

# Sustainable Information Society: a Discussion against the Background of Kerala Flood Relief and Rescue Operations

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## Abstract

*A study made by Ewa Ziemia, University of Economics in Katowice, puts forth a conceptual model of a sustainable information society. As per that framework, the critical success factors of information society are Information and Communication Technology's (ICT) access, competences and use. The stakeholders of the sustainable information society are the citizens, the Government and the various societal enterprises. (Ziemia, Discussion on a sustainable information society, 2014)*

*The objective of this paper is to make a critical analysis, in the light of Ziemia's above paper, on how the people of Kerala, the Kerala Government and different Enterprises and Organizations of Kerala were able to access and use competently channels and technologies of information-sharing to meet head-on a great flood that overwhelmed the entire State of Kerala in August 2018, and to mitigate to the minimum its disastrous consequences that could easily have spiralled out of control.*

*Further, this paper analyses some of the initiatives taken up by groups of individuals, the Government, and the organizations for the rescue and relief activities making use of the ICT technologies during the period of flood-days. The insights so gained can lead to a better blueprint for effective and efficient information-sharing that will prove vital during calamities, whether natural or man-made.*

**Keywords:** Sustainable Information Society, ICT Access, ICT Competency, ICT Use, Kerala Flood 2018

Today's society is advancing relentlessly in manifold ways. Change that characterizes the present society more than ever before can be seen in all areas of life. The fields of health, education, business, transport, communication, entertainment and socio-cultural mores manifest this phenomenon vividly. The modern Information and Communication technology, which transformed our society into an Information Society lies at the basis of this. The term "Information Society" is one of the most apt phrases to describe today's

societies which encompass the whole life, business and its structures. "Within its meaning is enshrined the promise of a better world." (Ziemba, 2006).

"An information society is a society where the creation, distribution, utilization, integration and manipulation of information is a significant economic, political, and cultural activity. Its main drivers are digital information and communication technologies, which have resulted in an information explosion. In its turn it profoundly changes all aspects of social organization, including the economy, education, health, warfare, government and democracy." (Wikipedia, 2018). It is a well established and acknowledged fact that countries employing and relying on pervasive information and communication technologies (ICTs), and which have established information societies that are affectively creating disseminating and utilising information for gaining social and economic advantages will be at the cutting edge of new markets, and will pioneer new avenues for the creation of citizens' wellbeing. On the other hand, growth coupled with sustainable development underline the importance of information society. Information society should engender sustainable development, or give rise to a sustainable information society. (Houghton, 2010); (Johnston, 2001).

Ewa Ziemba (University of Economics, Katowice) puts forth a conceptual model of a sustainable information society. This paper makes a critical analysis, in the light of Ziemba's paper, of how the people of Kerala, the Kerala Government and different Enterprises and Organizations of Kerala were able to access and use competently channels and technologies of information-sharing to meet head-on a great flood that overwhelmed the entire State of Kerala in August 2018, and were able to mitigate to the minimum its disastrous consequences that could easily have spiralled out of control. Torrential rains, flooded rivers and dams, and a series of gigantic landslides claimed 500 lives, and displaced nearly a million others. Kerala has not a flood of this magnitude in its known history.

Further, this paper analyses the way groups of individuals, the Government and other organizations conducted rescue and relief activities during the flood making use of the Information and Communication Technologies. The insights so gained can lead to a better blueprint for effective and efficient information-sharing that will prove vital during calamities, whether natural or man-made.

### **Sustainable information society**

The present phase of human development is mainly driven by information and speed of information sharing, which in their turn speed up change and development. In this age of rapid development, humanity is faced with the problem of sustainability. "The idea of sustainable information society has been developed and refined for over past 50 years in a variety of contexts such as economics, politics, technology and societal existence" (Raban, Gordan, & Geifman, 2011). The most widely cited definition of sustainable development was given in 1987 by the world Commission for Environment and Development. It points out a pattern of development can be treated sustainable only if "it meets the needs of present without compromising the ability of future generations to meet their own needs" (WCED, 1987). Recently this concept has been refined with emphasis on its dynamic nature, speaking of development of greater opportunities for future generations. Development, sustainable development and sustainable information society are some of the keywords around which

academic and research discourses are being carried out to define and describe desirable future societies. "Therefore, today a more multidimensional view on sustainability is being presented which implies a holistic and integrated policy framework of environmental compatibility, economic stability, social sustainability and cultural diversity" (Servaes & Carpentier, 2005).

### **Conceptual model of sustainable information society by Ewa Ziemba**

Ewa Ziemba, Head of the Department of Business Informatics and International Accounting (Katowice, Poland) and Editor-in-chief of *Journal of Economics and Management* (JEM) has more than 180 papers and 18 books to her credit (ResearchGate, 2018). Information and Communication Technology and Information Systems Management are some of her areas of specialization. In one of her papers she proposes a model for sustainable information society (Ziemba, Discussion on a sustainable information society, 2014). In this paper the author speaks about four indispensable factors of a sustainable information society: sustainability, many-sidedness, holism and system thinking. Sustainability, as the word denotes, foregrounds inevitable qualities like flexibility, continuity, harmony, stability and self-support. Many-sidedness can also be thought of as interdisciplinarity, multilateralism and anisotropy. Holism and systems-thinking are the two sides of the same coin. Holistic approach itself is for interactions and interconnections between and among the independent systems that have their own actors, activities, policies, plans and structures. Holistic theory conceives of an information society as one consisting of interconnected and networked but open subsystems (i.e. economic, political, cultural, technological, social and organizational). If it is holistic, then there has to be systems-thinking. Sustainable information society is treated as a system which blends and interacts with many other subsystems, and its environment has aims and structures consisting of components and interconnections.

### **Sustainable information society - major observations**

Conducting a detailed literature search on sustainable information society, Ziemba comes up with certain important observations (Ziemba, Discussion on a sustainable information society, 2014) (Ziemba, Papaj, & Zelasny, New perspectives on information society: the maturity of research on a sustainable information society, 2013) (Johnston, 2001) (Servaes & Carpentier, 2005) (Hilty & Ruddy, 2000). They are:

- The major characteristic and emerging trend of an information society is the growing importance of information and knowledge.
- Information and knowledge are widely communicated and spread through information and communication technology.
- Information and communication technology have shrunk the whole globe, turning it into a global village (globalization).
- "The stakeholders of the sustainable information society are the government, the citizens and social organizations." (Ziemba, Discussion on a sustainable information society, 2014)

- In a sustainable information society the stakeholders are in a position to learn continuously; an ongoing learning process results in learning, unlearning and relearning for uninterrupted improvement in skills, competencies and experiences. This, in its turn, results in “adaptation, development, revitalization, reconstruction and reorientation in response to the emerging trends and challenges.” (Ziemba, Discussion on a sustainable information society, 2014)
- The stakeholders of the sustainable information society naturally adopt the emerging trends which are characterised by ICT, information, knowledge and globalization, for the welfare of the present and future generations. This will ensure economic growth, increased political participation and the growth of the wisdom available to societies.
- Sustainability envisioned by sustainable information society warrants or mandates sustainability in individual and collective dimensions, at a personal, local, national and global level.
- The speciality of an information society is that the stakeholders are at the centre of the newly emerging information and knowledge around the globe. This situation enables the stakeholders (citizens, organizations, and the government) to respond positively to the opportunities and challenges of a rapidly changing world.
- The backbone of a sustainable information society is Information and Communication Technology (ICT). The accessibility of the ICT, the competency of the ICT infrastructure as well as the competency of stakeholders in making use of the ICT infrastructure are very crucial for the sustainable information society. In short the possibilities of the ICT must be utilised to the maximum.
- A sustainable information society requires close cooperation between citizens and business, in conjunction with national, regional and local governments.
- The success of a sustainable information society depends on three key factors: ICT’s access, ICT’s competence and the optimum of ICT.

Based on the above observations on sustainable information society, the present paper wishes to generate a discussion on the theme of sustainable information society against the background of relief and rescue activities during the 2018 Kerala flood.

### **Kerala flood - an overview**

Due to unusually high and concentrated rainfall during the monsoon season, the South Indian State of Kerala experienced severe and unprecedented floods from August 15, 2018. The devastation that ensued makes the flood of 1924 pale in comparison. The death toll announced by Chief Minister Pinarayi Vijayan on August 30 is 483, besides 15 others who were missing (NDTV, 2018).

During the flood days red alert was issued in all 14 districts of the State. According to the Kerala government, one-sixth of the total population of Kerala had been directly affected

by the floods and related incidents. "The rainfall received by the entire State in this season was 42% excess of the normal. As per the latest data of Meteorological Department the rainfall over the State during June, July and August 2018 (till 19th of August) was 15%, 18% and 164% respectively above normal respectively." (TheTimesofIndia, 2018) To put it differently, "Kerala received 758.6 mm of rain instead of the normal 287.6 mm during June-August 2018." (InternetGeography, 2018).

"11000 houses and 57000 hectares of crops were destroyed." (NDTV, 2018) (TheNewIndianExpress, 2018) "The Central Government of India declared it a Level-3 Calamity or 'a calamity of a severe nature'" (Prasad, 2018). As the water continued gush in all directions normal life was thrown out of gear; indeed, life came to an abrupt halt: weddings were cancelled, many people lost everything they had spent a lifetime to accumulate, many were stranded for days inside flooded homes, sometimes with dead relatives among them.

Thirty-five out of the forty three forty three dams within the State were opened for the first time in history (Wikipedia, List of dams and reservoirs in Kerala, 2018). "Heavy rains in Wayanad and Idukki caused severe landslides and left the hilly Districts isolated. The situation was regularly monitored by State leaders, and the National Crisis management Committee coordinated the rescue and relief operations." (Wikipedia, 2018 Kerala Floods, 2018)

### **Literacy and IT strength of Kerala**

Kerala, known far and wide as 'God's own Country', ranks second in India in terms of literacy with a literacy rate of 93.91% (2011 census). Speaking about Kerala's development, K.P. Kannan, a noted scholar and economist, says that Kerala is often compared with developed countries for its high literacy, excellent education and health facilities, higher rate of income and the freedom of individual choices. Government of Kerala formulated Information Technology (IT) policy in the year 1998. Afterwards we can find an increased application of IT in all walks of life. There was a huge enhancement in the very base of IT industry in the State. Robust State information infrastructures as well as highly qualified human resources for IT were being created. The State has made higher percentage of budgetary allocations for the development of Information and Communication Technology (ICT) sector. Thousands of employment opportunities were generated in ICT sector through focussed initiatives of the IT Department (Varghese, 2013). The Kerala State Information Technology Mission (KSITM) is an autonomous nodal IT implementation agency for the Department of Information Technology of the Government of Kerala. KSITM provides managerial support to diverse initiatives of the department of information technology. "The KSITM has envisaged a wider scope for the e-factors in the day-to-day lives of Keralites and it is keen on implementing many people-friendly, IT-enabled projects. Kerala IT with its hub-and-spoke model of building IT centres, has really succeeded in bringing the benefits of IT to every citizen in the State" (Varghese, 2013)

### **Kerala as a sustainable information society**

The aim of the sustainable information society is the brighter future of the present and future generations which is attained by adopting and applying the ever changing information and knowledge for restructuring, reorganizing and rebuilding the amenities for

the welfare of the people. The concept of sustainable information society encompasses all the areas of human living, especially the economic, cultural, social and political areas. Sustainable information society can be viewed only holistically considering all the above said parameters. According to Ewa Ziemba, the success of the sustainable information society is measured by evaluating the ICT's access, ICT's competence and ICT's use. The presence and utilization of three parameters can be used to evaluate the way Kerala faced the unprecedented August-2018 flood.

Kerala rose spontaneously to meet the challenge posed by the surging waters, and in the process found employing a new model of rescue and rehabilitation. The National Disaster Response Force, along with the Indian Army and Indian Navy, launched one of their largest rescue missions to snatch several thousand people from the jaws of death. In some of the places, around 90% of the people were affected and it was seen that the rescue and rehabilitation activities were carried out as a joint venture both by volunteers and victims. A good number of self-help groups were formed spontaneously and people were ready to deploy the facilities and the probabilities of all kind for the purpose. The fishermen of the coastal State of Kerala who ride the ocean waves for their livelihood played an important role in the rescue operation. It was their courage and experience which helped to shift a large number of people to safer areas. The fishermen are having their own communication facilities to give messages on urgent situations which were utilized for mobilization and coordination during this time of utmost urgency.

Above all, the Kerala floods demonstrated the strength and role of Information Technology (IT) especially social media in developing a self-evolving data crowdsourced platform which helped rescue and rehabilitation activities. Crowdsourcing is a joint process development or problem-solving technique that requires help from a network of people. This network is usually connected via the Internet or through a specific website. (Techopedia, 2018)

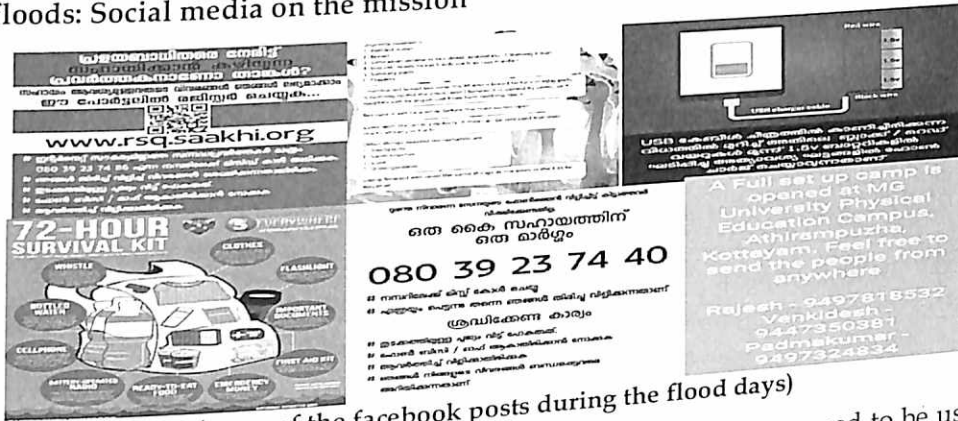
### **Using crowdsourcing as a tool**

"The IEEE (Institute of Electrical and Electronics Engineers) with the support of the State-run Kerala IT Mission, developed a portal [keralarescue.in](https://keralarescue.in/) (https://keralarescue.in/) to collect help across the State. The Chief Minister of Kerala released it as the official online portal for the State's rescue mission." (Larryohanlon, 2018) The whole rescue and rehabilitation work was carried out making use of the ICT facilities. This tedious work naturally calls for the committed service of large number of people. Help requests were mainly through phone calls and other social media platforms. These are to be verified for its legitimacy which was carried out day and night without break by volunteers, mainly consisting of NGO (Non-Governmental Organisation), activists, and the energetic youth of Kerala.

"About 2000 people worked day and night to improve and maintain the rescue portal. Engineers around the world worked from different time zones to ensure development and maintenance round the clock. Many IT companies dedicated their development teams. As the rescue operations progressed, new features that could help the operation were added, and coordination was done using the popular cloud-based collaboration platform 'Slack.' A total

of 54,933 people registered themselves as volunteers on the website to help in the rescue work. A total of 1,363,704 people visited the website and 45,587 requests were posted through the portal.” (Larryohanlon, 2018)

**Kerala floods: Social media on the mission**



(some of the facebook posts during the flood days)

Those days of flood were the days where the social media was proved to be useful, and it was that much useful and used to the greatest extend. Help requests as well as help offerings both were being done through social media. Needed instructions were given, knowledge was shared, and all sorts of help were given – all through social media. Popular and active face book pages with regional influence used their platform for posting help requests. Groups were formed not only in India, but around the globe where Kerala people were living. They collected the messages, verified those messages, prepared the SOS messages with geo-tags and passed to the rescue teams through the volunteers at the District Level Administration.

The people who were rescued were now without shelter. Number of relief camps were set up – all under the supervision of Local administration. Places were isolated here and there throughout the state which made things difficult. Here also self-help groups and volunteers came up to support the government officials. The whatsapp groups and face book groups mapped the requirements of the relief camps with the available supply offers by the individuals or groups. Ponderous supplies of relief materials were brought in by the public at different hubs formed instantaneously at comparatively safer and drier zones.

‘What better way to reach the masses than use the social media!’ was one of the headlines of the news posted in Indian express on 21st August 2018. Various Facebook groups like ‘Trivandrum Indian’, ‘Where In Trivandrum’ and ‘Eat-At Trivandrum’ were at the forefront of flood relief activities.

The most popular group the ‘Where In Trivandrum’ changed into a control room of sorts, aiding tremendously with the relief measures. ‘Trivandrum Indian’ initiated a project ‘Kooodeundu’, and collected relief material and distributed at relief camps. ‘Trindia Group’ also actively collected essential relief material, including cleaning kits, Dettol, rubber gloves, and lotions. (Indian express, Friday August 21, 2018)

Besides these groups, there were hundreds of self-help groups, one of which was 'Oruma,' a group located in Thrissur, the cultural capital of Kerala. The author was personally associated with the activities of Oruma. Begun as a small personal endeavor by two individuals, it soon flourished into a big project. It worked nearly round the clock for a whole week collecting and dispensing materials like food, clothes, medicines and detergents to rescue camps far and wide throughout Kerala. Its activities were coordinated through Whatsapp groups and Facebook pages. The generosity of the people who came to the assistance of the flood-affected was often moving.

### New apps to assist flood

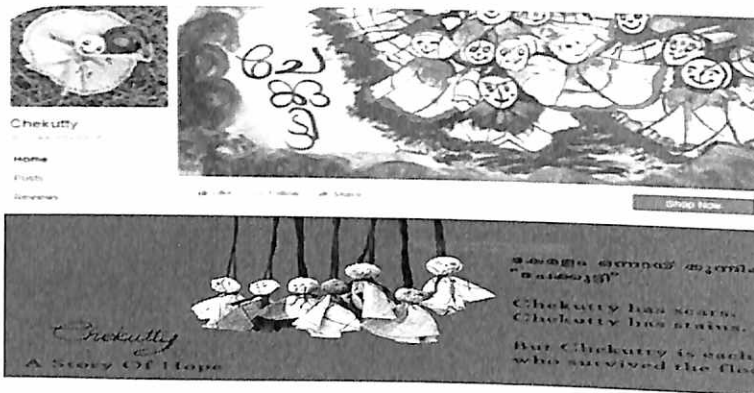
One of the apps developed was named 'kerala floods 2018;' it was released by the Minister for Revenue and Disaster Management, Sri E Chandrasekharan. Using this app it is easy to mark the water-level; photos of landslides and water-level could also be taken and and upload. This app is available in Google play store (Surendran, 2018)

പ്രളയത്തെ അടയാളപ്പെടുത്താൻ മൊബൈൽ ആപ് തയ്യാറാക്കി  
By Sarath Surendran 22 10 2018



(Downloaded from Face Book)

### Chekutty, the child who overcame the dirt



(Title Image of the website "Chekutty" downloaded from the site)

After the flood days too enormous amount of initiatives were being taken through out the social media to overcome the consequences of the flood and to rebuild Kerala. In this



connection chekkutty deserves special mention. Chekkutty is a small beautiful doll made from cloth that was damaged during the flood. Such damaged cloth, of course, had to be chlorinated and disinfected before they could be used.

Chennamangalam is where chekkutty took shape. Chennamangalam is one of four recognized traditional textile facilities in Kerala, and has the geographical indication tag (GI tag). This facility is famous for the 'kasavu sarees' and 'mundus' that are an intrinsic part of the State's festival attire. After the floods, five weaving societies that have 600 weavers, mostly women, faced the heart-wrenching task of burning and discarding their stocks that were damaged by the flood. It is at this point Chekkutty was born. The brainchild of Lakshmi Menon and Gopinath Parayil, Chekkutty is a mascot of an emerging Kerala. A crowdsourced initiative, each Chekkutty is unique and handcrafted by the volunteers who have signed up and learnt how to make them. A six-meter saree can make 360 Chekkuttys. Volunteers were encouraged to pick up a saree or more, make the finished product, and either sell the entire batch at Rs 25 per doll and hand over the proceeds, or return the finished product over to the team for them to sell. And all proceeds from the sale went to the weavers' society.

"Chekkutty has scars. Chekkutty has stains. But Chekkutty represents each one of us who survived the floods," reads their website. Ms Lakshmi, who runs Pure Living, an organization focused on green living and up-cycling non-biodegradable waste, and Mr Gopinath, founder of Blue Yonder, a travel company promoting responsible tourism, created Chekkutty as a way to repurpose the damaged stock of Handloom Weavers Co-Operative Society Ltd, one of the five societies affected. This was a great support to the weavers who were able to regain their losses and prepare for the next season. (PinkeralaNewsDesk, 2018)

### **Conclusion:**

The quality of a sustainable information society can be an indicator of the development of a country. The key success factors of a sustainable information society are the access, competence and use of Information Communication Technology (ICT). The prevalence and importance of ICT in day-to-day life has an impact on the sustainable development of that society. The health of such situation in a society is put to the test when that society has to cope with some unprecedented calamities.

The Kerala flood of August 2018 indirectly turned out to be such a test-time for Kerala. During this time, the Information and communication Technology available in Kerala sprang to the forefront as the greatest assistance to life-saving activities for which speed and precision were crucial. The major forms of Information and communication Technology that were in action during the period of flood were, social media, web portals and crowdsourcing. It was found that Kerala's Information and Communication Technology is robust with up-to-date infrastructure and manpower. Even the ordinary person on the street was found to be acquainted with usage of ICT and are competent to make use of the merits of ICT to save lives and minimize casualties. A minor black spot was the prevalence of some fake news, as well as the duplication of the same news by many. At the same time, the flood-causing torrential rains of August 2018 have also forced open the sluice-gates of Studies on how to improve the communication system making use of ICT.

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