

Food Assistance to the Calamity-Hit Victims of Recurrent Floods, Cyclones, Earthquakes and Droughts in India – A Review

Pushpa Dhama¹, Kiran Bains^{1*}, Harpreet Kaur¹ and Shruti Jain¹

¹Department of Food and Nutrition, Punjab Agricultural University, Ludhiana, Punjab, 141004, India.

Authors' contributions

This work was carried out in collaboration among all authors. Author PD designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors KB, HK and SJ managed the literature searches and organized the contents. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/CJAST/2020/v39i2730918

Editor(s):

(1) Dr. Ming-Chih Shih, Chinese Culture University, Taiwan.
(2) Dr. Meng Ma, Anhui University, Hefei, China and Icahn Institute for Genomics and Multiscale Biology, Icahn School of Medicine at Mount Sinai, USA.

Reviewers:

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Complete Peer review History: <http://www.sdiarticle4.com/review-history/60039>

Review Article

Received 26 June 2020
Accepted 01 September 2020
Published 08 September 2020

ABSTRACT

India has been facing the wrath of natural calamities pertaining to its unique geography and varied climatic patterns from time immemorial. The purpose of this paper is to gather data pertaining to food assistance provided to stranded evacuees in the aftermath of Natural Calamities. Food assistance forms crucial part of humanitarian assistance to provide immediate relief to victims and help in their speedy recovery from injuries, illness and psychological distress. We aimed to collect information on the type of food, quantities of food and cultural competence of food because India has a wide diversity in food eating patterns across its regions. We also took into account the rescue operations involving role of different stakeholders like government organizations, Armed forces, paramilitary forces, NGOs, international donors and volunteers who usually work independently but gather together aftermath of any calamity or disaster, to address the problems that arise with a common shared goal in a coordinated and effective manner. The paper was basically a desk study

*Corresponding author: E-mail: kiranbains@pau.edu;

involving compilation and analyses of information and data from official documents, research papers/reports of National and International agencies, NGOs and media reports such as newspaper articles featuring the updates on calamity. The paper concluded that, although there is enough information on disaster aftermath including rescue operations yet there is a dearth of detailed information about the food assistance in terms of type of food, quantities and cultural competency of food aid. The findings suggested that cultural competence in food aid is an important area to focus on as the stranded evacuees may have a wider acceptance of the food when they see culturally familiar foods in their food basket. Also, there should be clear documentation of the food aid in terms of quantity and distribution so that nutrition professionals, policymakers and other stakeholders can effectively debate and design the food policies and feeding programmes incongruent with identified food needs of stranded evacuees.

Keywords: Food assistance; disaster, rescue; floods; earthquake; cyclones; droughts; food consumption patterns; Indiamix.

1. INTRODUCTION

All major emergencies are unforeseen and exhibit potential threat to human life and public health [1]. According to Global Humanitarian Assistance, natural disasters often results in displacement and migration of a large number of the world's population [2]. These undesirable situations frequently result into shortages of food which impairs the nutritional and health status of the affected communities including all age groups, but in particular the most vulnerable remains are infants, children 0-5 years of age, adolescent girls, pregnant and lactating women and older persons [3].

Climate change increases the risk of disaster occurrence. The effects of climate change on disaster risk management (DRM) not only stems out from the fluctuations in weather and climatic patterns and but also from an increase susceptibility of communities to natural hazards, mainly as a result of ecosystem degradation, reduced food availability and water sources and changes to livelihoods. Although disasters occur currently but each of them has its unique effect in different parts of the country which makes it difficult to use a single pattern for all of them. Even though the society has adapted itself to the consistent occurrences of these disasters, the social and economic costs incurred due to these disasters continue to escalate with each passing year. India is highly vulnerable to earthquakes, floods, landslides, cyclones, volcanoes and droughts. Almost all parts of India experience one or more of these events [4]. The north and north-east part of India lying in the Himalayan ranges are particularly vulnerable to earthquakes of high intensity which sometimes trigger the landslides and snow avalanches in the hilly regions. Central India and some parts of

northeast and south India are vulnerable to the recurrent occurrence of floods as a result of disrupted patterns of rainfall in these regions which raise the water in the river at an alarming level bringing a massive devastation in the low-lying areas. West India and some parts of central India are also susceptible to droughts while the coastal area receives a constant threat from cyclones and storms. India has experienced 431 natural disasters during the period of 1980-2010. According to Emergency Events Database (EM-DAT), the natural disasters resulted in 1,521,726,127 fatalities and 143,039 casualties in three decades. A study revealed that, during 1999-2009, it was found that India experienced 292 natural disasters which were 37.8% of total disasters. The major cause of these natural disasters was found to be the heavy rains resulting in ravaging floods. Drought, earthquake, storm, epidemics and mass movement shared 52 % while floods contributed to 48% of the natural disasters [5]. As per a World Bank report, natural disasters pose a major obstruction on the path of economic development in India [6].

One-sixth of the world's population is in India and suffers heavily from different kinds of natural disasters and it majorly hit the poorest of the poor making their situation even worse. An efficient yet flexible humanitarian relief supply chains is the key component in disaster management as discussed by academicians as well as practitioners [7]. Humanitarian logistics is considered as one of the most important disciplines within disaster management as it helps in mapping out the actions to be taken [8,9].

In the World Bank and Global Facility for Disaster Reduction and Recovery (GFDRR) report, authors observe a worldwide trend, among

people at all levels of wealth and poverty, toward living in high risk of disaster locations: "From 1970 to 2010 the world population grew by 87 percent, while the population in flood plains increased by 114 percent and in cyclone-prone coastlines by 192 percent" [10]. From an economic standpoint, disasters have a proportionally greater effect on poor people around the world, as explained in the introduction to the World Bank and GFDRR report: Economic losses from natural disasters totaled \$92 billion in 2015, and average annual losses have been estimated at more than \$300 billion a year [11].

Different stakeholders such as governmental organizations and non-governmental organizations (NGOs) from all over the world come to execute rescue operations in an effort to help the affected nation and its people to recover from disaster aftermath [12]. The aid mainly provided by these organizations include food, water, shelters, blankets, medicines and other required aid [13]. The food crisis because of unforeseen emergencies is more prevalent and therefore emphasizes the fact to increase our focus on intensifying the direct or indirect links between food aid and food security [14]. Food aid has always remained a critical component of humanitarian assistance during emergency crisis [15,16]. The food distribution method during emergencies depends on supply of food aid from relief organizations ranging from international organizations to government or NGOs to local communities or a combination of all. And documentation of the supply of food is important for all the involved humanitarians particularly nutrition professionals, policy makers and donors itself to facilitate smooth flow of food aid. To provide food assistance to calamity affected population of a particular area, it becomes imperative to provide the foods in terms of cultural or local familiarity with it. And because India has a wide diversity in cuisine, the food habits significantly differ in people across its different regions.

Maplecroft developed Climate Change Vulnerability Index (CCVI) which calculated and ranked the vulnerability of human populations from 170 countries for the period of next 30 years. This index showed how different countries are vulnerable to extreme climate related events and changes in major climatic patterns. It revealed that many countries from Asia are at 'extreme risk' from the impacts of climate change, including Bangladesh, India, Pakistan, Philippines and Vietnam. The countries in the

"highest risk" category are Nepal, Madagascar, Mozambique, Afghanistan, Haiti, Myanmar and Zimbabwe. It is projected that the vulnerability of these countries to climate change will increase due to predicted rises in air temperature, precipitation and humidity, over the period of next 30 years. It is clearly observed that almost whole of India has a high or extreme degree of sensitivity to climate change as a result of growing population pressure and recurrent depletion of natural resources. This is corresponded by a high degree of poverty, poor health conditions and high dependency on agricultural sources [17].

Therefore, an effort has been made to gather data on the role of the different entities during rescue operations and how food assistance component has been addressed to meet the needs of stranded population during natural calamities that consistently occur in India such as floods, cyclones, earthquake and droughts.

2. METHODOLOGY

The review involved the compilation and analyses of information and data from official documents, research papers/reports of National and International agencies, NGOs and media reports such as newspaper articles. There are multiple data sources in India to record the data of past disasters. For the purposes of disaster management in India the extensively used nationally and internationally recognized data sources were: The Census 2011, websites of National Institute of Disaster Management (NIDM) (www.nidm.gov.in/), Indian Disaster Knowledge Network (IDKN) (nidm.gov.in/idkn.asp) and National disaster management authority (NDMA) (<https://ndma.gov.in/>), among the other source of data were Indian Meteorological Department and Wikipedia. Extracting lessons learnt on disaster response with respect to rescue operations and food assistance were the key component to be evaluated from this review.

3. NATURAL CALAMITIES AND THEIR AFTERMATH ALONG WITH RESCUE OPERATIONS AND FOOD ASSISTANCE

Under the changing climate conditions, it is more challenging to ensure food security for country like India where more than one third its population is estimated to be extremely poor and one half of all the children are suffering from

malnutrition in one way or another. Rural people who produce a considerable part of their own food, the effects of climate change have adverse impact on the food production and it may reduce the availability of food to the point that allocation choices even within the household become difficult.

3.1 Assam Floods (2012)

Every year, flooding from the Brahmaputra and other rivers deluges places in Assam. The water levels of the rivers rise because of rainfall resulting in the rivers overflowing their banks and engulfing nearby areas. Assam experienced massive floods in June and September 2012. The incessant rain was one of the reasons for the massive floods in Assam. During the heavy rainfall, the water either overtopped the embankments or breached the same resulting into large scale inundation within a very short time span.

The recurrent rainfall triggered 27 landslides in three districts of Assam of which the worst affected were Dima, Hasao and Kamrup. Sixteen people lost their lives in these landslides. The impact caused by the floods was distressing and resulted into loss of lives along with the damage caused to infrastructure.

National Disaster Rescue Force (NDRF), State Disaster Rescue Force (SDRF), Army and Air Force took the lead to rescue people and evacuate them to safer areas. As per record, nearly 3,70,265 people were evacuated all over the state using boats by Indian army. A massive relief operation was undertaken in all the districts where relief camps were opened and Gratuitous Relief (GR) was distributed to provide immediate relief. The total number of relief camps that were operational in the State was nearly 768 housing about 4.85 lakh people during the floods period of June 2012. A large number of people were also shifted to embankments and roads, apart from the people in relief camps. A provision to safe drinking water, sanitation, hygiene, health

and veterinary services were made in the relief camps and the affected villages. During the flood period in September 2012, nearly 1069 Relief Camps with 176 Shelters were set up to accommodate 5.43 lakh people. A total amount of Rs (Rupees)165.90 crore (2.2 million USD) was allocated to the districts and subdivisions to ensure consistent delivery of general ration (GR) to the flood victims.

Troops of the Tezpur-headquartered Gajraj Corps of the Indian Army provided relief to more than 6,000 flood-affected people in Sonitpur district in central Assam, besides distributing 2.5 tons of food packets [18]. North east India committee on relief and development (NEICORD) provided about 300 households with food which included 25 kg Rice, 1 kg dal, 1 kg salt, 1 litre oil and non-food items such as 1 Mosquito net, 1 bucket, 1 mug, 3 pcs bathing soap, 3 pcs washing soap and water purifier for three months to each target family to start restoring their family [19].

About 1000 kg flattened rice, sugar and other necessary food materials were also distributed in the flood affected villages of Assam. Legal awareness programmes were also organized frequently for the victims so that they could legally claim for their loss and get compensation for it [20]. Apart from this, 7773 food packets were also distributed among the families at Government Refugee Camps who were temporarily rehabilitated. The food relief assistance provided to by Rehab India Foundation (2012) is given in Table 1. Recently, in India, Joint FAO/IAEA programme of nuclear techniques undertook a Coordinated Research Project (CRP) where a product 'Stuffed Baked Food (SBF)' was developed for disaster hit victims. It was prepared using fermented multigrain dough which was enriched with 5% saturated fat and was stuffed with roasted chick pea flour, cooked chick pea split and mashed potato with spices and salt [21]. It was based on an ethnic product called *Bati* or *Litti*, which is a regular food preparation in many northern states of India which are disaster prone.

Table 1. Food relief assistance during Assam floods 2012 [14]

Place	Item distributed	No. of beneficiary households	Amount
Nagarbera Area	Rice & Sugar	1500	Rs 59,000 (2122.21USD)
Barpeta Area	Rice	84	Rs 12,000 (160.17 USD)
Goroimary Area	Rice & Sugar	525	Rs 12,700 (169.51 USD)
Nagaon District	Rice	100	Rs 14500 (193.53 USD)
Goalpara District	Rice	250	Rs 22,725 (303.32 USD)
Total		2459	Rs1,20,925 (1614.01 USD)

3.2 Uttarakhand Floods 2013

Two of India's mightiest rivers, the Ganges and the Yamuna originate from the glaciers of Uttarakhand, and are fed by myriad lakes, glacial melts and streams in the region [22]. Consisting mostly of uplifted sedimentary and metamorphic rocks and tectonically very active, the region is vulnerable to natural disasters. In addition to natural phenomenon, various human activities like-unscientific development and land-use pattern, unwarranted changes of landscape, ecosystem structure and functions, forest degradation and deforestation, increasing pressure of tourism, waste and disposal have contributed to the vulnerability of the region to hazards [23].

The Uttarakhand of Himalaya faced an unexpected yet huge natural disaster on the night of June 16, 2013, as an outcome of various factors such as early heavy rainfall, the formation of a temporary lake and movement of southwest monsoon winds. A sudden spurt of water due to cloud burst submerged the centuries old Kedarnath temple, and inundated everything in its vicinity and nearby area within few minutes of its occurrence.

Official estimated that the dead and missing people's toll were over 6,000 people, however, public perception was over 10,000 persons who were killed or missed. The dead mostly included pilgrims and tourists from around the different corners of India [24]. Thousands of livestock including cattle, horses and ponies were also killed and injured. Economic losses incurred on tourism sector alone were nearly Rs. 120 billion (1603 million USD) for 2013- 14 which rose to Rs. 200 billion (2678 million USD) in 2014–15 and an anticipated Rs. 250 billion (3339 million USD) in 2015–16 [25].

The Army, Air Force, Navy along with para-military forces such as Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), National Disaster Response Force (NDRF), Public Works Department and local administrations came in front foot to carry out quick rescue operations [26]. Several thousand soldiers were deployed for the rescue missions. Activists of political and social organizations were also involved in the rescue and management of relief centres [27]. The national highway and other important roads were closed to regular traffic. Helicopters were also used to rescue people but due to the heavy fog,

rainfall and rough terrain, the rescue operations were obstructed [28].

NGO Shiv Parvati Sewa Dal distributed food packets with each one containing 250 g chana, 100 g sweet *channa*, one packet of biscuits, one citrus flavored toffee and one 250 ml mineral water bottle [29]. More than one tonne of three-varieties of ready-to re-constitutable food, namely *Suji Halwa*, *Upma* and Vegetable *Pulav* in 1 kg packets was dispatched to Uttarakhand for flood victims [30]. According to HESCO, a kit for dry food (as mentioned in the Table 2) for a week was given to the victims [31].

Table 2. Food assistance during Uttarakhand disaster, 2013 [31]

Dry food kit	Quantity
Rice	10 kg
Mix pulse	2 kg
Sugar	2 kg
Flour	10 kg
Vegetable oil	1kg
Salt	1 kg
Milk Powder	1 packet
Tea	1 kg
Maggie noodles	10 packets
Candle	1 packet
Match box	1 packet
Napkin cloth	2 pieces
Vim bar and scrub	1 piece

**Dry kit was supplied for one week*

3.3 Kashmir Floods 2014: Overview, Rescue Operations and Food Assistance

Kashmir is multi hazard prone region with natural disasters like earthquakes, floods, landslides, avalanches, high velocity winds, snow storms, besides manmade disasters including road accidents and fires etc. occurring in various parts of the state [32]. In Kashmir valley, flood is a recurrent problem occurring due to overflowing of embankments and breaching of river channels, horizontal erosion of river basin of Jhelum and flash flood in its tributaries of Doodh Ganga, Romushi, Rambiar, Udder, Madhumati, Pohru and Sukhnag etc.

On September 2, 2014, heavy monsoon rains began in Jammu and Kashmir region resulting into heavy flooding. Due to landslides and flash floods triggered by the heavy rain in the Jammu region, the death of a border security officer and

five others were reported. The government of Jammu and Kashmir signaled a flood alert on September 4 after three days of persistent rain which had flooded 23 villages. By September 6, as the death toll rose to 150, the flooding was documented as the worst in 50 years. After 5 days, on September 11, it was claimed as the worst flood in 109 years. On 6th September, the chief minister of Jammu and Kashmir reported that 390 villages were inundated and the Prime Minister declared it as a national emergency on the 7th of September [33].

The Army deployed 35,000 soldiers and evacuated more than 15,000 affected people from different parts of the state on 6th September. Armed forces and NDRF rescued over 96,000 persons from different parts of Jammu and Kashmir. 19 relief camps were set up to accommodate more than 20,000 persons on 11 September.

The secretary of National Crisis Management Committee of Jammu and Kashmir briefed the Committee about the ground situation of the flood aftermath and the support required to address the needs of affected population. It resulted into immediate action and 1,237 tons of relief material was air dropped for the victims. About 210,000 litres of water, 31,000 food packets, 2.6 tons of biscuits, 370 tons of cooked food and 7 tons of baby food were airdropped and distributed to the flood affected population. About 3 tons of milk in tetra pack along with the packets of milk powder was also provided. 25,000 food packets were prepared at the Golden Temple, Amritsar and other shrines. Each packet wrapped in aluminium foil, contained four large-sized *paranthas* prepared in *desi ghee*, besides cooked vegetables such as potatoes and pickle. The popular traditional products of that zone were chosen on the basis of their high acceptability by the target population. Each packet had sufficient food to feed two persons [34]. According to Pragya Foundation, the food relief provided to victims has been mentioned in the given Table 3 [35].

3.4 Cyclone Phailin (2013): Overview, Rescue Operations and Food Assistance

Phailin originates from a Thai word meaning Sapphire. Cyclone Phailin was very severe cyclone storm which prompted the evacuation of about 5, 50,000 people from the coastline in Andhra Pradesh and Orissa to safer shelters. It

led to one of the biggest India’s evacuation in 23 years. Phailin moved with high strong winds and resulted in very heavy rain of over 600 mm at many stations of Orissa. It was estimated to kill 40 people and damaged the crops worth Rs 2,400 crores (3.20millionUSD). Cyclone Phailin incurred a loss of around Rs. 420 crores (56.06millionUSD) [36].

Table 3. Food relief material provided to victims of Kashmir floods, 2014 [35]

Relief material	Quantity
Baby food	282 packs
Food grains and spices;	18630 kg
Cooking oil	536 litre
Ready to eat food items	8437 packs
Drinking water,	2148 litre
water purifying tablets	22040 tablets
914 nutrition packs for children	914 pack
162 set of utensils/emergency	162 set
light heaters/ water filters;	
150 Solar lanterns	150
9954 items of hygiene kits	9954 items

Action Aid India response efforts focused on three major humanitarian sectors such as food and livelihood, shelter and water sanitation and hygiene (WASH) to support the worst affected communities so as to recover from the devastation of cyclone and floods [37]. The intervention benefitted a total of 12,627 households in four highly affected districts of the state. Following a funding appeal by International Federation of the Red Cross and Red Crescent (IFRC) to respond to the needs of about 15 000 vulnerable families affected by the Cyclone, European Commission Humanitarian Aid and Civil Protection (ECHO) allocated € 96748 into the disaster relief emergency fund of the IFRC. The Indian Red Cross Society used these funds to provide temporary shelters, safe drinking water, clothes, kitchen sets and water buckets [38].

Food assistance was provided for 14 days to the families in very severely affected villages. 50 kg of rice and a cash of Rs. 400 (5.34 USD) for dal were provided to each family. Similarly, the families from severely affected villages were provided with 7 days relief. They were given 25 kg of rice and Rs. 200 (2.67USD) cash for dal as food assistance [39,40]. Through a provision of 4197 free kitchen centers, hot meals were provided to the evacuated people. Additional food assistance was also given to fishermen families for 10 days who were prevented from

fishing. Food assistance was also provided for 3 more days provided to the families affected by second phase floods. About 1 lakh MT Rice alone comprised of total food assistance besides *chuda, gur* etc.

3.5 Cyclone Hudhud (2014): Overview, Rescue Operations and Food Assistance

Cyclonic storm Hudhud was very severe and killed 46 persons, injured 43 others and affected 20.93 lakh families. It also resulted in loss of lives of 2831 livestock and 24.43 lakh poultry in four districts of Orissa and Andhra Pradesh [41]. It caused massive destruction in the region by affecting 12 million people [42]. The strong winds and incessant heavy rains disrupted the power supply, damaged the buildings and provoked the evacuation of nearly 350,000 people from their homes. According to the rapid damage needs assessment team of the World Bank, the total damages due to cyclone Hudhud was about Rs. 13,263 crores (1770.24 million USD).

The coordination of central and state Government after the Cyclone warning resulted in better action and minimized the casualties to a great extent. About 310 relief camps were set up to accommodate the 2,22,000 people evacuated people from low lying and vulnerable areas. Nearly 1688 medical camps were also set up to address the health problems in relief camps. About 6.5 million water packets and 2.9 million food packets were also distributed to the affected population over a period of 15 days. State government of Andhra Pradesh worked in close collaboration with Indian Army and Navy, National Disaster Response Force (NDRF), district authorities and local self-Government.

The provision of Storage of essential commodities like food grains and pulses was made available for two months in the cyclone hit areas. Bread, biscuits and baby foods like milk powder were also stored at various strategic locations. Sufficient domestic fuel, utensils and other facilities with cooks were set up in relief centres. Food, drinking water packets, milk and vegetables were also distributed to the affected families in the relief centres. NGO participation provided drinking water supply and procurement of generators to address the disrupted power supply for a considerable period [43]. The adequacy of improved general food ration in reducing the occurrences of low birth weight in refugee camps for Bhutanese in Nepal was

studied. This research was commissioned by World Food Project because reports indicated that rates of low birth weight in the camps were nearly 10% in comparison with 21% for Nepal, 15% for Bhutan as a whole and >30% in the hospitals around camp areas. As the basic needs of mothers were met including in terms of both the quantity and the quality of food along with water and sanitation, antenatal care and education, rates of low birth weight were significantly reduced. It was anticipated that increased peri-conceptual micronutrient intake might be responsible for the increased incidences of high birth weight [44].

3.6 Sikkim Earthquake (2011): Overview, Rescue Operations and Food Assistance

The 2011 Sikkim earthquake also known as the 2011 Himalayan earthquake occurred with a moment magnitude of 6.9 and was centered within the Kanchenjunga Conservation Area near the border of Nepal and the Indian state of Sikkim at 18:10 IST on Sunday, 18 September [45]. The strong tremors of earthquake resulted in collapse of physical infrastructure and buildings and mudslides [46]. About 111 people were estimated to be killed [47] and thousands of others got injured. Due to monsoon season, heavy rain and landslides made the rescue work even more difficult [48].

Four teams of National Disaster Response Force (NDRF) and five more teams from Kolkata made the early rescue operations. Due to landslides caused by incessant rainfall, the rescue operations were delayed in south and west Sikkim. Recurrent rain and landslides rendered the rescue efforts of workers searching for survivors more difficult [49]. The civil administration launched massive rescue, relief and coordination operations all the 4 affected districts. A regular update of the dead, rescued and rehabilitated along with the details of other essential services were gathered in Gangtok through the Police Control Room located at PHQ [50].

Local and national NGOs like Sphere, AIDMI, SEEDs, ADRA India, the Indian Red Cross Society and international agencies like the International Red Cross and Red Crescent Society also came forward to aid in humanitarian relief. Under the Sphere umbrella, an Inter-Agency Group was set up in coordination with the East District of Sikkim. They distributed dry

food items, utensils, drinking water, blankets and tents in the affected villages and towns. A rapid assessment of the funds needed for rehabilitation, reconstruction and for livelihood restoration was also made by this group [51] and all essential services like drinking water, food, medical aid and deployment of doctors, paramedics and personnel from the infrastructure sectors were sent out to address the needs of affected areas and people. In 1993, with the supervision of UN's World Food Project (WFP), Indopol Flour Mills of India succeeded in developing a low cost blended food commonly known as 'Indiamix' widely popular among the down trodden segments of the society. This product with high proteins and minerals along with delicious taste, nutritious value, ease of technology for production made it widely accepted by its end users. *Indiamix*, looks and tastes like cereal flour and can be eaten in different forms like rotis, gruel and burfi. During Gujarat earthquake in 2001, *Indiamix* was distributed to more than two lakh people to meet their increased nutrient needs under a WFP-sponsored programme [52].

3.7 Maharashtra Drought (2013): Overview, Rescue Operations and Food Assistance

Marathwada region of Central Maharashtra receives a scanty rainfall. It includes districts of Aurangabad, Beed, Jalna, Nanded, Osmanabad, Latur, Hingoli and Parbhani. Among these eight districts, worst drought affected were mainly five namely Beed, Parbhani, Jalna, Osmanabad and Nanded. Marathwada region has a geographical area of 64.5 thousand sq. km with a population of about 1.87 crore. Droughts have a long history in this region tracing from 1899, 1918, 1972 and 2012 onwards to till date [53]. Primarily, farmers were using shallow groundwater. They were dependent on wells. With the acute shortage of rainwater in 2012-13, most of the wells went dry. Many check dams became dysfunctional.

The drought in 2013 in Maharashtra surpassed all previous records, as millions of human beings and livestock were affected by famine due to scanty of food and fodder. The main contributing factors to the harsh effects of the drought were the careless management of water resources, the lack of a suitable policy on water supply and giving out of water to industries rather than agricultural fields. The government declared 15 districts which comprised 11,801 villages as drought-affected. According to South Asia

Network on Dams, Rivers and People (SANDRP), the 2012-13 drought was a disaster of water management, accompanied by water-intensive cropping pattern, absence of a long-term view to manage water and drought and political corruption [54].

Maharashtra drought 2013 was considered as the worst droughts in 40 years. This led to the origin of Maharashtra Drought Relief Project (Yuva Foundation). The basic objective of the foundation was to manually check the physical conditions and the needs of the affected areas and then collect donations, preferably in the material form so as to provide the necessary food, water, fodder and other relief materials to the affected population [55]. The major drought mitigation measures were the provision of employment scheme, fodder depots, cattle camps and water supply tankers along with compensations for damaged crops and fruit gardens. According to Drought Memorandum, Government of Maharashtra [56], these mitigation measures except NREGA (the employment scheme) incurred a cost of approximately USD 332 million for droughts in 2012–2013. The information and benefit from contingency plan reached to only few farmers. Therefore, even though these drought mitigation measures provided some relief to the affected families, the level of satisfaction was still low among them [57].

4. CONCLUSION

India, due to its varied geography has been witnessing a fair share of natural disasters. The whole country is affected by one or the other type of disaster or calamity. It was observed although, scientific data on major disasters are available but the information are scattered in different places which is not uniform for the entire country. In financial terms, though food assistance is the most important response of the international community to current calamities, however, there is a scanty of published information about the emergency food distribution programs and their actions for the affected population. In case of India, as well, the secondary data reveals that there is scanty of information with respect to food assistance. Also, inclusion of traditional foods in the food aid was not found in any report. Conversely, it has been well known that food familiar to the particular community or region helps in its wider acceptance because people associate their cultural and religious beliefs with it. Culturally-competent traditional foods of a

particular region reflect the attachment of inhabitants with their local food. Therefore, these familiar traditional foods could be utilized to meet the food needs of affected population which would help to reduce their psychological trauma and will have greater acceptability. It has been observed that among all humanitarian assistance, food aid is the most important component yet it receives least attention. So, a documentation of food assistance component aftermath any calamity will help provide a clear picture to the stakeholders in humanitarian assistance to design and formulate policies and programs for the victims in line with the identified food needs physically, socially and culturally.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
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