

Vulnerability and Resilience of the Colombo Urban Food System to Extreme Weather

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Colombo, the commercial capital of Sri Lanka, is the most urbanised area of the country. It is home to half a million people and has an equally large daily floating population. Most of its land area is utilised for commercial and residential purposes; agricultural activity in the Colombo Municipal Council area is negligible. Colombo's minimal food production is dependent on food cultivated in other areas of the country, which is passed along a complex supply chain of many actors. Furthermore, the fact that the two most popular wholesale markets in Sri Lanka, the Manning market for commodities such as vegetables and fruits and the Peliyagoda market for fish, are located in and close to Colombo makes the city a food supply hub for different parts of the country. Therefore, when the supply chain to Colombo is negatively affected, the food system of the country can also be disrupted.

When Sri Lanka was hit in 2016 by a severe cyclone, and several parts of Colombo suburbs and external food supply areas were flooded, the International Water Management Institute (IWMI) commissioned still during the period of crisis a study to investigate the vulnerability and resilience of the urban food system to such increasingly periodic events.

Impacts on and recovery of marketing channels and supplies were analysed through visits to major markets with significant influence on Colombo's food system, and through interviews with lorry drivers, commission agents, buyers, sellers, wholesalers and importers. In addition, floor managers and distribution centre managers of leading supermarket chains were interviewed to analyse how much their food supply was affected as well as their coping strategies. The interviews were carried out a week, a month and two months after the floods that displaced half a million people across the country. In addition to the impact, the reasons for low supply were also analysed (production failure, transport failure, etc.).

While the paddy rice supply – the most important local staple food – remained constant during this time of crisis due to sufficient storage capacity in Colombo, the heavy rains led to a shortage of vegetables. The upcountry vegetable (carrots, leeks, beans and cabbages) supply was greatly affected by rains and flooded transport roads, and prices were at least four times higher than in the same period of previous years. Leafy vegetables were particularly affected because the alternative main supply to Colombo comes from periurban areas that were flooded. Fish supply was heavily affected: a 75% drop in supply was experienced immediately after the floods because fishermen were advised not to go out fishing

during the extreme weather. The supply and prices of onions, garlic, dhal and potatoes, however, remained unchanged, as a major portion of these is imported and the harbour and wholesale market for imports is located in Colombo.

Though the big supermarket chains (Keells, Cargills and Arpico) also experienced low supply and higher vegetable and fish prices, they had more flexible supply chains and alternative suppliers, and recovered within two to three weeks. In contrast, the mainstream supply chain (which serves the middle- and low-income community) took up to two months to recover for most affected commodities. Some local food processing factories (e.g. alcoholic and non-alcoholic beverages) which were flooded had production shortages even 3 months after the events.

This study shows that the supply of some popular commodities (e.g. fish, vegetables) proved to be very vulnerable to extreme weather disasters because no infrastructure or mechanisms are in place to cope with possible supply failure. Pulses, dry fish and other imported commodities can fill this gap to some degree, and within limits of cultural acceptance. Mainstream supply chain actors, small retail shops and the poor are most vulnerable to these extreme weather events because of their low adaptive capacity.

Lack of economic incentives and a low lobbying capacity of those affected, coupled with the fact that floods have been periodic but hard to predict, have thus far limited investment of public resources and efforts to mitigate the related challenges. However, as climate-change related extreme weather events are likely to become more frequent in the future, investments into short food chains (urban and periurban agriculture), storage, and diversified supply chains is needed to increase the resilience of Colombo's food system to disasters and future possible impacts from climate change, and thus move towards achieving the second sustainable development goal of zero hunger.

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Note

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