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Sustainable recovery: creating Haitian resilience

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Disasters are becoming more prevalent and their burdening impacts are felt worldwide, with this it is becoming of vital importance to understand vulnerability and the reduction of disaster risk. Since the January earthquake in 2010, that killed hundreds of thousands and left millions displaced, Haiti has faced huge challenges to provide basic relief to the 1.5 million people taking refuge in relief camps in and around the capital, Port-au-Prince. One year on and a prolonged period of 'relief' is still being experienced; innovative solutions are needed to enable Disaster Risk Reduction principles to be integrated into long-term sustainable development. Continuing political inactivity and inadequate targeting of aid has stunted the (re)construction of vital public health facilities, such as water and sanitation, consequently leaving the nation extremely vulnerable. This paper reports upon the opportunities and mechanisms that could stimulate the integration of DRR, in particular resilience measures, into emergency response and (re)construction of WATSAN facilities in Haiti.

Introduction

There is a multi-faceted relationship that exists between development and disaster, which in part determines people's vulnerability (Wisner et al. 2004; Wamsler 2008). Disasters not only cause immediate suffering, but can also hold back long-term development. That is why it is crucial to understand the barriers and develop mechanisms to mainstream Disaster Risk Reduction (DRR) into post-disaster relief and (re)construction programmes (Boshier & Dainty 2011). However, it is still unclear how DRR and associated resilience measures can be mainstreamed into the planning, construction, management and operation of critical lifelines such as water and sanitation (WATSAN) systems. If these resilience measures are not set in motion at crucial points in the 'relief phase' then recovery will be prolonged, leading to a fragile state that is prone to future impacts of disasters, costing many lives and a huge unnecessary financial burden (O'Donnell et al. 2009).

It is of fundamental importance that adequate basic amenities, such as water and sanitation are established to reduce vulnerability, ultimately increasing resilience and aiding a faster and more effective transition from the 'relief' phase to the 'recovery' phase experienced post-disaster. The ability of a society to withstand adverse impacts to which they are exposed, deems the state of vulnerability. This state is due in part to social and political networks, economic capital and access to key socio-economic resources (Boshier 2007). Strengthening and increasing access to these resources will reduce vulnerability by increasing resilience, where resilience is the ability of an individual or community to return to a previous (and good) condition after experiencing a crises; high resilience in a community means it will be less vulnerable (Bahadur 2010). This paper explores the opportunities and mechanisms that could stimulate the integration of DRR, in particular resilience measures, into Emergency Response Management and (re)construction of WATSAN facilities.

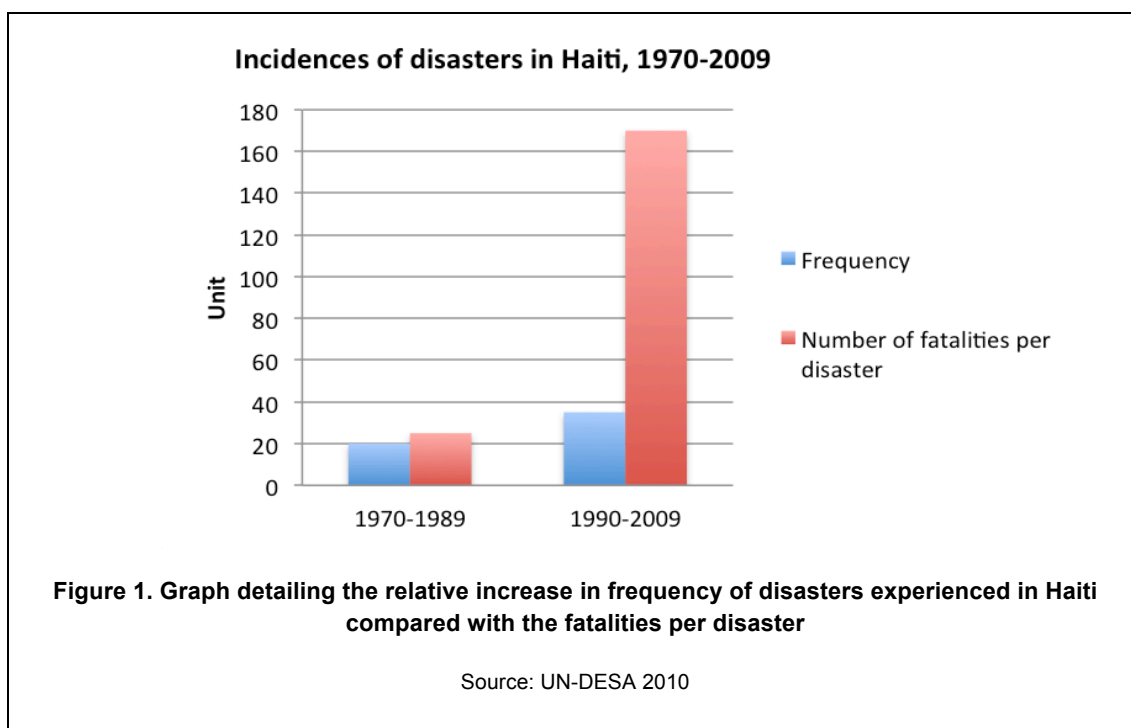
Such a case where innovative solutions are needed to stimulate effective recovery is Haiti, after the earthquake in January 2010 over 200,000 people lost their lives, 300,000 people injured and 1.9 million were displaced (UN-DESA 2010). One year on and there are still 1.5 million Haitians living in temporary relief camps, with little access to basic services, like water and sanitation (IFRC 2010). This prolonged

phase of ‘relief’ being experienced in the country has threatened the vulnerability and potential long-term resilience of the people. Serious measures need to be taken to fast track recovery if Haiti is to build sufficient resilience and enable the country to sustainably develop, advancing long-term prosperity.

Why is Haiti so vulnerable?

Haiti has a clear designation of a fragile state, with public institutions functioning at gross inefficiency prior to the disaster with less than half the population provided with basic services like electricity, water and sanitation (UN-DESA, 2010). The capital Port-au-Prince before the earthquake was a crowded urban settlement plagued by widespread poverty and social inequality with 86% of urban residents living in slums (Oxfam 2010). Confidence in the government is low and there is a long history of civil strife and security issues. The UN has intervened in Haiti’s political activities to restore order and security since the early 1990s (UN-DESA, 2010).

In the past 20 years Haiti has experienced 50 so called ‘natural disasters’. The frequency of such disasters (droughts, storms and floods) increased 2.5 times between 1970-1989 and 1990-2009, whilst the number of fatalities per disaster climbed 5 times (see Figure 1) (UN-DESA 2010). Since the earthquake in January 2010, Haiti’s institutions and administrative capacities have been further eroded by the destruction of public registries, infrastructure and by the significant loss of human capital (UN-DESA 2010). The Haitian government lost much of its operating capacity; 13 of 15 ministry offices were destroyed, and one-third of Haiti’s 60,000 civil servants died (Oxfam 2010).



The extent of damage wreaked by the earthquake was highly determined by the extent of poverty, exclusion, inequality, and inappropriate political decisions and actions. Therefore, it can be understood that social conditions increased people's vulnerability to this disaster and has made recovery more difficult. The lack of commitment from the government to provide a safe and sustainable environment for the Haitian people has led to a severe lack of access to basic public amenities in Haiti. Before the 2010 earthquake, improved sanitation and drinking water coverage was estimated at 17% and 63% respectively (WHO/UNICEF 2010); it is claimed that these figures had decreased significantly over the last 15 years, due to the lack of commitment and priority to provide public services for the people of Haiti by the Haitian government (WHO/UNICEF 2010). There is a great need to find innovative solutions to provide improved sanitation for the 2 million quake victims and the other 6 million still without any facilities (IFRC 2010). There is a need to go beyond just the reconstruction of pre-disaster levels of water supply and sanitation

services using this situation as an opportunity to build back better. Mathias Schmale from IFRC states ‘we need to take action now to build sanitation into the plans for Haiti’s future’ (IFRC 2010).

The vulnerable state the nation now finds itself in has allowed for an epidemic of cholera to become the second disaster experienced by Haiti in the same year; at the time of writing more than 122,000 people were affected and at least 2,600 died of the epidemic (UN OCHA 2010). The provision of adequate water and sanitation facilities before and after the January 2010 disaster could have stemmed the outbreak through building resilience in the communities, reducing their vulnerability to the disease. Instead not enough services were in place and as a result many lives were unduly lost.

The government of Haiti, its ministries, the private sector and Non-Governmental Organisations (NGOs) need now to focus on stimulating an effective recovery that will ensure sustainable, long-term resilience. Institutional and societal coping strategies need to be reviewed and addressed in order to tackle the challenges associated with disaster risk. It is fundamental to get the approach of introducing resilience into public policy, thus stimulating fiscal resource allocation. This will be vital if the capacity of the public and private sector are to be sufficiently developed; encouraging a system that will withstand the impacts of future disasters.

Haitian vulnerability and future resilience needs to be addressed now to ensure that the thousands of camps do not develop into permanent urban slum areas that will have little or no access to basic amenities. This possible eventuality means a population of several million will be at high risk from impacts of disasters with high mortality rates and a cycle of disaster that will never be broken. Ultimately hindering any potential for sustainable development and the alleviation of poverty, that is so severely felt in Haiti.

Understanding disaster risk reduction

Disaster Risk Reduction is a systematic approach to identifying, assessing and reducing the risks of disaster. The aim is to reduce socio-economic vulnerabilities to disaster increasing resilience, ultimately decreasing the potential impact of disasters on an individual or community. The concept of resilience can be applied to human social systems, economic recovery, engineering and urban planning and recovery after calamitous events (Bosher and Dainty 2011). The post-disaster environment can open up opportunities to mainstream DRR principles, particularly resilience measures, allowing a drive towards more sustainable recovery (Bosher and Dainty 2011).

To understand DRR it is critical to understand risk dynamics and risk-poverty interactions, the way poverty is translated into disaster risk and how disaster impacts are translated into poverty outcomes (Wisner *et al.* 2004). This dynamic will be assessed through the research being undertaken using the idea of ‘potential resilience’, that understands the impact of access to key socio-economic resources, such as public facilities, assets, and social and political networks on an individuals or communities ‘potential resilience’. The index that will be implemented to assess ‘potential resilience’ will be the ‘Resource Accessibility Vulnerability Index’ (RAVI), (Bosher *et al.* 2007). The RAVI provides a contextually specific framework that assists in the assessment of how 1) ‘asset ownership’, 2) ‘access to public facilities (such as WATSAN), 3) ‘political connections’ and 4) ‘social networks’ are utilised to increase household and community resilience. Using this methodology as a framework, it will be possible to identify gaps and highlight the barriers that erode resilience post-disaster. This information can then be utilised to develop strategies that will support NGOs, private sector and government agencies to implement resilience measures through more effective sectoral communication, policies and guidelines, mobilisation of resources and programme planning.

DRR and WATSAN

To restore basic amenities, such as a fresh supply of water and sanitation facilities after a disaster incident is essential if further relief efforts are to be adequately supported, affected people are to fight illness and prevent the spread of disease, and if commercial and productive activities are to resume (PAHO 2006). Introducing DRR principles into the post-disaster environment will be a crucial element for Haiti, as the country suffers with extreme inequality and poverty, with severe environmental degradation and a high exposure to hurricanes, flooding, landslides and earthquakes (UN 2009). Improving the socio-economic environment and essential infrastructure available to an individual or community will reduce vulnerability, thus the provision of WATSAN facilities will increase resilience and reduce the risk of and potential impact from a future disaster (PAHO 2006).

Resource flows: inadequate aid targeting

A crucial element of emergency response is the targeting of aid and the resulting programmes that are developed around specific criteria. It can be noted that there is a significant level of untimely and inadequate targeting of relief and assistance undertaken (UN 2009), due to an insufficient understanding of the need and failing to undertake sufficient risk assessments. If Overseas Development Assistance (ODA) was allocated on the basis of need, studies suggest that more than three times as many people could be lifted out of poverty (Riddell 2007). This all translates into the inadequate use of resources that will fundamentally impact the ability of a society affected by disaster to progress to a state of recovery. Very low resilience in even the smallest of crises can lead to an acute increase in the level of poverty experienced by an individual or community (UN 2009).

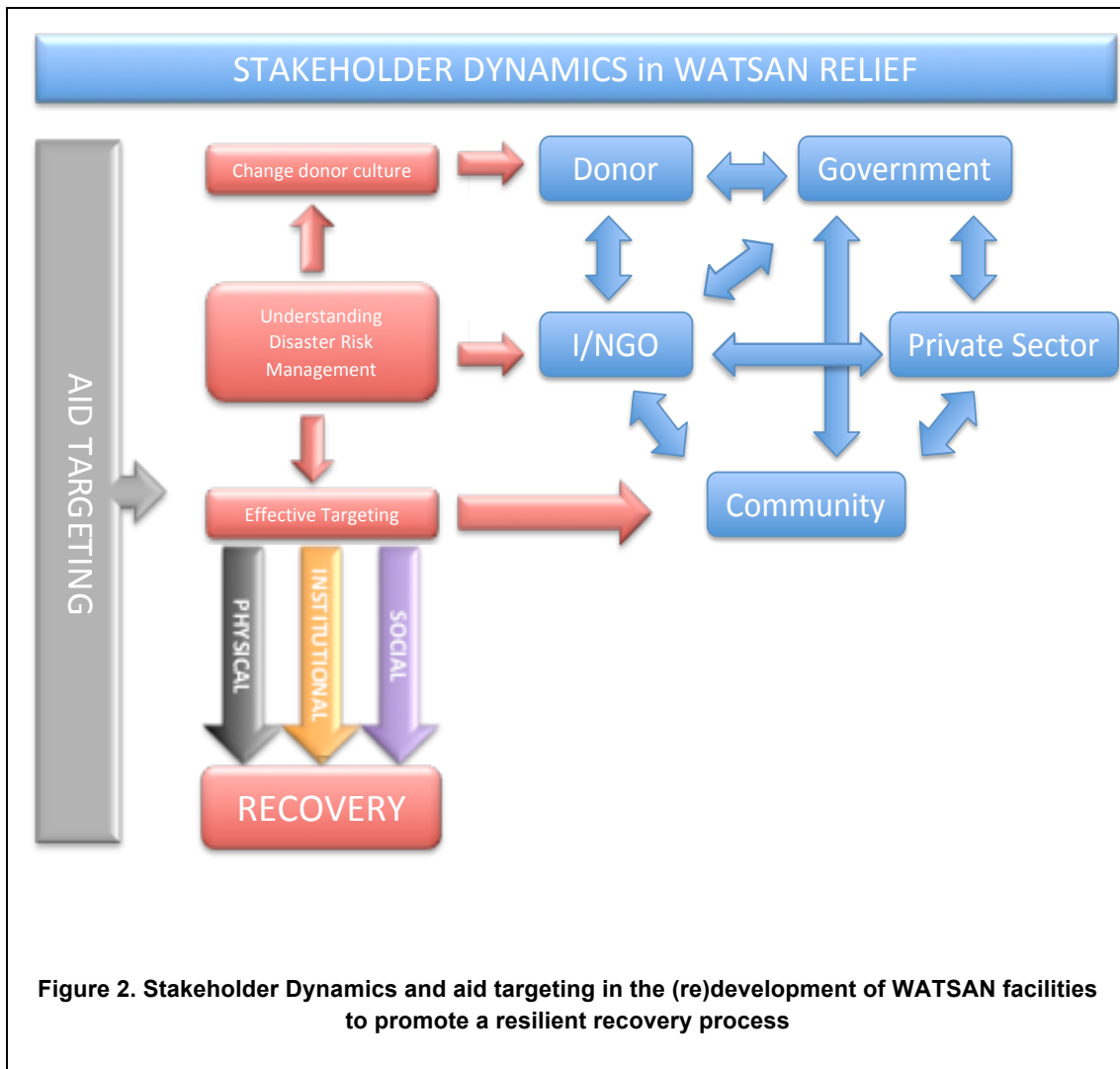
Significant amounts of financial support have been provided to Haiti following the 2010 earthquake, with the United Nations contributing US\$1.44 billion from a flash appeal, the World Bank and the IMF have sent US\$894 million in emergency assistance and have committed another US\$1.2 billion (UN-DESA 2010). The post-disaster needs assessment suggests that at least US\$11.5 billion will be needed for reconstruction. Managing this influx of resources for reconstruction and sustainable development will be a huge challenge for the Haitian Government as at present they lack the capacity to utilise all the foreign assistance being mobilised for reconstruction (UN-DESA 2010). Substantial macroeconomic management and support to strengthen implementation capacity will be needed in order to target funds most appropriately to enable a rapid, sustainable recovery.

Understanding disaster risk management, thus vulnerability will aid effective targeting that supports the idea of increasing resilience, leading to a dynamic that supports effective recovery. The lack of adequate risk assessments highlights the potential for programme planning to provide a tool to mainstream DRR principles into emergency response management of WATSAN facilities to deliver more sustainable results.

A further, even more crucial element of aid targeting and programme planning revolves around donor criteria and expectation. The drive to produce physical results guides programmes in a way that potentially will neglect fundamental social and political capacity building components due to their qualitative nature, therefore negating vital programme components. This research will develop a tool that enables social and political elements to be quantifiable in a way donors can relate to. The aim is to inspire a change in the culture surrounding the targeting of aid that is guided by ‘donor satisfaction’, turning the focus from predominantly physical infrastructure to be more inclusive of social and institutional actions. Figure 2 details a simplified network of stakeholder interactions and the potential elements needed to change the ineffective dynamics of aid targeting. Dynamics between stakeholders are complex, but the interactions illustrated in this figure demonstrate the flows of fiscal and non-budget funds, information and services. Effective targeting will ensure resources reach the most vulnerable reducing the potential risk to and impact of disasters, ultimately increasing the drive towards a resilient recovery.

Reviewing and integrating the idea of disaster risk interactions will highlight critical vulnerabilities experienced post-disaster at all levels, ascertaining key areas of action to be undertaken to assume effective targeting of resources. The capacity to determine effective disaster risk management could come from I/NGOs, civil society, the government and/or the private sector. This would stimulate a change in the conceptual framework regarding the foundations of post-disaster activity and subsequently resource allocation. Feeding this new information into the donor environment will highlight strategies to make aid more effective on the ground and cost-effective for the donor. Stimulating a change in donor culture, surrounding aid allocation, that looks to gain quick, physical results and turn the process into a responsive, multi-dimensional system that feeds off an appropriate review and evaluate strategy. The introduction of a new and effective ‘feed-back culture’ will stimulate a process of increased productivity on the ground through more focused and effective programming post-disaster, allowing the foundations to be laid at a critical time to build a resilient recovery.

The challenge to rebuild Haiti is enormous and significant financial resources and capacities will be needed for a long-term sustainable development plan, that addresses Haiti’s vulnerabilities, to be implemented. These resources need to be effectively managed and positioned using principles of DRR in order to drive the recovery process towards resilience, thus sustainable long-term development.



Mainstreaming DRR principles

Many factors are at play in post-disaster situations and to effectively produce mechanisms to mainstream DRR principles and associated resilience measures into the (re)development of WATSAN systems in a mass urban environment, a multi-disciplinary approach needs to be undertaken (PAHO 2006).

The complex dynamic of stakeholders post-disaster have a significant amount to offer each other, but suffer from a lack of communication and cooperation. In Haiti there are 1,000s of NGOs all operating at full capacity to contain the WATSAN situation, but it has been argued that the current approaches will never solve the key problems (ReliefWeb 2010). One year on, and the large proportion of sanitation services and two thirds of water trucking are being provided by international partners; a situation that is arguably unsustainable (IFRC 2010). There are much broader urban reconstruction issues that fall outside their remit as humanitarian agencies and the WASH cluster are now aspiring to sustainably transfer the responsibility of water and sanitation provision to the government (IFRC 2010).

It is vital to understand the transition of relief efforts to recovery efforts, to ensure the risk of experiencing a gap between the phases post-disaster that will ultimately slow down recovery efforts are not encountered. A way to mainstream resilience at this transitional stage is to ensure implementing agencies are equipped to undertake effective needs assessments that take account of the risks posed. This could bring about a paradigm shift through an approach that allows implementation strategies to assimilate DRR principles at a critical stage to ensure resilience is integrated into the types of post-disaster intervention. An example initiative could be seen in the provisional rough drafting of small-scale reconstruction programmes in the relief phase programming, so that when emergency efforts decrease in intensity these projects can get underway effectively and yield early sustainable results.

To facilitate a paradigm shift that promotes DRR principles at a crucially early stage, a broad framework of resilience will need to be established that accounts for its multi-dimensional nature and its different component parts; this will highlight fundamental aspects of resilience that will compliment an effective needs or risk assessment. Further to this a system that promotes a realistic involvement of ‘beneficiaries’ should be implemented as a part of the assessment to ensue the ‘real’ needs of these individuals and communities are appropriately reflected within the needs and risk assessments.

As relief and recovery activities begin the ‘state of the system’ should be regularly assessed; this assessment will allow for a baseline to be established and collective objectives to be defined. Current programmes and processes can be assessed against this assessment highlighting current gaps and coordination issues. A strategy of continual assessment of activities could provide a tool that will stimulate accountability. This may become particularly important for the promotion of government and private sector participation, thus stimulating government ownership and commitment.

Within the humanitarian sector there is a lack of a realistic performance framework, performance and quality approaches are highly fragmented both conceptually and in practice (ALNAP 2009). Thus, leading to a situation where there isn’t an effective feedback system. If a performance framework was realized it could facilitate an evidence-based understanding of the processes needed to meet relief needs and stimulate sustainable recovery, highlighting gaps and failures often experienced post-disaster. If a collective performance management system is to be established a definition of ‘performance’ should be defined and performance indicators that are context specific would be generated. This approach can be feed into implementation agencies quality assessments, generating a performance assessment framework that can feed in the new paradigm that promotes DRR principles, particularly resilience into programme operation.

Conceiving the idea of a performance feed-back system will promote effective programme evaluation necessary to highlight areas within programme operations that are under valued and under resourced. This can subsequently be fed-back to the donors moulding the way resources are allocated in order to drive effective activity on the ground.

Way forward

In order to fast track recovery in Haiti, building Haitian resilience, DRR principles that promote resilience through the provision of essential services, such as water and sanitation need to be mainstreamed, in order to address major socio-economic vulnerabilities. The current situation provides an opportunity to develop a long-term sustainable development strategy. This strategy should be developed through local community consultation, the involvement of the government, private sector and NGOs based out there for the long-term. A thorough study of vulnerabilities needs to be carried out in order to understand ‘potential resilience’ that can be mainstreamed into the development of appropriate programme planning and operation. This will stimulate a drive towards a sustainable recovery by reducing disaster risk in Haiti.

Government leadership will be the key factor in the successful recovery of Haiti. Decisions need to be made and essential services like water and sanitation need to be provided if Haiti is to effectively recover from this disaster. To promote coordination and commitment from the government a strategy needs to be put in place that can provide mechanisms, such as a system-wide assessment, that aims to highlight the gaps and fundamental failures in relief and recovery operations ultimately to represent the ‘state of the system’. Alongside this a system-wide performance framework could be implemented to enable activity on the ground to be better coordinated, by providing performance indicators, creating a performance feedback loop with donors and other active partners and increasing accountability. These mechanisms will stimulate transparency, hold stakeholders to account and allow relief and recovery operations to be realistically evaluated to consequently guide more effective operations.

The implementation of more effective operations opens up the potential to build in resilience, pushing relief activities to stimulate a sustainable recovery that promotes long-term development. An opportunity now exists in Haiti to build back better, reducing poverty and creating true Haitian resilience.

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References

- ALNAP (2009) *Key Messages from ALNAP's Eighth Review of Humanitarian Action*. Action Learning Network for Accountability and Performance in Humanitarian Practice, 2009. www.alnap.org
- Bahadur, A.V. Ibrahim, M. and Tanner, T. (2010) *The resilience renaissance? Unpacking of resilience for tackling climate change and disasters: Strengthening Climate Resilience*. Discussion Paper 1. Institute of Development Studies, University of Sussex, 2010.
- Bosher, L.S., Penning-Rowsell E. and Tapsell, S. (2007) 'Resource Accessibility and Vulnerability in Andhra Pradesh: Caste and Non-Caste Influences', *Development & Change*, **38**(4): 615-40
- Bosher, L.S. and Dainty, A.R.J., (2011) 'Disaster risk reduction and 'built-in' resilience: Towards overarching principles for construction practice', *Disasters: The Journal of Disaster Studies, Policy and Management*, Vol.35, No1, pp. 1-18
- IFRC (2010) *Special report, six months on, Haiti- from sustaining lives to sustainable solutions: the challenge of sanitation*. International Federation of Red Cross and Red Crescent Societies, Geneva
- Riddell, R.C. (2007) *Does Foreign Aid Really Work?*. Oxford University Press.
- O'Donnell, I., Smart, K. and Ramalingam, B. (2009) *Responding to urban disasters; Learning from previous relief and recovery operations*. ALNAP. Provention Consortium, July 2009.
- Oxfam (2008) *Rethinking Disasters: Why Death and Destruction Is Not Nature's Fault, But Human Failing*. Oxfam International, 2008.
- PAHO (2006) *The challenge in disaster reduction for the water and sanitation sector: improving quality of life by reducing vulnerabilities*. Washington, D.C: Pan American Health Organization, 2006.
- WHO/UNICEF (2010) *Progress on Sanitation and Drinking-water: 2010 Update*. WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. WHO Library Cataloguing-in- Publication Data.
- Wisner B., Blaikie P.M., Cannon T. and Davis I. (2004) *At Risk: Natural Hazards, People's Vulnerability and Disasters*, London, Routledge.
- Wamsler C. (2008) 'Planning ahead: adapting settlements before disasters strike', in Bosher L.S., (ed.), (2008): pp.317-354.
- UN (2009) *2009 Global Assessment Report on Disaster Risk Reduction; Risk and poverty in a changing climate*. United Nations 2009.
- UN-DESA (2010) *Is Sustainable Recovery Possible in Haiti?* Policy Brief 28. United Nations Department of Economic and Social Affairs, March 2010.

Web sources

- Reliefweb (2010) Haiti: New report highlights the crucial role of sanitation in earthquake recovery. <http://www.reliefweb.int/rw/rwb.nsf/db900sid/FERB-876J48?OpenDocument>
- UN OCHA (2010) Haiti Cholera Situation Report 23 December 2010: <http://ochaonline.un.org/tabid/6412/language/en-US/Default.aspx>

Notes

Doctoral research looking at building resilience through the provision of WATSAN facilities post-disaster to stimulate a sustainable recovery, case study Port-au-Prince, Haiti. This research is being undertaken by the main author Katrice Grace King within WEDC (The Water, Engineering and Development Centre) at Loughborough University.

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