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## Coping strategies identified and used by victims of flood disaster in Kolonnawa area: An analysis from a social work perspective

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### Abstract

Kolonnawa was one of the main cities which had been affected by heavy floods in year 2016 which made residents of that area refugees for a few weeks. This study was aimed at examining the coping strategies identified and used by the victims at individual and community levels. Since social work perspective is used by the researcher to carry out the research, sub objectives of the study were to measure the already used coping strategies within a social work perspective and to identify differences between community based coping strategies and state interventions. The research problem addressed the coping strategies identified and used by victims of flood disaster in Kolonnawa as individuals and as a community. The research questions used to gather data and information were: (1) what were the coping strategies identified by each victimized household? ; (2) what were the steps taken at the individual level? ; (3) what were the steps taken at the community level? ; (4) what else could have been used as coping strategies? and (5) what would be the role of the social worker in such a post disaster context. Since the study used a qualitative approach, data and information were collected from 15 heavily affected households in *Egoda* Kolonnawa and *Megoda* Kolonnawa where convenience sampling method was used as the sampling method. 30 semi-structured interviews were conducted with selected 15 households which included affected people from diverse backgrounds ranging from gender and age. Thematic analysis method was used as data analysis method. The main argument developed through the data and information gathered in this study was that there were different coping strategies identified and used by flood victims in reactive and recovery phases during which appropriate and effective state interventions were absent and it resulted in victims becoming dependents due to loss of material possessions where empowerment and resilience within affected community were also not present as coping strategies which should have been considered through a prism of Social Work.

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## 1. Introduction

Natural disasters are highly increasing in the developing world where citizens become victims. Sri Lanka being categorized as a developing country has to deal with natural hazards in the contemporary context. When considering the 2016 flood disaster, major parts of the country were damaged and citizens were displaced for a few days or weeks due to unavoidable hazards. Kolonnawa was one of the main suburbs within Colombo district which was highly affected by 2016 floods. In the first phase, the runoff of the *Kelani River* has mainly led to inundations in Kolonnawa. However, other reasons such as inadequate waste disposal and drainage systems, lack of proper waste disposal, the filling of marshy lands for development projects and filling of lowlands for construction have also caused the flooding in suburbs of Colombo including Kolonnawa and the surrounding area. As reported by the Irrigation Department (2016), one of the reasons for flooding was the city's inability to absorb water because most of the marshy or wetlands in and around Kelaniya had been filled for building houses or other construction purposes. The lack of pumping stations along the *Kelani River* to pump out additional water was also an issue as one officer reported. Further, it was the first time in history all irrigation tanks have such a large supply all over the country. During the floods in 1989, it was reported that reaching of 7.8 feet of water level led to flooding. Ironically, in 2016 though 7.3 feet has been reported as the level of water, the catastrophic flood disaster occurred and around 185000 people were displaced and suffered. According to the Disaster Management Centre (DMC), 64 deaths have been reported island wide and 131 were declared missing from the landslide in Aranayake. More than 425, 000 people belonging to 100,000 families have been displaced with nearly 320,000 people living in shelters due to the devastation caused by floods, landslides and heavy winds in 22 districts. In other words, major parts of the country where 16 out of the total 25 administrative districts were affected by floods, landslides and heavy winds in 2016.

In this backdrop, Kolonnawa was one of the suburbs which has been highly affected by floods within city Colombo. It is reported that around 38 *grama niladhari divisions* (*grama niladhari division* is the lowest administrative division within a divisional secretariat) were affected in Kolonnawa. The floods hit Kolonnawa on 15<sup>th</sup> May and continued till 18<sup>th</sup> May 2016. During this period the highest rainfalls in Sri Lanka has also been reported. People were displaced for weeks and lived in camps. It took a minimum of 14 days for displaced people to return and resettle in their affected communities. Given this context, researcher's attempt was to identify coping strategies driven within community level to reestablish the affected communities. The main argument developed through the data and information gathered in this study was that there were different coping strategies identified and used by flood victims in reactive and recovery phases during which appropriate and effective state interventions were absent and it resulted in victims becoming dependents due to loss of material possessions where empowerment and resilience within affected community were not really present as coping strategies which should have been considered through a prism of Social Work.

## 2. Research objectives, research problem and research questions

This study was aimed at examining the coping strategies identified and used by the victims at individual and community levels. Since social work perspective is used by the researcher to carry out the research, sub objectives of the study were to measure the already used coping strategies within a social work perspective and to identify differences between community based coping strategies and state interventions.

The research problem addressed was: what were the coping strategies identified and used by victims of flood disaster in Kolonnawa as individuals and as a community?

The research questions used to gather data and information were:

- What were the coping strategies identified by each victimized household?
- What were the steps taken at the individual level?
- What were the steps taken at the community level?
- What else could have been used as coping strategies?
- What would be role of the social worker in such a post disaster context?

### 3. Geographical and demographical profile on research filed

“Kolonnawa town is located on the eastern boundary of the city of Colombo. It is bounded by *Kelani River* to the north, *Kotikawatta-Mulleriyawa Pradeshiya Sabha* to the East, Kotte Municipal Council to the south and Colombo Municipal Councils to the west. Most parts of the Kolonnawa U.C. area constitute the flood plain of *Kelani River*, and about 70% of the land area is said to be below the mean sea level, which is protected by a flood protection bund (known as Harward Bund) which was constructed in 1935 to protect the city of Colombo from flooding of the *Kelani River*. North of the bund was the unprotected area where development was not permitted and south of the bund was the protected area where development was permitted. Most parts of the protected area too were low-lying land thus restricting the land available for development activities” (UNDP/UN-Habitat-Sustainable Cities Programme (SCP) & Sustainable Colombo Core Area Project (SCCP II). City Profile: Kolonnawa Urban Council 2002:1-3).

“The geographical extent of the Kolonnawa U.C. area is 10.06 sq. km. The Urban Council area is divided into Eleven wards as Sedawatta, Orugodawatta, Wellampitiya, Nagahamulla, Salawatta, Kolonnawa – North, Salamulla, Alubowa, Kolonnawa Central, Egoda Kolonnawa and Meethotamulla. According to the Population Census of 2001, the population of Kolonnawa U.C. area is 55,285. Out of the total population of 55,285 about 54.6% (30,200) are Buddhists, 21.2% (11756) are Muslims, 16.4% (9069) are Hindus, 7.7% (4246) are Catholics and Christians. Thus, the town exists as a multi religious centre, which is a significant aspect to be considered in developing the city. Of the total population, 56.8% (31380) are Sinhalese, 29.2 % (11206) are Sri Lankan Tamils, 1.5% (820) are Indian Tamils, 19.0% (10517) are Sri Lankan Muslims, 1.3% (725) are Malays and 0.4% (246) constitute other minorities. Thus, Kolonnawa is a multi-religious and multi-ethnic town where people live in peace and harmony with each other” (UNDP/UN-Habitat-Sustainable Cities Programme (SCP) & Sustainable Colombo Core Area Project (SCCP II). City Profile: Kolonnawa Urban Council 2002:1-3).

### 4. Conceptual framework

#### 4.1 Vulnerability, coping strategies and coping mechanisms

Blaikie, et.al.(1994) define vulnerability as the sum of characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazards. When the person or the group is in a vulnerable situation they naturally become victims. In other words, the two terms ‘vulnerability’ and ‘victims’ go hand in hand. In this light, coping becomes a mechanism which addresses handling the stressful situation by mobilizing the assets or capital resources. Here the term capital resources include resources of all human, capital, natural, physical and social. Resources also include land, tool, cash, jewellery, livestock or other items, for example, storable food items and the skills which can be vended or sold at the crisis to cope in a sustainable manner (Blaikie, et.al.1994).

In response to natural disasters such as floods, different vulnerable households and victims employed different coping strategies. According to Davis (1996: 238), “the implication of coping strategies is that the portfolio of activities of victimized people changes to cope with unusual stress”. A shock, grief and mourning are relatively short durations of stress faced by flood victims. In addition, by using coping strategies affected victims attempt to sustain their livelihoods during recovery and rehabilitation phases. Compared to coping strategies, coping mechanisms are recognized as a spectrum of activities ranging from external to internal factors or as ways of managing, adapting and acted upon the hazard and also closely related to survival and threat. In this regard, the two concepts of coping strategies and coping mechanism also go hand in hand. However, the fact is that there is always a social cost in a coping mechanism compared to a coping strategy.

It is important to note that there is no single defined standard for coping strategies. It varies depending on socio-cultural factors. Basically, coping strategies vary by region, community, social group, household, gender, age, situation, season and time period. Also they are deeply influenced by people's previous experiences (Davis 1996; Blaikie, et.al.1994). Within this background, this paper specifically addresses only the coping strategies utilized by flood victims in a context which is closely related to resources and assets. Thus, these coping strategies are

predetermined. Somehow since the study addresses the social capital such as social networks, relationships and community assets (all human, goods and services and resilience) of the flood victims, the definition of the term ‘coping strategy’ has been extended to the term ‘coping mechanism’ in certain cases.

## 5. Theoretical framework

Two interrelated frameworks have been used as the basis in analysing the findings. One is introduced by Iravanil & Parast (2014) as a process in crisis management which includes five steps. The same five step process has been taken into consideration while identifying coping strategies used by flood victims as it covers the entire process of the flood disaster. The steps outlined are as follows: 1. Stage of expectations or predictions (Anticipative Phase), 2. Alarm Phase, 3. Rescue Phase, 4 Stage of release and relief of suffering and the normalization (Relief Phase) and 5. Step Reconstruction and Rehabilitation (Rehabilitation Phase) (Lechat, 1990: 3 quoted from Iravanil & Parast 2014). The anticipative phase has been identified as the most important phase which connects with the alarm phase. It is important to note that the identification, planning, prevention and preparedness have been formed starting from third phase of rescue to fifth phase of rehabilitation. Importantly, each society needs to research carefully and identify its disasters and its impact, and then formulate a coping strategy plan as well as preventive mechanisms which were mostly absent in the disaster contexts including those of Sri Lanka. Secondly, Danso & Addo (2017:544) outline three phases of reactive, preventive and recovery as three different stages in coping strategies employed by the flood victims in Ghana which were also used in interpreting the findings as those phases cover the entire process of the flood disaster and also because they have not been given sufficient attention in Sri Lankan context.

## 6. Methodology

Since this study used a qualitative approach, data and information were collected from 15 heavily affected households in *Egoda Kolonnawa* and *Megoda Kolonnawa* where convenience sampling method was used as the sampling method. 30 semi-structured interviews were conducted with these 15 households which included affected people from diverse backgrounds ranging from gender (male, female) and age (elderly, middle age and children). However, all the selected research respondents have been from Sinhala Buddhist background. Thematic analysis method was used as the data analysis method.

## 7. Key findings and analysis

The respondents of the study claimed that flooding has been a problem in Kolonnawa and the surrounding area for many years. Further, they claimed flood frequency and magnitude has increased rapidly over the past decade. Officers claimed that unplanned and unauthorized settlements and population were the main reasons for the flood which prevented smooth water drainage in suburbs thereby making it a man-made hazard.

### 7.1 *Coping strategies taken by households as victims at individual level*

According to gathered data and information, the majority of households (11 out of 15) has sought temporary refuge in a refugee camp. A few like 4 out of 15 households have gone to a relative’s place whose homes were safe. It was only those 4 households that have taken their electrical gadgets, some furniture, and valuables to relative’s places. The rest have tried to keep it in a safer place like in a higher ground of the same house, which were faced with at least less damage. Temporary refuge seekers had tried to take material things which they can carry in their hands such as mobile phones, radio etc. Two households have tried raising the surface level above flood level either with stones or sand bags which had been unsuccessful in the recent flood as it covered nearly 1.5 meters to 2 meters height from the land level. One of the important factors outlined by research respondents was that it was usual to experience floods by the households which were located near *Kelani River*, but the recent floods crossed the usual limit and became a hazard for the entire community.

As Danso & Addo (2017:544) outline, “the coping strategies employed by the flood victims in Ghana can be categorized into three areas, namely, reactive, preventive and recovery”. The immediate responses and actions taken

to reduce the effects of flood could be defined as reactive strategies, while recovery strategies were defined as rebuilding and reestablishment efforts with loss. Preventive phase is explained as steps taken to avoid future flooding. In this particular research context, it was possible to identify reactive and recovery stages although it was difficult to identify preventive strategies which is an argument the researcher tries to develop in this research paper.

In the reactive phase, these respondents have taken immediate responses and reactions to reduce the harm by seeking refuge with the material things they can carry and/or by transferring goods and materials to a relatives place. The main attempt was to save lives, and save valuables in this phase. Further, one of the main issues victims faced during the first phase while living in the refugee camps was having insufficient sanitary facilities such as healthy latrines and water for bathing and washing clothes. Therefore, they adopted unhygienic practices while surviving during the first phase. In keeping with Iravanil & Parast's (2014) explanation, the main goal during first three phases of the crisis are to save lives, reduce the number of victims, and reduce damage to property, assets and the environment. These have been fulfilled by flood victims in this research context.

## ***7.2 The steps taken in the community level***

It was a significant finding that, how community level flood relief programmes were driven by different groups, which allowed the victims to face the disaster in a collective manner. 11 households sought refuge in different refugee camps such as Anandarama Viharaya, Salamulla (a Buddhist temple), Vidyawardhana Vidyalaya, Kolonnawa (a school), Kande Viharaya, Gothathuwa (a Buddhist temple) where they have stayed as flood victims till the withdrawal of flood water. During initial days, they have received cooked food with basic needs such as water and clothes. 24 out of 30 agreed most meals were edible where 06 respondents complained most of the meals were spoiled where bad smells were emanating when they open the food packets. However 20 out of 30 agreed that they received basic goods for survival during the hazard while they stayed in refugee camps.

As both research respondents and officers agreed, interestingly, Kolonnawa Jumma Masjid Islamic temple was one of the pioneers that came to help flood victims with basic food requirements, clothes and later with other equipment. In addition, they have purchased some expandable boats and hired some boats from fishermen in Negomobo and Beruwela to rescue flood victims from the surrounding area of Kolonnawa. While Islamic temple was helping with food and material requirements, most Buddhist temples around Kolonnawa suburb provided shelters for flood victims. Thus, both the Buddhist temples and the Islamic temple came together and facilitated flood victims through community driven aid practices. *Grama Niladari* (a Sri Lankan public official appointed by the central government to carry out administrative duties in a *Grama Niladari* division, which is a subunit of divisional secretariat) explained that the money which has already been collected for *Vesak* and *Poson Dansel* (a free distribution of food or material things among all people celebrating *Vesak* full moon and *Poson* full moon) were instead contributed to flood relief programmes and aid towards victims. Even one of the news items as reported by news channels carried a press release on flood relief programmes where Buddhist monks and Islamic religious leaders from Kolonnawa area have come together and explained how both parties worked together as a group with a common goal of helping with flood relief work. The head monk of the Buddhist temple appreciated the entire support provided by Islamic temple that was among the very first people from their own community to extend a helping hand. Tan & Yuen (2013: 03) point out that “the concepts of inclusion, network, connection, resource, collaboration, and empowerment are vital to the recovery process”. In case of Kolonnawa, actually these community driven helping groups led to smooth functioning of recovery phase of flood victims which some of respondents explained as something government could not handle properly.

Members of 11 households have taken medical check-ups either from Kande Viharaya, Gothathuwa or Vidyawardhana Vidyalaya, Kolonnawa. The Social Service Unit of Sri Lanka Jumma Islamic Organization has organized a medical camp in Kande Viharaya, Gothathuwa where 25 medical doctors have collaboratively worked. All required medical treatments with medicine had been given free of charge. There was another medical camp organized in Vidyawardhana Vidyalaya, Kolonnawa which was not just limited to medical treatments but also distributed relevant information on post disaster concessionary as well as provided clothes and other material things. It is evident from gathered data and information that the notion of wholeness and unity developed in the community level led to help victims collectively both in terms of material and emotional needs. The important feature here is using community assets appropriately and utilizing it for the recovery process of flood victims suitably. As Kretzmann & McKnight (2005) (Cited from Tan & Yuen 2013:03) explain, “community assets include physical, individual,

organizational, and societal assets as well as the different voluntary associations, social cultural groups, and faith-based organizations. The societal institutions are public institutions, schools, courts, and hospitals, as well as political structures of the country that are vital to disaster recovery. Here religious institutions, organizations, social-cultural groups as well as individuals came together as community assets which worked for betterment of recovery process". Similarly, the flood relief programmes organized by community groups for refugees of flood have made the victims think that they were not left behind at the point of flood disaster and later in the recovery phase too.

In the meantime, it was stimulating to note Sri Lankan commoners' mentality in relation to ethnic identity as well as disaster incidents which take back our memory even to the Tsunami and 2003 floods in Sri Lanka. Even though people are divided based on religion and ethnic identities, whenever a natural disaster occurs, the divided groups tend to forget separations and divisions by coming together to help each other who has become victims of the hazard. Significantly, such community driven supportive mechanisms have emerged and evolved within non-affected communities as in the case of Islamic institution's support. The form of collectiveness develops as a coping mechanism itself for the victims who faced the disaster too. One would argue that this is a reflection of South Asian or Sri Lankan identity. However, the significance lies in the way in which this coping mechanism develops within the community as a helping hand towards flood victims during the hazard. When paying specific attention to the research context and the time period, it can be identified that there has not been a healthier relationship between Buddhists and Muslims within the large scale politics of the country during the hazard. However, it was significant that the Islamic community came up with their relief programmes which were collaboratively organized with Buddhists temples during both phases of reactive and recovery or, in Lechat's (Quoted from Iravanil & Parasat 2014) terms, during both rescue phase and relief phase. Therefore, it is evident that the sense of collectiveness and voluntary helping groups emerging within required context is still present in the Sri Lankan context where the role of the social worker is being somehow invisibly shaped.

However, after the withdrawal of flood and when victims returned to their houses, it was only little help they received from government authorities and other parties as they explained. Further it took days and weeks to rehabilitate water supply and electric supply as complained by research respondents. None of the households has received any help with cement and other requirements to clean and renovate their houses. Though government has announced 25,000 rupees of assistance which has later been reduced to 10,000 rupees per household, none of the households had received it after even 4 months of disaster. Therefore as respondents explained at household level they recovered their houses using their self-supporting strategies. Many of them have used their own money, loans from both relatives and friends, mortgage to repair damages. However, 8 of the households have received relief items such as bags of rice and some dry food, clothes, bed sheets and kitchen related basic equipment from organizations and groups who have distributed them among affected communities. 4 households that were away from affected community for some time have told since they were away from houses nearly for a month they have not received most of relief goods which others have received.

It is noteworthy that during reactive phase the non-affected communities came to help with immediate needs which continued till recovery phase to some extent. Since affected community has the 'feeling of loss' in both material and psychological terms, the dependent mentality upon material goods and services led them to ask for more material goods and services from both the government and non-affected communities where the researcher found the non-emergence of community leadership and self-help groups within affected communities. Being a member of a vulnerable group might take some time for them to develop that collective feeling within themselves. The fact is, during recovery and preventive phases, self-help groups emerging within the affected community could lead for more successful achievements and endings rather than depending on material goods and services always provided by non-affected community. In other words, during the relief phase there were a few attempts of relieving stress and surviving which did not continue till the rehabilitation phase. According to McMillan and Chavis (1986 quoted from Miyaguchi & Shaw 2007:215), the definition of 'community' is not just the people who happen to live there, but, it is more of a sense of belonging. This sense of belonging is equally important during the phase of reconstruction and rehabilitation as it leads not only to the development of affected community but also to the emergence of community leaders within the affected community which could continue till the adoption of prevention mechanisms in a possible way. In fact, the active involvement of community is also important in realizing participatory and sustainable management of a natural hazard.

Unfortunately, as proven by research information, the emergence of a collective consciousness for their own betterment and community development to re-establish their lives was absent. In addition, preventive mechanisms for future hazards were also lacking and missing in the research field. There were no steps taken to prevent future flood

hazard during the time the researcher was in the field and even after 04 months of the flood. Therefore it is evident that preventive mechanism is still left for all individual, community and government levels to be dealt with and presented as future endorsements.

### ***7.3 Other coping strategies that could have been used***

As explained by a majority of respondents, they were in a helpless situation due to loss of material things which influenced psychological well-being of members of the family as well. On the one hand, they were expecting more material assistance from government and other non - governmental organizations. On the other hand, they had the idea of loss, pain and suffering which were expressed in different ways as psychological challenges and a state of emotional vacuum. As researcher observed, women and older children mostly expressed their pain with tears in their eyes which was quite hard for men to express in the same manner. Only one older man had tears in his eyes while explaining the loss. As one male respondent said, “we all were lost. so no point of expecting the help from next neighbour who was also helpless like us, sometimes more than us”. Research findings proved that women at least attempted to share their pain within family, relatives and even outsiders who were trustworthy to them. Older respondents attempted to explain it using more religious ideology which recognizes the impermanence of life. Analysing the findings through a Social Work perspective, another step could have been taken in the community level, to organize few informal meetings to relieve their pain and suffering as well as to share their experiences which would evidently prove everybody that majority were affected and were in the same plight. However, almost all respondents acknowledged the significance of interpersonal networks of family, relatives and friends to cope with the situation both physically and mentally.

### ***7.4 The role of social worker in such a disaster context***

As researcher identified rather than blaming that nothing has been done at all levels of governmental, non-governmental and community, it is evident that each level has tried their best to reconsolidate with the situation which did not taken place effectively and smoothly. Actually it is social workers responsibility to mediate and facilitate victims to access services and goods provided to them. “The roles and tasks of social workers in recovery often include that of facilitator, educator, and broker of resources. The worker might also coordinate projects, advocate on behalf of the affected community, and provide consultancy where needed” (Tan & Yuen 2013:03). Similarly, in this disaster context, the role of social workers aligns as creating links between victims of flood and resource systems. As expressed by government officers there were certain required information which has to be submitted by victims before accessing the help of resources provided by government. Nevertheless, victims of flood did not have any idea of providing relevant information as they stated that there were people who came for refugee camps and collected some data and information during the time of hazard. Again officers from Divisional secretariat have not received accurate information for further proceedings to receive the government assistance. Therefore, it is evident that there is a linkage which had to be developed between victims of flood and government officers by providing with all relevant information. This is where the social worker has to be not only a coordinator and mediator but also a facilitator with relevant information required. Proving the same argument Zakour (1997:08) states that the social worker’s role in a disaster situation in promoting access to relief sources through outreach, case finding, advocacy and brokering was proven and highlighted through American Red Cross intervention during disasters which again demonstrates that social workers could play multiple roles in bridging the gaps between victims and services.

## **8. Conclusion**

Kolonnawa was one of the highly affected suburbs within city Colombo which experienced lots of difficulties during the floods in 2016. Since this research mainly focused on coping strategies, there were certain coping actions immediately taken by affected community as individual households where some have resorted to relatives places and majority to the refugee camps. Remarkably, proving a Sri Lankan collective consciousness, non-affected communities have come together to help with flood relief programmes. Specifically, in the research area both the Buddhist temple and the Muslim Mosque have collaboratively helped with flood relief campaigns which included distributing basic needs such as food, clothes, shelter and other materials and sanitary facilities. Though non-affected communities’

collective help was there in both reactive and recovery phases, collective consciousness within the affected community for betterment and reestablishment was somewhat lacking and absent. Overwhelmed material dependency was also identified among the affected community where they complained non access to most of goods and services. Nevertheless, there are multiple roles that could have been undertaken by social workers such as coordinator, mediator, advisor, facilitator for goods and services which have not been adequately fulfilled in this disaster context as a result of which real victims have not received relief assistance properly. Yet another neglected area during the implementation of relief programmes in recovery phase was psychological rehabilitation of victims where their mental well-being was overlooked.

## References

- (1) Blaikie, P., Cannon, T., Davis, I. & Wisner, B. 1994. *At Risk: Natural Hazards Peoples Vulnerability and Disasters*. Routledge. New York.
- (2) Danso, S. Y. & Addo, I. Y. 2017. 'Coping strategies of households affected by flooding: A case study of Sekondi-Takoradi Metropolis in Ghana', *Urban Water Journal*, Vol.14 (5), p.539-545, DOI: 10.1080/1573062X.2016.1176223.
- (3) Davis, S. 1996. *Adaptable livelihoods. Coping with food insecurity in the Malian Sahel*. Mac Millan. London.
- (4) Irvanil, M. R. & Parast, S.M. 2014. 'Examine the Role of Social Workers in Crisis Management', *Journal of Sociology and Social Work*, Vol. 2(1), p. 87-97 ISSN: 2333-5807 (Print), 2333-5815 (Online).
- (5) Miyaguchi, T. & Shaw, R. 2007. 'Corporate Community Interface in Disaster Management: A Preliminary Study of Mumbai, India', *Risk Management*. Vol 9 (4), p.209-222 DOI:10.1057/palgrav.rm.250036.
- (6) Tan, N.T. & Yuen, F 2013. 'Social Work, Strengths Perspective, and Disaster Management: Roles of Social Workers and Models for Intervention', *Journal of Social Work in Disability & Rehabilitation*, 12:1-2, 1-7, DOI: 10.1080/1536710X.2013.784170.
- (7) UNDP/UN-Habitat - Sustainable Cities Programme (SCP) & Sustainable Colombo Core Area Project (SCCP II). *City Profile: Kolonnawa Urban Council*. 2002. Collaboratively published by UN-Habitat (SCP), Government of Sri Lanka (Western Provincial Council), and Kolonnawa Urban Council & SEVANATHA – Urban Resource Centre (Local Partner Institution).
- (8) Zakour, M. J. 1997. 'Disaster Research in Social Work', *Journal of Social Service Research*, 22:1-2, 7-25, DOI: 10.1300/J079v22n01\_02.