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Public-private partnerships (PPP) in disaster management in developing countries: a conceptual framework

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Abstract

With loss and damages from disasters increasing globally, reports from international agencies show that developing and the least developed countries are most affected by natural disasters. Much of the literature refers to two major problems that these countries face when managing disaster: the role of government and financial restrictions. As a result, it is difficult for these countries to develop a comprehensive disaster management framework and programs.

Public-private partnerships (PPP) have become a popular way for governments to engage private actors in the delivery of government infrastructure and services with the aim of increasing quality and providing better value for money. This study will explore whether Public-Private Partnerships (PPP) can be used as a strategic approach to overcome or at least to minimise the negative impacts of disasters in developing countries.

Based on a study of previous literature, this paper develops a conceptual framework that describes how the partnership between public and private actors, with certain characteristics, can establish a platform for all actors to contribute towards the objectives of disaster management in developing and least developed countries.

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Keywords: Public-private partnership; disaster management; developing countries

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1. Introduction

For several decades, the governments of developing countries have been confronted with the negative impact of natural disasters on economic development. This is different to most developed countries, where the impact of natural disasters are financed through collaboration with private sector using financial tools such as insurance, microfinancial tools and catastrophe bonds. These approaches have been useful in reducing the burden of managing disaster (Christoplos et al., 2001, Goes and Skees, 2003, Kapucu et al., 2010, Heenkenda, 2013). Collaboration between public and private actors in developed countries has helped to create new programmes for loss prevention and disaster resilience, such as the US National Flood Insurance Program in the United States and France Caise Centrale de Reassurance in France (Linnerooth-Bayer and Mechler, 2007).

However, in most developing countries, private sector actors are less attracted to actively participate in disaster management (McLoughlin, 1985, Yodmani, 2001, Ahrens and Rudolph, 2006, Khan and Rahman, 2007) and the financial market in these countries are underdeveloped (Kreimer and Arnold, 2000, Vatsa and Krimgold, 2000, Linnerooth-Bayer and Mechler, 2007). Only 9 percent of the total property losses due to natural disasters in developing countries were covered by private insurance. This compares unfavourably with most developed countries, such as New Zealand and France, where more than 75 percent and 100 percent of property is covered by private insurance respectively (Sawada and Zen, 2014).

Therefore, without many options, the governments of these developing countries have to carry out disaster management programs with limited and insufficient funds. A large portion of disaster risk financing is shouldered by government and there is a perception that disaster risk management is a public good (Sawada and Zen, 2014).

Public-private partnerships (PPP) have become a popular way for governments to engage private actors in the delivery of government infrastructure and services with the aim of increasing quality and providing better value for money. This study will explore whether Public-Private Partnerships (PPP) can be used as a strategic approach to overcome or at least to minimise the negative impacts of disasters in developing countries.

Based on a study of previous literature, this paper develops a conceptual framework that describes how the partnership between public and private actors, with certain characteristics, can establish a platform for all actors to contribute towards the objectives of disaster management in developing and least developed countries.

2. Literature review

Public private partnerships (PPP) have become increasingly popular in many countries since the 1990s (Steijn et al., 2011, Jing and Besharov, 2014). Many governments assume that the involvement of the private actors in the delivery of government infrastructure and services will increase quality and provide better value for money. It is widely believed that cooperation between government and private actors will generate better results (Osborne, 2000, Ghobadian et al., 2004, Donahue and Zeckhauser, 2011). PPP is a popular strategy used by government to encourage private participation in any public projects (Johannessen et al., 2013)

PPP was established as one of the favoured organisational models across European Union countries, especially in the United Kingdom, where it has been used extensively since the 1980s (Yang, 2003, Weihe, 2005, Vela and Pardo, 2012). Since its appearance, PPP has gained a similar profile to privatisation. However, in spite of its popularity, this widely disseminated concept of partnership remains imprecise, with hidden defining features. According to Johannessen et al. (2013), the main aim of the PPP is to expand the range of service providers beyond traditional public sector monopolies and inject a measure of dynamism, increase coverage, innovation, efficiency and cost recovery.

There are many definitions of the PPP can be found, depending on the perspective. In academia (for example, see Koppenjan and Klijn, 2004) PPP has been defined as ‘more or less stable patterns of social relations between mutually dependent actors, which form around a policy program and/or cluster to means, and which are formed, maintained and changed through a series of games’. Klijn and Teisman (2003) defined PPP as a cooperation between public and private actors in which joint products and/or services are developed and in which risks, costs and profits are shared. Farlam (2005) defined PPP as a contract between a public sector institution and private party where the private party assumes substantial financial, technical and operational risk of the projects.

Offering a different perspective, the U.S Department of Transport define PPP as a contractual agreement formed between a public agency (federal, state, or local) and a private sector entity that allows for greater private sector participation in the delivery, operation, and financing of infrastructure projects. PPPs can include projects where a significant design, construction, financial, and operational risk are transferred from the public sector to the private sector.

Makofane (2013) defines PPP as a contract between a government institution and a private party, where a private party performs an institutional function using state property in terms of output specifications. In this contract, substantial project risk is transferred to the private party and the private party benefits from government budget or a user fee. According to Johannessen et al. (2013), PPP allows the costs and benefits for development to be better shared between private and public sectors.

A PPP can be seen as a specific type of governance network which holds all relevant stakeholders in the network concerning the development and implementation of a policy program or project. Therefore, the main concept of the PPP should focus on the interrelation between public and private actors, and between governmental and commercial parties.

Characteristics of PPP have been identified in some of the published literature. The first characteristic is mutual coordination. Coordination is essential for any partnership and activities of the public and private organisations have to be well coordinated (Rogers and Whetten, 1982, Savas, 2000, Steijn et al., 2011).

The second characteristic is the need for a level of shared risk and profit. To deal with this challenge, the cooperation between public and private actors has to result in at least some risk and profit sharing (Huxham and Vangen, 2013). The profit sharing is not necessarily in term of financial profits. It may be that the private actors will get the financial profits and the public actors will get recognisable societal benefits (Hodge and Greve, 2005, Ismail and Pendlebury, 2006, Lonsdale, 2007).

The third characteristic of the PPP is an organisational arrangement between the partners to enhance the cooperation process (Savas, 2000, Hodge and Greve, 2005). Most partnerships are structured around organisational arrangements that are meant to simplify coordination and secure the shared risk and profits. According to Waddock (1991), this arrangement can take the form of an informal project group, newly established consortiums or other hybrid organisational forms.

Based on the previous definitions and characteristics of the PPP, the overall assumption is that PPP improves outcomes. However, before we can accept the assumption, it is necessary to consider the benefits of a PPP based on the results of previous studies.

Many academic and non-academic articles, including government documents, state that PPP leads to better value for money (Osborne, 2000, Savas, 2000, Bourn, 2001, OPDM, 2002, Klijn and Teisman, 2003, Hodge and Greve, 2005, Chen et al., 2013, Johannessen et al., 2013, Jing and Besharov, 2014). Specifically, authors such as Williamson (1996), McQuaid (2000) and Savas (2000) agree that the PPP enhances efficiency and it results in lower costs and provides added value to the actors' performance. These results can be obtained because each of the involved actors has an incentive to improve their efforts to enhance the value of the product or service that is being delivered. Another often heard advantage of partnerships is that actors are able to realise better, more innovative solutions by harnessing each other's knowledge and expertise (Parker and Vaidya, 2001, Huxham and Vangen, 2013, Johannessen et al., 2013).

Mandell (2001) argues that PPP is important for all actors to generate better, more innovative products and policy outputs for complex societal problems. Disaster management is frequently identified as a complex societal problem because of it frequency and severity to societies (Beratan, 2007).

2.1 Public-private partnership and disaster management

The role of central government in managing disasters varies considerably across countries. However, two main tasks are widely associated with central government. The first and primary task of central government is to draft and strengthen national policies for disaster reduction (Sylves, 2008). The purpose of the national policy is for re-envisioning the preparedness around community agenda and it is necessary for more effective response and recovery

(Chandra et al., 2013). Other than that, central governments are also responsible for allocating funds for disaster mitigation and preparedness programs (Xie et al., 1999, Akai and Sakata, 2002, Skidmore and Toya, 2013).

Nowadays, much attention is paid to local governments in managing disasters (Kusumasari et al., 2010). As suggested by Perry and Mushkatel (1984), disaster management is implemented by local governments. Local governments can also play the most active role in emergency operations because the local governments are more familiar with local conditions, communities and culture (Herman, 1982, Stewart et al., 2009, Kusumasari et al., 2010).

Solway (2004) notes that the task of local government is to facilitate local situations and as such, local government is not usually involved in disaster mitigation programs at national level. However, Cheong (2011) suggests that central government and local governments should work together in order to develop a comprehensive disaster management framework and reduce vulnerability towards disasters. A strong partnership among all levels of government helps ensure that all levels are integrated and involved in resilience building and disaster planning (Helsloot and Ruitenberg, 2004, Alesi, 2008, Norris et al., 2008).

Following a disaster, governments have two main roles: recovery of damaged infrastructures and provision of support to those persons least able to cope (Linnerooth-Bayer and Mechler, 2007). Recovery of damaged infrastructure requires a lot of money for repair and replacement, especially for public infrastructure. Government is also required to provide suitable programs that can help a community to reduce or transfer their financial burden linked to disaster risk.

Financial aspects are always critical in managing disasters, especially for developing countries (Chen et al., 2013, Lassa, 2013). Wildasin (2008) proposes that in order to strengthen a local governments' incentive for disaster management, mandate should be given by central government to local governments to build a disaster reserve fund. This view is supported by Rodriguez-Pose and Kroijer (2009) who found that a local government with its own financial resources responds better to local demands and promotes greater economic efficiency. However, the main issue that must be addressed is how the local governments find money for the reserve fund. A few suggestions are given by Skidmore and Toya (2013), such as intergovernmental fund transfer and taxation.

However, very little research has paid attention on the potential role of private companies and corporations in financing disaster management. For example, private companies and corporations might be involved in financing disaster through a risk transfer program such as insurance and other financial tools (Lassa, 2013).

For developed countries, disasters are often strategically managed through collaboration between public and private actors. Collaboration has become a major solution to modern public administration and complex issues such as disaster management (Lassa, 2013, Jing and Besharov, 2014). In the US, the US National Floods Insurance Program was introduced in 1968 and was designed to increase the role of the insurance industry in writing flood insurance policies (where the government bears all the risks) and ultimately to have industry take on a risk-bearing role. In France, insurance companies are required to offer catastrophe insurance in an all-hazards policy that is bundled with property insurance. The program is reinsured through a publicly administrated fund, the Caisse Centrale de Re-assurance. If this fund proves insufficient, government will be called upon to contribute. As a result, all individual and business properties in France are covered by insurance (Linnerooth-Bayer and Mechler, 2007).

Insurance is one of the most popular approaches for financing disasters (Carmichael and Gartell, 1994, Atmanand, 2003, Sawada and Zen, 2014). However, in most developing countries, insurance for disasters is not compulsory and it is also expensive. The insurance system works on the basis of law of large numbers. Therefore it requires a sufficient number of participants to make it work. For natural disasters, which are often characterised as rare events, the law of large numbers is unlikely to work, especially at an individual household level (Sawada and Zen, 2014). Therefore, many insurance companies in developing countries are unwilling to engage with the insurance for disasters. In addition, the coverage also is limited to a few disasters only and it is only suitable and affordable for industries and manufacturers (Atmanand, 2003, Lassa, 2013).

Besides insurance, there are a few risk transfer mechanism available nowadays that can be used in managing disasters, such as finite risk reinsurance, contingent capital, multi-year/multi-line products, multi-trigger products, new asset solutions, weather derivatives, insurance-linked securities and catastrophe bonds (Castaldi, 2004, Bruggeman et al., 2010). However, these alternative risk transfer mechanisms are difficult to implement in most developing countries because of the underdeveloped financial market in those countries (Kreimer and Arnold, 2000, Vatsa and Krimgold, 2000, Linnerooth-Bayer and Mechler, 2007, Bruggeman et al., 2010, Lassa, 2013).

In order to provide these loss reduction mechanisms, government in developing countries will need to work together with private sectors. As the policy makers, government might develop a regulatory framework that enhances the implementation of PPP in the country (Chen et al., 2013). Without this regulatory framework, it is difficult for any new strategy to materialise. The government takes this role by defining the scope of business, specifying priorities, setting targets, and identifying the standard against which the management of the PPP is given incentives to deliver (Johannessen et al., 2013). Establishment of the regulatory framework will be used in order to ease barriers for all actors in the PPP arrangement (Busch and Givens, 2013). The government is also responsible to create awareness to communities regarding the disaster management projects anticipated by government and private actors in the PPP arrangement (Lassa, 2013). This is important in order to provide information on the disaster management programs planned, and delivering a mechanism to ensure the programs can achieve the aim and targeted participants (Chen et al., 2013).

Participation of private actors in government projects such as disaster management is important in order to deliver better services to the community. The main role of private sectors is to overcome any weakness on the government side (Busch and Givens, 2013). Usually, in disaster management, finance is one of the main issues faced by the government. It would appear that through a PPP arrangement, there is potential to address the insufficient funds in disaster management programs by increasing the participation of private actors, which has access to funds. Involvement of private actors may also assist government to formulate better programs, such as social insurance for disaster. This is because private actors can provide expertise in complicated matters and has capability to operate these types of programs (Busch and Givens, 2013, Lassa, 2013, Khan et al., 2013).

3.0 Conceptual framework

Using a review of the existing literature, *Figure 1* represents a conceptual framework that describes how the partnership between public and private actors, with certain characteristics, can establish a platform for all actors to contribute towards the objectives of disaster management in developing and least developed countries.

In the PPP arrangement, the role of private sector actors is to provide additional value to services provided by the public sectors. The private sector is also there to addressing shortcomings in the public sectors, with the perceived capabilities in term of finance, expertise and operational management.

However, the literature also suggests that a PPP arrangement cannot be successfully implemented without co-operation from the public sector. As a policy maker in a country, the public sector would play significant roles in the PPP arrangement, such as to introduce or to amend existing policies regarding disaster management by incorporating a PPP arrangement.

In order to establish a good PPP arrangement, previous studies have suggested that both actors, public and private, should complement each other with certain characteristics such as: (1) mutual coordination; (2) shared risk and benefits; and (3) organisational arrangement. After both actors understand their own roles and the characteristics of the PPP arrangement, this framework suggests that the required result would be more easily achieved.

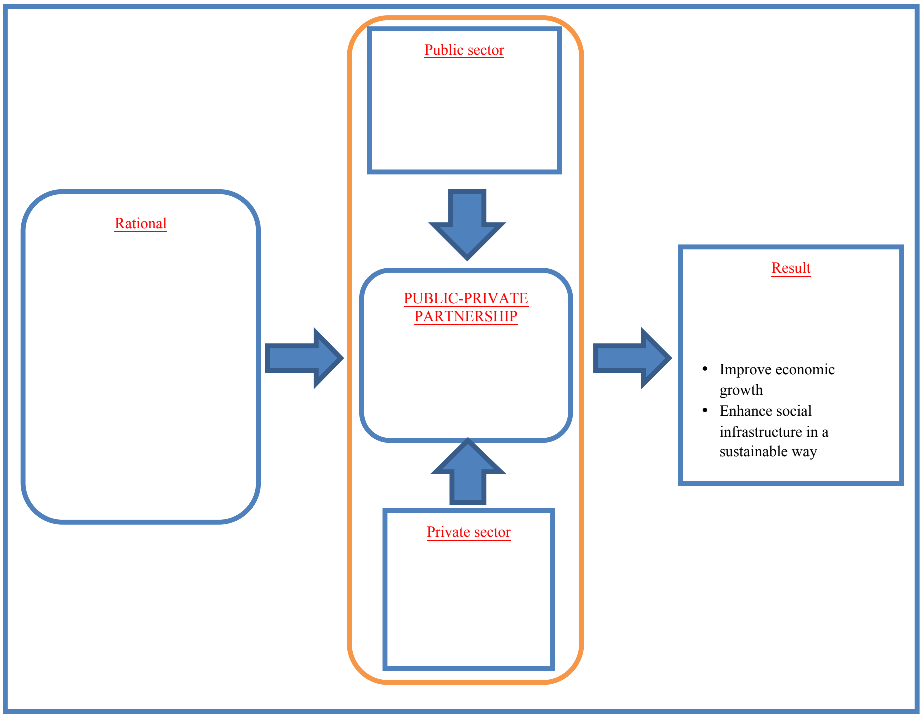

Fig I: Conceptual framework for PPP in disaster management

4.0 Conclusions

Many previous studies agree that PPP can be used in order to solve complex governance issues. Involvement of private actors in government programs will provide added value and can reduce the governments' financial restriction to deliver better services to community.

For extreme and complex events such as disasters, collaboration of these two actors might reduce people's vulnerability and this collaboration has been successfully practiced in many developed countries, including the US, France, New Zealand. In addition, there are also examples of successful practice in some developing and least developed countries, such as India, Turkey and Malawi. In these countries, government (central and local) collaborated with private actors, including NGOs, to develop disaster loss reduction programs at a national level.

Many risk transfer tools related to disaster, including insurance, can be used and offered by private actors in order to assist government in developing disaster national programs and frameworks. However, many of these risk transfer tools are not available in developing countries for tackling disaster management. Private actors in these countries are reluctant to offer such tools for disasters in developing countries due to high severity and frequency, and underdeveloped financial markets.

Therefore, future work in this study will explore the implementation of PPP as a new strategy in managing disasters and as a platform for the public and private actors to work together in developing national disaster management programs.

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