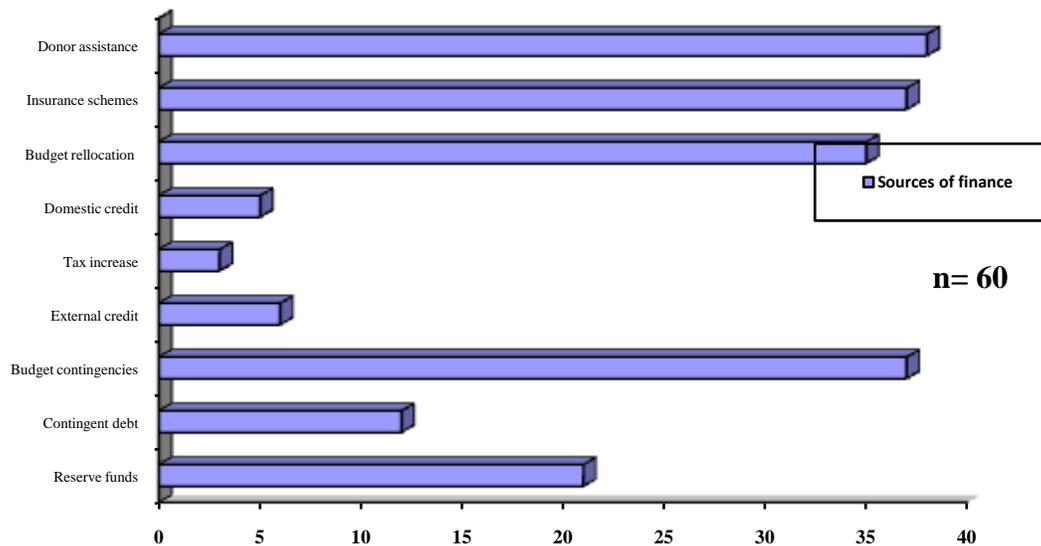
The researcher sought to find out whether the various sources of disaster risk financing are used by the Kenyan national disaster platform in risk reduction activities. The study findings revealed that in Kenya both pre and post disaster risk financing sources are used by different organizations engaged in disaster risk reduction. These findings are in agreement with (Gilaridi, 2013) in Colombia whose results showed that disaster risk financing draws from both pre-disaster risk financing instruments and post disaster risk financing instruments.

The study found out that donor assistance, risk transfer mechanisms through insurance schemes, budget contingencies, budgetary reallocations, and reserve funds are some of the most commonly used sources of disaster risk financing. Thirty eight point five per cent (38.5%) of the respondents noted that their organizations use donor assistance to finance disaster risk reduction activities while 37.2% revealed that risk transfer mechanisms mainly by use of insurance schemes are options in their financing. These results concur with those of (Crandall, 2008) which revealed that 40% of the funding used in rehabilitation of the drug victims in Colombia comes from the donor funds.

Budgetary reallocations are also used to enhance resilience, capacity development and state of preparedness among other risk reduction activities. Thirty six point four percent (36.4%) of the organizations do budgetary reallocation. These findings are as well in agreement with the (GoK, 2015) that urged state agencies, departments and ministries to utilize budgetary reallocation in preparation for the Elnino rains of 2015 besides the budgetary contingencies for the 2014/15 fiscal year. The other sources of disaster risk financing used by the Kenyan national platform are reserve funds, contingent debts, external credit, domestic credit and tax

increase, although they are not commonly used as such. Figure 2 presents a summary of the various sources disaster risk finance in the Kenyan national platform.

Figure 2: Sources of disaster risk financing adopted by the Kenyan organizations engaged in disaster risk reduction



Composition of Disaster Risk Financing Instruments Applied in the Kenyan National Disaster Platform

When the sources of finance used by the organizations were ranked, budget contingencies was the highest used source of disaster risk financing at 82.8%. The findings concur with those of (Lane and Mahul , 2009) which revealed that budgetary provisions are the immediate sources of financing disaster at 90% in the budget composition in spite of their little provision in the budget of many entities engaged in the disaster risk reduction. This is followed by donor assistance at 48.9%, reserve fund at 46.3% then budgetary reallocation at 42.0%. However, the least utilized form of disaster risk financing was external debt borrowings at 63.8% followed by tax increase at 62.2%.

Budget contingencies are commonly used because of the annual budgetary allocations by both the public and private organizations. The budgetary provisions are at times premised on certain laws demanding a certain percentage to be allocated to disaster related activities more especially in the public organization. For example, in Kenya it's a constitutional requirement that at least 2% of the total county government budgets provide for disaster risk related activities. External credit utilization is not commonly used because of the rigorous and complexity of the

procedures involved in the sourcing of the fund. While tax increase may be constricted by the aspect of tax burden as well as non direct ways in which it accumulates revenue which is later factored in the national budget, but not being singled out as necessitated by disaster mitigation purposes. The summary of the findings on ranking of sources of disaster risk financing used by the organizations are shown in table 1.

Table 1: Ranking of sources of finances used by the organizations in disaster risk reduction in the Kenyan national disaster platform

	Highest	higher	high	Low	Least
Reserve and calamity funds	27.9%	46.3%	15.4%	10.3%	0%%
Contingent debt	27.8%	31.5%	27.8%	13.0%	0%
Budget contingencies	82.8%	3.4%	6.9%	6.9%	0%
Insurance schemes	26.4%	43.2%	22.6%	7.3%	10.6%
Donor assistance	25.9%	48.9%	12.9%	0.8%	1.4%
Budget reallocation	12.5%	25.9%	42.0%	3.6%	16.1%
Domestic credit	12.2%	15.9%	39.5%	19.5%	12.9%
External credit	7.7%	3.8%	9.2%	63.8%	25.4%
Tax increase	0%	1.2%	6.8%	29.8%	62.2%

Factors Influencing Pre-Disaster Risk Financing Instruments on Risk Reduction in the Kenyan National Disaster Platform

The opinion of the respondents were sought on different factors influencing the use of pre-disaster risk financing instruments on risk reduction and the following findings were obtained; that most of the respondents strongly agreed or agreed that funds received from different sources often come with certain conditions in respect to the specific areas of use in DRR (28(46.7%) and (22 (36.7%) respectively with a mean of 1.94. Litonjua (2012) findings concur with these findings that donor funds are tied to certain condition and they are not sufficient in many cases. The study findings also revealed that, reserve fund is not among the highly prioritised budget line items in the budget make process with 33 per cent of the respondents strongly disagree that it is highly prioritized in the budget make process.

Fifty eight point three percent (58.3%) of the respondents strongly disagreed that the amount of money available for disaster risk reduction is adequate with a mean of 4.95. This means that most of the respondents either strongly disagreed or disagreed that the amount of money available for DRR is adequate considering the areas of need the funds are used. The

respondents also strongly agreed (63.3%) that their organizations are constantly in search for alternative source of funding for DRR.

The researcher sought the opinion of the respondents on whether they agree that the flow of funds sourced by their organization is regularly flowing and the findings were that 53.3% disagreed with only 16.7% agreeing. The findings are in agreement with (Gilarid, 2013) who found out that the follow of disaster funds in many countries in Africa are intermittent in their flow. He further argues that this limits planning and projections of long term disaster risk reduction activities. The results show that DRR activities are facing challenges of steady flow of funding. Also when the respondents' opinion was sought on whether the insurance sector in Kenya is doing enough in terms of developing packages focusing on DRR, 55.0% of the respondents strongly agreed that the insurance sector's effort in developing packages oriented towards DRR through risk transfer mechanisms as table 1 on the next page shows. Besides, 66.6% disagree that the budget contingencies provisions is prudently managed.

On the state of preparedness of the country or a county, adequacy in an event of a disaster, 43.3% disagreed, 38.3% strongly disagreed although 10.0% of the respondents agreed, as table 2 reveals. This means that the country is highly exposed for disaster risks in an event it occurs hence requiring the Kenyan national platform players to re examine the financing of disaster risk reduction activities. Mani (2003), ECLAC, (2006) and Crandall (2008) concur with these results that under developed countries are highly exposed to disaster risk due to weaker economic frameworks, high population and political instability.

Table 2: Factors influencing pre-disaster risk financing instruments on risk reduction in the Kenyan national disaster platform

Description	Strongly Agree 1	Agree 2	Not sure 3	Disagree 4	Strongly Disagree 5	Mean (SD)	Kurtosis SE=0.548	Skew-ness SE=0.184	χ^2 Df=5 P=0.001
Funds received from different sources often come with certain conditions in respect to the specific areas of DRR	28 (46.7%)	22 (36.7%)	2 (3.33%)	6 (10.0%)	2 (3.33%)	1.94 (0.94)	0.168	-0.453	229.21
Is the reserve fund among the highly prioritized budget lines in the budget making process	9 (15.0%)	2 (3.3%)	4 (6.7%)	12 (20.0%)	33 (55.0%)	4.85 (1.67)	-0.160	0.998	234.67
Is the amount of money available adequate considering the areas of need the funds are used in DRR	3 (5.0%)	7 (11.7%)	0 (0.0%)	15 (25.0%)	35 (58.3%)	4.95 (1.93)	-0.641	1.124	421.54

Is your organization constantly engaged in exploring ways of improving their sources of finance	38 (63.3%)	19 (31.7%)	0 (0.0%)	2 (3.3%)	1 (1.7%)	1.44 (1.63)	-0.868	-1.642	382.76
Agree that the flow of funds sourced by your organization is regularly flowing	2 (3.3%)	10 (16.7%)	4 (6.7%)	32 (53.3%)	12 (20.0%)	4.07 (1.47)	1.645	1.540	298.76
Is the insurance sector in Kenya doing enough in terms of developing packages focusing on DRR	33 (55.0%)	22 (36.7%)	1 (1.7%)	2 (3.3%)	2 (3.3%)	1.56 (1.43)	0.144	-0.782	287.67
Do you think the budget contingencies provision is prudently managed	0 (0.0%)	0 (0.0%)	10 (16.7%)	40 (66.6%)	10 (16.7%)	4.18 (1.54)	-0.001	1.867	484.42
Do you agree that the state of preparedness of the country/country is adequate in an event of a disaster	2 (3.4%)	6 (10.0%)	3 (5.0%)	26 (43.3%)	23 (38.3%)	4.62 (1.23)	1.583	1.264	254.85

Note. SD-Standard Deviation; SE-Standard Error; P- Pearson chi-square value; Df- Degrees of Freedom

Financial Plan of the Organizations Engaged in Disaster Risk Reeducation in the Kenyan National Disaster Platform

Eighty six point seven percent (86.7%) of the respondents were of the opinion that their organizations have financial plans which guide the organization in terms of prospective sources of finance and where the funds are to be used in disaster risk reduction related activities. These findings are in agreement with (Kiwanuma, 2012) which noted that annual financial plans are prepared by the state and non state organization to guide their financing operations.

Although 8.33% of the respondent expressed their opinion in their organizations lacking financial plans but 5.0% of the respondents were not sure of whether such plans exist or not. The essence of a financial plan is to guide the financial activities of any entity in disaster risk financing, such plans are useful in guiding the priority areas of expenditure on risk reduction as well as where the funds will come from. The financial plans are useful in enhancing transparency on the financial management of disaster risk reduction.

On the operation of a reserve and or calamity funds, majority of the respondent 76.7%, were in agreement that indeed it exists in their organizations. The findings are in agreement with (Pretty, 2003) which indicated that calamity provisions in the budget provisions an organization from the risks of liquidity challenges in an event of a disaster. The reserve fund is where some finances are kept a side every financial year that may be need when the other sources of

finances are exhausted or can hardly come by and yet there is need for funds on immediate use in disaster risk response, preparation or recovery.

Contingent debt facility is one of the financing risk instrument at the disposal of the Kenyan national platform players in disaster risk reduction and when the respondents were asked whether such a facility is used by their organization, most of them were not sure of the utilization of such a facility which accounted for 55.0% of the respondent. Thirty five percent (35%) of the respondent accepted that the contingent debt facility is used by their organization in disaster risk financing as shown in Table 3.

The use of risk transfer mechanism by the Kenyan national platform players in their financial plan was sought and 46.7% of the respondents were not sure of its use in the disaster risk financing of their financial plan. Although 28.3% acknowledge the use of other risk transfer mechanism and 25% said no on the use of the financing facility as table 3 shows. The findings are in disagreement with the (KNBS, 2014) which showed that uptake of insurance products has significantly increased for the last ten years which now stands at 37% of the insurance services.

On the aspect of compensation in an event a disaster occurs and the elements insured or assured are destroyed or killed, 33.3% of the respondents were of the opinion that their organization have received compensations, where 33.0% were not sure on weather their organizations have received or not. Thirty one point seven per cent (31.7%) noted that their organizations have not received compensations.

In order to time the use of the planed financial resources in the financial plan and the disaster risk reduction activities, the researcher sought the opinion of the respondents on the availability of the early warning system which signals the concerned to take action before hand, 80.0% of the respondents acknowledge the existence of early warning systems.

Table 3: Financial plan of the organizations engaged in disaster risk reduction in the Kenyan national disaster platform

Description	Yes (1)	Not Sure (2)	No (3)	Mean (SD)	Kurtosis SE=0.106	Skewness SE=0.286	χ^2 Df=3 P=0.001
Do you have financial plan which guides your organization in terms of prospective sources of finance and where they may be used in disaster related activities?	52 (86.7%)	3 (5.0%)	5 (8.33%)	1.01 (0.64)	-0.462	-0.182	136.8

Does your organization have a reserve or calamity fund which help in financing disaster related activities?	46 (76.7%)	8 (13.3%)	6 (1.0%)	1.54 (0.59)	-0.329	-0.241	138.1
Has your organization ever taken a contingent debt facility from a bank or any non-bank financial institution to finance her disaster activities?	21 (35.0%)	6 (10.0%)	33 (55.0%)	2.41 (0.49)	0.367	0.294	186.3
Has your organization taken some other insurance covers apart from motor vehicles and employees life insurance covers?	17(28.3 %)	28(46.7 %)	15(25.0 %)	2.14(0. 32)	0.232	0.308	196.2
Has your organization ever received compensation in an event that the eventuality occurred?	20 (33.3%)	21 (35.0%)	19 (31.7%)	2.12 (0.49)	0.162	0.371	167.3
Are the budget contingencies used only for disaster related activities in your organization?	18 (30.0%)	29 (48.3%)	13 (21.7%)	1.98 (0.84)	0.198	0.238	157.9
Is there early warning system which signals the concerns to take action before hand?	48 (80.0%)	2 (3.33%)	10 (6.67%)	1.56 (0.94)	-0.564	-0.208	137.5

Note. SD-Standard Deviation; SE-Standard Error; P- Pearson chi-square value; Df- Degrees of Freedom

Approximate Percentage of the Annual Budget Constituted by Budget Contingencies

On the opinion of the respondents about the approximate percentage of the budget contingencies contained in their budget, 83.3% of the respondents were of the view that it constituted between 2% - 10% of the total annual budget while 16.7% noted that it weighs less than 1% in their organizations annual budget proportion as shown in table 4. These findings are in agreement with the provision of the (Public Finance Management Act, 2012) and the (Constitution of Kenya, 2010) which provide for budgetary allocation of not less than 2% of the total budget.

Table 4: Approximate percentage of the annual budget that the budget contingencies constitute among Kenyan organizations engaged in disaster risk reduction

Description		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 1%	10	16.7	16.7	16.7
	2%-10%	50	83.3	83.3	100.0
	Total	60	100.0	100.0	

Establishing the Relationship between Pre-Disaster Risk Financing Instruments and Risk Reduction using Pearson's Product Moment Correlation Test

The study formulated one hypothesis for testing. The hypothesis tested the contribution of pre-disaster risk financing instruments to risk reduction. To establish the relationship between pre-disaster risk financing instruments and risk reduction, Pearson's product moment correlation coefficient test was used. The index of the independent variable; pre-disaster risk financing instrument was correlated with the risk reduction index (Table 5).

Table 5: Results of Pearson's product moment correlation test on the relationship between pre-disaster risk financing instruments and risk reduction

		Risk reduction
Pre-disaster risk financing instruments	Pearson's correlation	0.0165*
	Sig.(1-tailed)	0.002
Index	N	60

Table 5 indicates that there is significant association between pre-disaster risk financing instruments and risk reduction ($r = 0.0165$ $p = 0.002 < 0.05$). This means that pre-disaster risk financing instruments influence risk reduction in the Kenyan national platform. This is in agreement with the findings of (Nata, 2012, Mitomoto, 2008 and Mahul 2009) which revealed that pre-disaster financing instruments if well structured in a financing model helps in mitigation measures, preparedness, capacity building and establishment of early warning systems.

Hypothesis Test Results for the Effects of Pre-Disaster Risk Financing Instrument on Risk Reduction in the Kenyan National Platform

After establishing that relationship exists between pre-disaster risk financing instruments and risk reduction by the use of Pearson's product moment correlation coefficient tests, the study tested the effect of pre-disaster risk financing instruments on risk reduction using multiple regression analysis. H01 states "There is no significant relationship between pre-disaster risk

financing instruments and risk reduction in the Kenyan national platform”. The summary of test is presented in table 6.

Table 6: Hypothesis testing results using multiple regression analysis on the effect of pre-disaster risk financing instruments on risk reduction in the Kenyan disaster national platform

Independent variables	Standardized Beta Coefficients	Sig. $p \leq 0.05$	Null hypothesis	Decision
Pre-disaster risk financing instruments	.231	.002	H_{01}	Rejected

Dependent Variables: Risk reduction

According to the study results in table 6, the null hypothesis was rejected which led to the study conclusion that pre-disaster risk financing instruments significantly affected risk reduction in the Kenyan national platform at level of significance. The study findings concur with those of (Nata, 2012, Mitomoto, 2008 and Mahul, 2009) which concluded that the appropriate combination of pre disaster risk financing instruments (budget contingencies, reserves, risk transfer packages and contingent debts) help in disaster risk reduction.

CONCLUSION

Disaster risk reduction can be enhanced by mixing pre-disaster risk financing instruments in a disaster risk financing structure. Disaster mitigation measures, improvement of the state of preparedness, capacity development and resilient building require financial resources. Also to establish effective and efficient early warning systems, there should be adequate financial resources which calls for prior risk financing instruments are appropriate financing options which directly contribute to the disaster risk reduction in the Kenyan national platform. The paper therefore recommends that there should be disaster risk revolving fund established to finance disaster risk reduction programmes in the Kenyan national platform

RECOMMENDATIONS

On the basis of empirical findings, the study recommends that:

- i) The national government of Kenya should establish a pre-disaster risk financing revolving fund.
- ii) The bodies: public and private organizations engaged in disaster risk reduction in Kenya should explore ways of enhancing their funding because majority of them suffer from inadequate finances.

iii) The annual budgetary provision by the public organizations engaged in disaster risk reduction should be more than 10% other than merely complying with the statutory requirement of not less than 2% budgetary provision.

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