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Mainstreaming women into disaster risk reduction in the built environment in Sri Lanka

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Intense damage to women caused by natural disasters urges the necessity of incorporating a women’s perspective into DRR. Gender mainstreaming has been demonstrated as a way of bringing a gender perspective into DRR as it could translate into identifying the different capacities and needs of different gender roles. Due to the criticality of the built environment’s role in DRR, mainstreaming women into the built environment in order to reduce their vulnerability could be considered vital. The paper in this context, aims to investigate how women can be mainstreamed into DRR in the built environment based on case study on Sri Lanka. The process of mainstreaming women is distinguished into two sequential steps in the paper. It consists of identification of women’s DRR knowledge and needs followed by the integration of the knowledge and needs into development within the built environment. Participatory methods, community feedback and complaints, expert knowledge, and relevant literature are identified as the most appropriate methods to identify women’s DRR knowledge and needs whilst the identified knowledge and needs can be integrated into development within the built environment through regulations, project documentation, and awareness, expertise and commitment of the built environment professionals. The paper further outlines the existing barriers, responsible parties, relevant protocols and ways of promoting the process in relation to mainstreaming women in DRR in the built environment.

**Keywords:** Gender mainstreaming, DRR, Built environment, Sri Lanka, Women, Vulnerability, capacities, needs
1 Introduction

1.1 Background

The attention of researchers to gender, in the context of natural disasters, was drawn by the disproportionate impairment suffered by women and girls (Kottegoda, 2011; Neumayer and Plümper, 2007; Enarson and Meyreles, 2004). It is suggested that the effect and impact of natural disasters vary for men and women (Ariyabandu, 2009) and women are more likely to die and suffer ill health as a result (Ferris, 2010; Alston, 2009). Apart from the higher death toll and more injuries both physical and psychological, it has been observed that women suffer from more socio-economic losses from disasters as well (United Nations, 2009).

There are some conditions and processes that make women more vulnerable to natural disasters. As a result of the combined effect of certain biological, social and economic factors, women possess different gender identities to men which lead to their roles and responsibilities in society, and these identities, roles and responsibilities are the underlying reasons for gender based differences in disaster impact (Ariyabandu, 2009; United Nations, 2009; UN/HABITAT, 2004). In particular, women’s role as mothers and primary carers of the elderly, disabled and children performs a uniquely significant role in deciding their disaster vulnerabilities (Enarson and Fordham, 2001; Enarson, 2000). It is stated that some women delayed escaping or, chose to remain in unsafe locations in the face of the incoming waves of 2004 Indian Ocean tsunami due to their role as carers for family members who could not easily be transported such as the sick, the disabled, the elderly and children (Kottegoda, 2011).

Undoubtedly, some women are more vulnerable than others depending on the nature of the biological, social and economic conditions and processes with which they interact. Further, the extent of the social and economic vulnerability of women is varied depending on the socio-economic conditions of their community or country as well. Therefore, the need for integrating a gender perspective into disaster reduction strategies, policies and practices in order to decrease women’s disaster have been endorsed as a key requirement by the international community. According to UN/ISDR (2002), there are numerous elements and strategic components in disaster reduction that need to be looked at from a gender perspective in order to promote and implement a comprehensive and sustained disaster reduction policy.

On the other hand, the majority of human and direct economic losses from natural hazards occur as a result of damage to the built environment (Max Lock Centre, 2009; Benson and Twigg, 2007). The vital role of the built environment in serving human endeavours brings severe disruption to the ability of society to function, economically and socially when its elements are damaged or destroyed by disasters (Haigh and Amaratunga, 2010). Evidently, developing countries experience more human and economic losses from natural disasters than developed countries due to the non-availability of sufficient capacity in their construction industries (Benson and Twigg, 2007; Ofori, 2002). Thus, the ability of the built environment to withstand the impacts of hazards plays a direct role in determining the casualties and monetary costs of disasters (Mileti, 1999).

As a result, incorporating a women’s perspective into DRR in the built environment to minimise the disaster vulnerabilities of women and to achieve overall DRR is significant. DRR in the built environment is defined in the paper as the concept and practice of reducing disaster risks through systematic efforts to plan, design, construct, maintain and regulate context sensitive buildings, spaces and places, that are least susceptible to natural hazards and have the capacity to minimise the exposure of the society to natural hazards (Ginige et al., 2013). In this context, the paper attempts to explain how the concept gender mainstreaming could be applied to integrate a women’s perspective.
into DRR in the built environment. Gender mainstreaming has been demonstrated as a way of bringing a gender perspective into DRR as it could translate into identifying the different capacities and needs of different gender roles (Gender and Disaster Network, 2009; UNDP, 2004; UN/ISDR, 2002).

The paper structures its content under four main sections. The first section provides an introduction to the paper with the background of the study, aim and objectives of the paper and the methods employed in the study. In its second section, the paper moves to a review of literature which explains the concept of gender mainstreaming in general as well as in relation to DRR. Subsequently, findings of the empirical study are discussed in the third section followed by the conclusions of the paper in the final section.

1.2 Aim and Objectives
The aim of the paper is to investigate how women can be mainstreamed into DRR in the BE. The following objectives were formulated in order to achieve the aim.

- Determine the importance mainstreaming women into DRR will have on reducing their vulnerability to disasters
- Identify ways in which to mainstream women into DRR

The objectives of the paper are related to natural disasters and also enclosed within the scope of the built environment.

2 Research design
The paper is based on a single case study which was conducted on Sri Lanka. As gender based disaster vulnerabilities are extremely linked with the social and economic conditions of a particular community, studying a single country context to investigate how to mainstream women was decided as the most appropriate strategy. On the other hand, women’s higher disaster vulnerabilities are visible in Sri Lanka, especially in the 2004 Indian Ocean tsunami, the country’s largest natural disaster in the recent history. Statistics indicate that almost 80% of the dead were women in Sri Lanka when the 2004 Indian Ocean tsunami devastated some coastal areas of the country (APWLD, 2005). Therefore, the findings of the study are applicable only to Sri Lanka. However, they can be generalised to any other country which has similar social and economic conditions.

The research design of the study is a qualitative design which employed semi-structured in-depth interviews to gather empirical data. A group of ten professionals engaged in DRR in the BE in Sri Lanka were interviewed in detail to investigate the ways of mainstreaming women into the process. The composition of the ten respondents were three senior academics from higher education institutes, four experienced practitioners from NGOs and INGOs and three senior officials from the country’s DRR related policy making institutions.

The data analysis of the study followed thematic analysis in order to build systematic, explanatory accounts from concepts and meanings embedded in the interview responses. In addition to the case study, a comprehensive literature review was undertaken to improve the knowledge of the associated concepts pertaining to the research.
3 Gender mainstreaming

3.1 Evolution and definition
According to the Council of Europe (1998), gender mainstreaming, as a new concept, appeared for the first time in international texts after the United Nations Third World Conference on Women in Nairobi in 1985. It was seen as a means of promoting the role of women in the field of development and of integrating women’s values into development work. At the United Nations Fourth World Conference on Women, in Beijing in 1995, the strategy of gender mainstreaming was explicitly endorsed by the Platform for Action (PfA) which was adopted at the end of the Conference (Council of Europe, 1998). The conference and the PfA provided new impetus for governments and civil society organisations to address gender inequalities in society at all levels (Commonwealth Secretariat, 1999) while promoting its underlying objective the empowerment of all women (Murison, 2004).

United Nations Economic and Social Council defines gender mainstreaming as “the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as men an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality.” (UN/ECOSOC, 1997, p.2).

However, the concept has been defined in different ways by different authors and institutions. The Council of Europe (1998) believes there is little consensus about a definition of gender mainstreaming or on how to mainstream the gender equality perspective in practice and what this implies. The Council of Europe (1998) suggests that a comprehensive definition of gender mainstreaming shall include most of the aspects mentioned in various definitions such as the main goal that has to be achieved i.e. gender equality; the functional and structural implications of gender mainstreaming; i.e. the reorganisation, improvement, development and evaluation of policy processes; various techniques and tools required for gender mainstreaming in a particular circumstance; i.e. full participation of women in all aspects of life as well as the analysis of all proposals concerning general or sectorial policies and programmes from a gender equality perspective. Accordingly, the definitions of gender mainstreaming could vary depending on the characteristics of the organisation or the environment in which gender mainstreaming has to be achieved. The following section presents the way gender mainstreaming has been defined in the context of DRR.

3.2 Gender mainstreaming in DRR in the built environment
UN/ISDR (2002) describes gender mainstreaming as a way of bringing a gender perspective into disaster reduction as it could translate into identifying the ways in which women and men are positioned in society and their varying vulnerabilities. In the context of DRR, gender mainstreaming is defined by the UN/ISDR as “fostering awareness about gender equity and equality etc., to help reduce the impact of disasters, and to incorporate gender analysis in disaster management, risk reduction and sustainable development, to decrease vulnerability” (Inter-agency Secretariat for the ISDR, 2002, p.3). It is emphasised that mainstreaming gender into disaster-reduction policies and measures can identify the different capacities and needs of different gender roles (Gender and Disaster Network, 2009; Kotegoda, 2011; UN/ISDR, 2002). Hence, gender mainstreaming is a useful underlying strategy to integrate a women’s perspective into DRR in the built environment.

By mainstreaming women into DRR in the built environment, any specific needs of women which by fulfilling would help them to reduce their disaster vulnerabilities, and their experiences during past disasters and their knowledge on DRR in the built environment based on their roles and
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responsibilities in society could be integrated into development activities within the built environment. Examples for specific DRR needs of women are disaster resilient houses with appropriate facilities to maintain their domestic roles, suitable infrastructure facilities, resilient livelihood facilities, and facilities which provide security to protect them from abuse (Carlsson and Zoe, 2011; Kottegoda, 2011; Pearl and Dankelman, 2010; Ferris, 2010; Cottrell, 2009; Enarson, 1999). The types of knowledge women possess of conditions in the domestic environment or locality that have the potential of increasing disaster risk, the scale and impact of previous disasters, and community settlement and development patterns, risk reduction measures adopted in women’s daily routines, and natural resource management (Ariyaratne, 2012; Kottegoda, 2011; Ariyabandu, 2009; Morrow, 1999).

UN/HABITAT (2004) states insufficient efforts to consult women during reconstruction can reduce the effectiveness of infrastructure and services in a community, as the needs and priorities of women are often overlooked when they are not consulted. The consequences are not only applicable to reconstruction, but integrating a gender perspective for construction in general is required to improve the overall DRR in the built environment. Incorporating a women’s perspective into DRR is significant not only because they are more vulnerable to disasters but as explained, they are also capable of contributing to DRR through their skills and life experiences (Kottegoda, 2011; Ariyabandu, 2009; Gender and Disaster Network, 2009; UN/ISDR, 2002). In this context, the next section outlines the ways of integrating a women’s perspective through gender mainstreaming.

3.3 How to mainstream gender in DRR?
Because gender equality is the key goal of gender mainstreaming, a strategy for mainstreaming gender must be established to achieve equality, which is however, not the simple objective of balancing the statistics of males and females (European Commission, 2004a). As UN/OSAGI (2001a) elaborates, mainstreaming involves more than increasing women’s participation, and it is not about adding a "women's component" or a "gender equality component" into an existing activity; “mainstreaming entails bringing the perceptions, experience, knowledge and interests of women, as well as men, to bear on policy-making, planning and decision-making” (UN/OSAGI, 2001b). It involves incorporating gender-sensitive strategies and initiatives in disaster management processes, to address both the practical and strategic gender needs of women or men (Umbima, c.2010).

As the definition of gender mainstreaming could vary depending on the environment, the way to mainstream gender may also differ according to the characteristics of a particular situation. However, the European Commission (2004b) suggests that the basic feature of mainstreaming is the systematic consideration of the differences between the conditions, situations and needs of women and men in all policies and actions in the relevant environment. Therefore, mainstreaming gender in DRR requires identifying gender based vulnerabilities and capacities of people as the basic step. Then, the specific needs which are caused by gender based vulnerabilities and the capacities of people are required to be integrated into development to minimise the vulnerabilities.

In this paper, capacities are considered as people’s knowledge on DRR which they possess based on their past disaster experiences. Accordingly, incorporating DRR knowledge and needs of women to the built environment by, identifying the knowledge and needs, and integrating them into the processes of the built environment with the intention of risk reduction is referred to as mainstreaming women into DRR in the built environment. The key findings of the study are presented in the next section.
4 Findings
This section outlines the process of mainstreaming women into DRR in the built environment in the context of Sri Lanka combining the key findings from the empirical investigation and the literature review of the study. The findings are presented under six sub sections, namely, methods of identifying women’s DRR knowledge and needs, ways of integrating the identified DRR knowledge and needs of women into the built environment, existing barriers to the process, facilitating factors, responsible parties to implement the process, and available protocols to guide the process.

4.1 Identification methods
There are four key methods that could be deployed to identify the DRR knowledge and needs of women. They are the deployment of participatory methods such as vulnerability/capacity/impact/needs/stakeholder analysis, CBOs, transect walks and public consultation embedding tools to capture women’s DRR knowledge and needs such as meetings, workshops, focus groups, interviews, informal discussions, questionnaires and observation; through community feedback and complaints; from expert knowledge; and through available literature on the subject.

4.2 Ways of integration
There are certain factors which could ensure the integration of DRR knowledge and needs such as a regulatory framework that enforces the proper implementation and monitoring of the integration, project documentation of the development that prescribes the integration, and awareness, expertise and commitment of planners and designers in the built environment to mainstreaming women.

4.3 Barriers
There are two main categories of barriers that need to be overcome in the process of mainstreaming women to reach the optimal standard. The first category of barrier is common throughout DRR in the BE; it includes conditions such as weakness in the regulatory framework, poverty, more focus on disaster response than DRR, lack of public awareness, low public priority on DRR, deficiencies in public consultation and problems in construction sectors in relation to DRR. The second category directly influences the process due to resource limitations, inadequate protocols to facilitate a similar process, inappropriate public involvement and disparity between the scientific community and the policy makers.

4.4 Facilitating factors
The conditions that could promote the process of mainstreaming women are also twofold; they are the factors that facilitate overall DRR in the BE which also contributes towards the promotion of mainstreaming women as an umbrella process in addition to the conditions that directly promote the process. The factors that directly contribute to promotion of the process are improvements in the regulatory framework to facilitate the process, provision of resources which are necessary for the proper implementation of the process, educating and awareness building among all stakeholders including women in the community, initiating women focused programmes and creating or promoting gender focused NGOs to work on the process.

4.5 Responsible parties
The parties responsible for mainstreaming women are government authorities such as relevant ministries and authorities such as DMC, local government authorities, divisional secretariats and government representatives at village level, academia and the scientific community, stakeholders in the construction industry, women in the local community, public representatives, religious leaders and NGOs who are active in the related subjects.
4.6 Protocols
There are no directly applicable protocols currently although the current EIA (Environmental Impact Assessment) regulations and practice could be adapted to facilitate the process. In this context, a report recommending good practice in the process of mainstreaming women in DRR in the built environment has been developed under four main sections; regulatory framework, implementation mechanism, required expertise and communicating and distributing knowledge regarding the process of mainstreaming women incorporating the responsibilities of all parties engaged in the process and the appropriate steps which need to be taken.

5 Conclusions
Mainstreaming women in DRR in the built environment is important because it helps in identifying differences in conditions, situations and needs of women in relation to risk reduction and to integrate relevant perceptions, experience, knowledge and interests of women into policy-making, planning and decision-making in development within the built environment to decrease women's higher level disaster vulnerabilities.

Mainstreaming women into DRR in the built environment consists of two sequential steps. The first step is identifying the needs of women defined by their disaster vulnerabilities such as resilient housing and safe evacuation routes, and the knowledge they possess based on their past disaster experiences that could facilitate DRR in the built environment. The second step is integrating the DRR related needs and knowledge of women into development within the built environment.

Participatory methods, community feedback and complaints, expert knowledge, and relevant literature are identified as the most appropriate methods to identify women’s DRR knowledge and needs whilst the identified knowledge and needs can be integrated into development within the built environment through regulations, project documentation, and awareness, expertise and commitment of the built environment professionals. However, there are barriers to implement the process and they need to be overcome to successfully mainstream women into DRR in the built environment.

6 References
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