

Digital Disaster Social Work

- Promises and Challenges



持続可能な社会のための科学
と技術に関する国際会議

International Conference on
Science and Technology for
Sustainability 2022 “Disaster and
Health”

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26, 2023



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Recent publications related to disasters

- Zhao, X. B., Wong, H. C. J., Lowe, C., Monaco, E., & Corbett, J. (2021), *Covid-19 Pandemic, Crisis Responses and the Changing World, Perspectives in Humanities and Social Sciences*, Ed., Singapore: Springer. ISBN: 978-981-16-2429-2
- Wong, H. C. J., (2018). *Disaster Social Work from Crisis Response to Building Resilience*, NY: NOVA Science Publishers. ISBN: 9781536144352
- Wong H. C. J., (2016). *Disaster Social Work Handbook Guangzhou*: Sun Yat Sen University Press, ISBN: 9787306056016.
- Wong, H. C. J. (2022). Economic, Social and Developmental Indicators (ESDI) to measure Earthquake Recoveries in China. *Austin Environmental Sciences*, 7(3): id1079, pp1-5.

Recent publications related to COVID-19

- Wong J. H. C. & Ho, G. W. (2022). **Shielding without a Shield—Older People under COVID-19: A Comparison of Four Cities.** *Social Sciences*, 11(11), 498. <https://doi.org/10.3390/socsci11110498>
- Wong J. H. C., Ho, G. W., & He, X. L. H. (2022). **A Safer World after Vaccination against COVID-19, Government Responses and Health Outcomes: A Comparative Study,** *Medical Research Archives*, [online] 10(8).doi.org/10.18103/mra.v10i9.2987
- Wong, H. C. J. & Zhou, T. (2022). **Social-Psychological Emergency Response during Wuhan Lockdown: Internet-based Crisis Intervention.** *Australian Journal of Disaster and Trauma Studies*, Vol 26, 159-165.
- Wong H. C. J. (2021). **Government Emergency Responses During the COVID-19 Pandemic in the Context of Health Emergency and Disaster Risk Management: A Comparative Study.** In Zhao, X. S., Wong, H. C. J., Lowe, J., Monaco, E., & Corbett, J. edited, *COVID-19 Pandemic, Crisis Responses and the Changing World - Perspectives in Humanities and Social Sciences*, Singapore: Springer Nature. 103-136.
- Wong, H. C. J. & Leung, T. L C. (2020). **Trauma-informed practice and supervision for volunteer counsellors of online psychological support groups during the impact of COVID-19,** *Asia Pacific Journal of Social Work and Development*, 31:1-2, 67-72. DOI: [10.1080/02185385.2020.1846604](https://doi.org/10.1080/02185385.2020.1846604)
- Wong, H. C. J. (2020). **Innovations in Community Crisis Intervention - Adopting the ACT and AtCER MODEL in the COVID-19 Outbreak,** *International Association of Schools of Social Work COVID-19 Stories Featured*, April, 3. <https://www.iassw-aiets.org/covid-19/4781-innovations-in-community-crisis-intervention-adopting-the-act-and-atcer-model-in-the-covid-19-outbreak/>



Recent Developments of Disaster Risk Management

1. 3 International conferences
2. Health EDRM
3. Digitization of EDRM
4. Need for Digital Disaster Social Work

UNDRR International Conferences

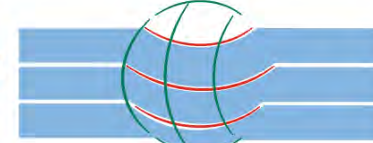
Yokohama Strategy and Plan
of Action for a Safer World
1994

Hyogo Framework of **Action**
Plan 2005-2015

Sendai Framework for
Disaster Risk Reduction 2015-
2030

Yokohama Strategy and Plan of Action for a Safer World
Guidelines for Natural Disaster Prevention, Preparedness and Mitigation

World Conference on Natural Disaster Reduction
Yokohama, Japan, 23-27 May 1994



World Conference on Disaster Reduction
18-22 January 2005, Kobe, Hyogo, Japan

**Sendai Framework
for Disaster Risk Reduction
2015 - 2030**

Paradigms Shift 1:

from emphasis on response to
full cycle comprehensive management



Sendai Framework: Build back better

Priority One	Understanding Risks
Priority Two	Strengthening Governance
Priority Three	Investing Reduction
Priority Four	Enhancing Preparedness

WHO: Health EDRM 2019

Health Emergency and Disaster Risk Management Framework



World Health
Organization

Paradigm Shift 2 (WHO Health EDRM 2019: **Whole government & whole community approach**

From	To
Event-based	Risk-based (health and mental health risks)
Reactive	Proactive
Single-hazard	All-hazard
Hazard-focus	Vulnerability and capacity focus
Single agency	Whole-of-society
Separate responsibility	Shared responsibility of health and mental health systems
Response-focus	Risk management
Planning for communities	Planning with communities

UNDRR – 2030 Agenda

Paradigm Shift 3: from Risk Reduction to Capacity Building

**Strategic Approach to Capacity Development for
Implementation of the Sendai Framework for
Disaster Risk Reduction**

A Vision of Risk-Informed Sustainable Development by 2030



Summary 1: Opportunities and Challenges

Paradigm shifts

1. From response to comprehensive Disaster Management
2. From single agency to whole of government & whole community approach
3. From Risk reduction to Capacity Building

Hidden Underlying trends

- The encompassing impacts of technology particularly **digitization**
- The emergence of **layman responders**
- The need for **Soc-psychological EDRM**

Appropriate **Technology** is always emphasized
But technology cannot be separated from **Societies**



Yokohama Strategy:

5. The information, knowledge and some of the technology necessary to reduce the effects of natural disasters can be available in many cases at low cost and should be applied.

Appropriate technology and data, with the corresponding training, should be made available to all freely and in a timely manner, particularly to developing countries.

Advances of **Digital Technologies** -

https://en.wikipedia.org/wiki/Digital_Revolution

Original Developments (**1969–1989**)

- Home computers
- Invention of the Internet

Recent Developments (**1989–2005**)

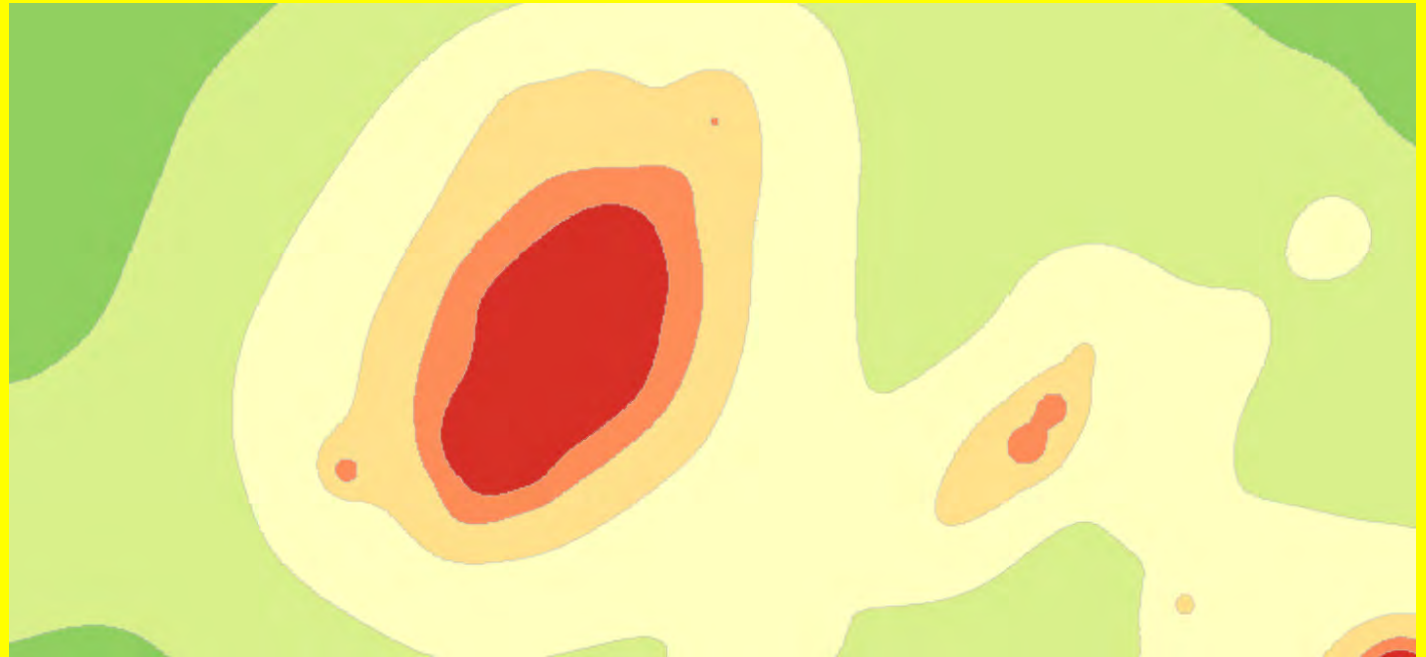
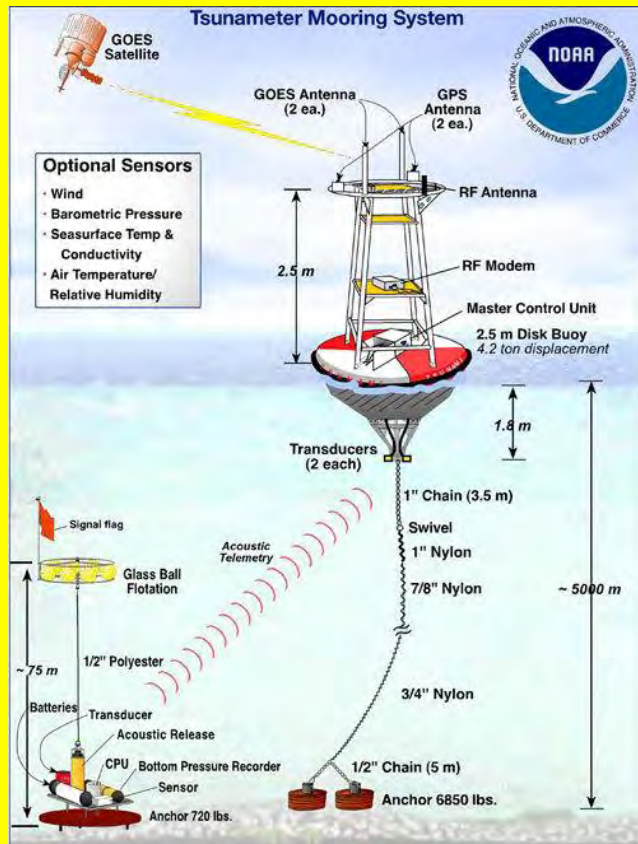
- Invention of the World Wide Web
- Remote sensing (RS)
- Geographical Information Systems (GIS)
- Global Positioning System (GPS)

Latest Developments (2006-present)

- **Social Media**
- **Smart phones**
- **Big Data**
- **Artificial Intelligence**
- **Deep learning**
- **Internet of Things (IoT)**

Early technologies applied to Disaster Management

- Remote Sensing: eg *Tsunameters*
- Geographical Information System



Environmental Systems Research Institute (ESRI) White Paper May 2000: **Contributions of GIS**

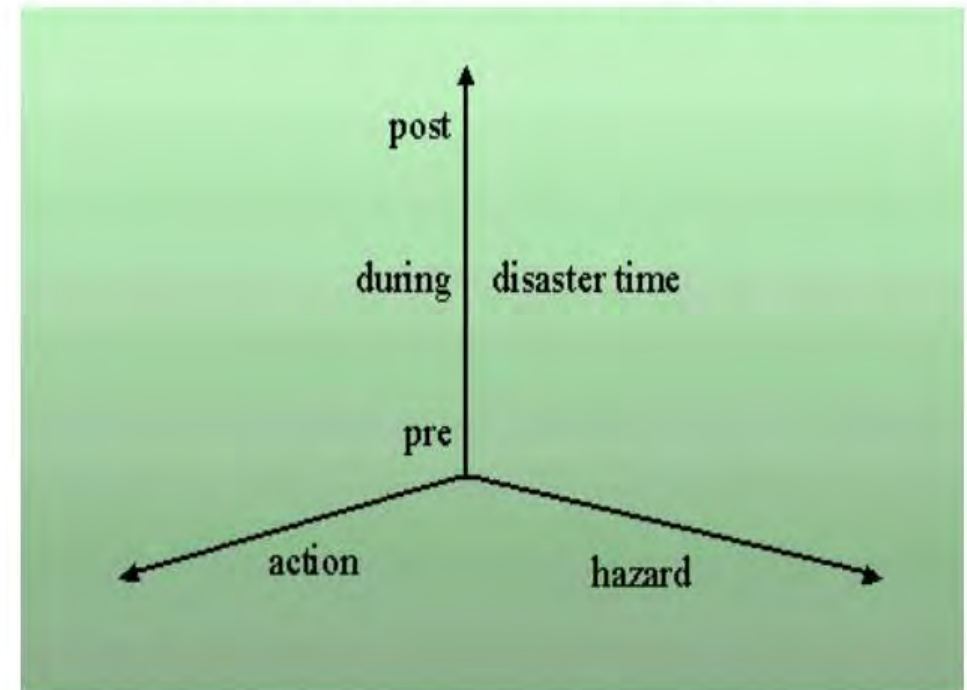
Natural Disasters

- Volcanos/ Earthquakes/ Tsunamis
- Landslides
- Fires
- Floods
- Tornadoes/ hurricanes/

Human induced Disasters

- Health related epidemics
- Social unrests/ wars
- Toxic spills/ explosions/ fires

A Paradigm for Geographic Information Science's Contribution to
Emergency Preparedness and Response



geographic information science and related technologies have already contributed to

Recent technologies applied to Disaster Management: **Social Media**

* [Houston_et_al_EARLY_VIEW_social_media_disasters.pdf](#)

Table 1. Functions of disaster social media

Disaster social media use	Disaster phase
Provide and receive disaster preparedness information	Pre-event
Provide and receive disaster warnings	Pre-event
Signal and detect disasters	Pre-event → Event
Send and receive requests for help or assistance	Event
Inform others about one's own condition and location and learn about a disaster-affected individual's condition and location	Event
Document and learn what is happening in the disaster	Event → Post-event
Deliver and consume news coverage of the disaster	Event → Post-event
Provide and receive disaster response information; identify and list ways to assist in the disaster response	Event → Post-event
Raise and develop awareness of an event; donate and receive donations; identify and list ways to help or volunteer	Event → Post-event
Provide and receive disaster mental/behavioural health support	Event → Post-event
Express emotions, concerns, well-wishes; memorialise victims	Event → Post-event
Provide and receive information about (and discuss) disaster response, recovery, and rebuilding; tell and hear stories about the disaster	Event → Post-event
Discuss socio-political and scientific causes and implications of and responsibility for events	Post-event
(Re)connect community members	Post-event
Implement traditional crisis communication activities	Pre-event → Post-event

Recent technologies applied to Disaster Management: **Big Data**

4 ways Big Data is revolutionizing emergency management

- **Crisis mapping**
- **Connecting missing people with families**
- **Social Media Mining**
- **Event simulations**
- It uses the analysis of **community information** in **real-time** to assist those in need and those looking for loved ones lost in disasters.
 - <https://safetymanagement.eku.edu/blog/4-ways-big-data-is-revolutionizing-emergency-management/>

Benefits of **Digital responders** (a drone) are:

- Faster than human movements, can assess damage in real time,
- Stronger than human strengths, smaller than human size, can go anywhere
- Sharper sights with High resolution mapping and Better memories
- reaching more people, sooner, more cost-effectively, and saving more lives.

Critical Rescue and medical treatment

- In addition, **infrared cameras** and **advanced listening systems** enable UAVs **to uncover survivors** from rubble or among flames and live-stream night footage, increasing the success of **critical rescue** efforts.
- tele-medicines allow immediate services, provide digital medical records, and tele-mental health

Example 1 use of UAV: Global non-profit WeRobotics' programme, AidRoboti, Flying Labs™

- Following extensive flooding in 2017, its Peru Flying Labs formed the Mission PIURA multi-stakeholder consortium to create high-resolution aerial images of more than 7,000 hectares (nearly 17,300 acres) in just three days.
- These maps provided humanitarian agencies with a detailed understanding of the region including infrastructure damage, locations of stranded communities, safe areas for resettlement, and efficient routes for aid delivery.
- Digital elevation models enabled the government to continually monitor water level changes throughout the region.

Example 2: Cloud connectivity

- **Cisco's Tactical Operations** (TacOps), for example, takes advantage of the latest **mobile networking technology**, including **cloud-controlled Meraki technology**, to establish connectivity when disaster strikes. The **TacOps team**, supported by **a global network of volunteers**, has responded to **45 disasters on six continents**, from the refugee crisis in Uganda or Nepal's 7.8 earthquake to Puerto Rico's Hurricane Maria, since 2005, .
- **Ushahidi**, an open-source crisis-mapping software created a database of geotagged and time-stamped reports gathered via email, SMS, or tweets. From this information, it **builds a comprehensive, real-time picture** of what is happening on the ground.

Example 3: GIS+SMS

- the **World Food Programme (WFP)** is challenged to assist 80 million people across 80 countries worldwide each year, moving three million tons of food. WFP's [Mobile Vulnerability Analysis and Mapping \(mVAM\)](#) uses mobile technology to address the barrier of aggregate and manual data collection
- The WFP and Cisco partnered to explore **the use of SMS and voice response technology (IVR) to collect data directly** from beneficiaries, making it possible to gather responses from some of the world's most vulnerable communities rapidly and in an affordable way.

Example 4: Visualization

- the American Red Cross' RC View, built on the ESRI data **visualization platform**. informs situational awareness by providing crucial data on water levels, shelter mapping (locations, number of available beds), road closures and more.

Example 5: use of Social media

- In Puerto Rico, global non-profit [NetHope](#) has partnered with Facebook to provide enhanced disaster response by effectively targeting social media audiences.
- **Complex data analytics** enable the organization to target the **right messages to the right audiences**, including information from third parties such as **FEMA, Doctors Without Borders, and local non-profits.**

Summary: increase situational awareness

- Mobile solutions, social media and crowd sourcing breaks down barriers to enable connectivity when we need it most

Implications of Digital Technologies for Disaster Social Work the case of China

- **Example 1: Social Work Intervention in Wuhan**

- The City of Wuhan with a population of over 11 million, was locked down on **January 23, 2020** due to the outbreak of a novel corona virus, later named the COVID-19 by WHO.
- **Confirmed cases = 50333, and Deaths = 3869**
 - Up to April 17, 2020, (XinhuaNet, 2020-04-17 11:14:53).

Community Workers as first responders

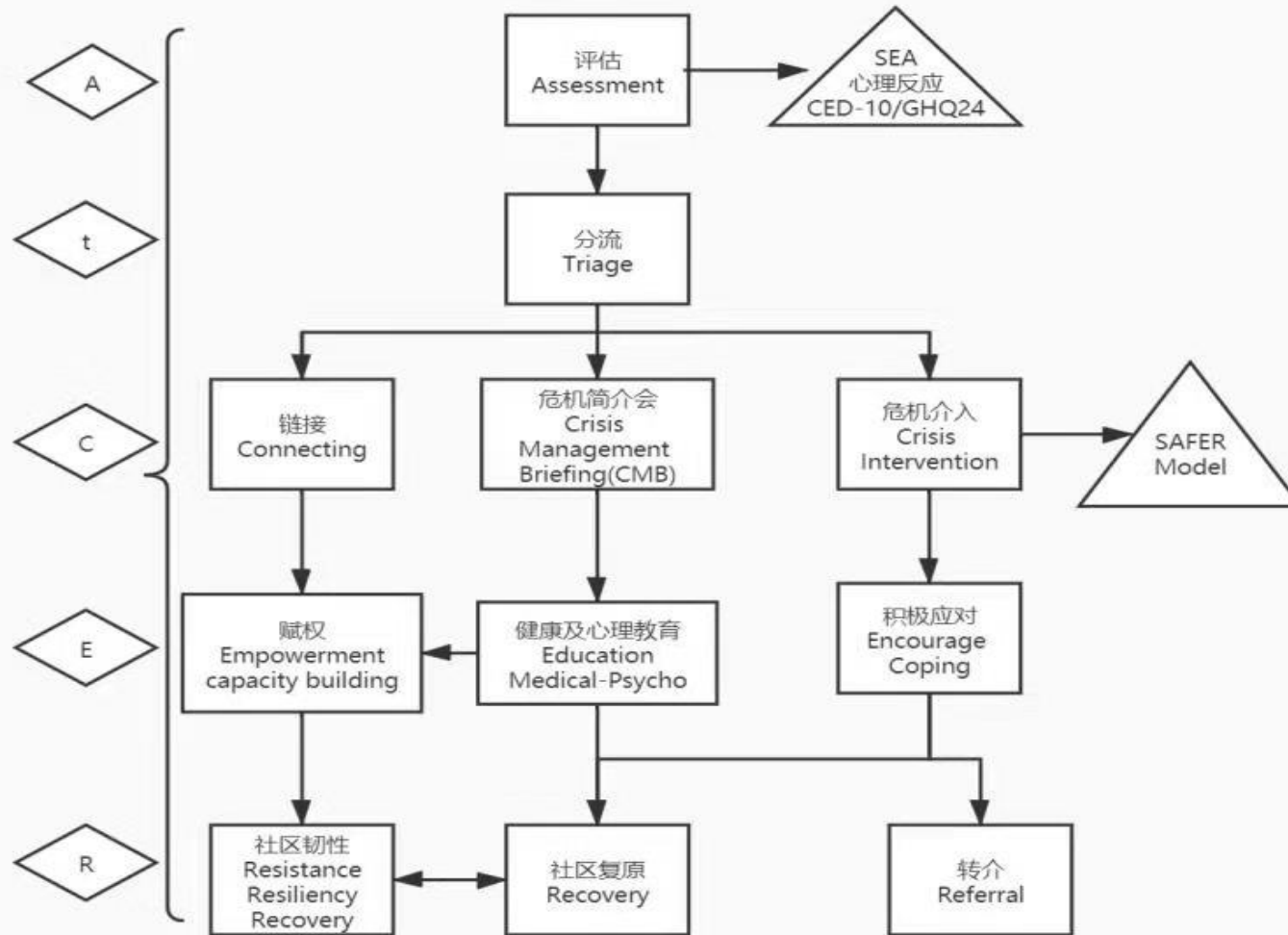
- Social workers in Wuhan were promptly mobilized into community actions. They manned the estate checking points to enforce social isolation for districts with reported confirmed cases.
- They were deployed to reach out to the vulnerable groups bringing food and daily supplies to older and sick people;
- These semi-professional social workers became the primary force of post-disaster social and psychological support services.

The Good Companion Response Team, Yu, Guo & Shen (2020). A special Project of **CASWE**

- **Distant Counseling Services Model**, use of social media
 - Leading Social Worker + Psychological Counselor + Medical volunteer + SW Assistant + Ground volunteer
- 488 volunteers, 36 wechat groups, 4695 participants, 961 cases, 45890 hours. [tps://wx2.qq.com/cgi-bin/mmwebwx-bin/webwxgetvideo?msgid=1901781812998766073&skey=%40crypt_a9f22d43_8e2605c191edbe2a8bcb9a338e3fc188](https://wx2.qq.com/cgi-bin/mmwebwx-bin/webwxgetvideo?msgid=1901781812998766073&skey=%40crypt_a9f22d43_8e2605c191edbe2a8bcb9a338e3fc188)



Example 2: Hybrid Community SW Intervention AtCER (IASSW-AIETS)



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Innovations In Community Crisis Intervention — Adopting The ACT And AtCER MODEL In The COVID-19 Outbreak

Home / COVID-19 / Innovations In Community Crisis Intervention...

News & Updates

- Crisis Intervention during COVID-19 by Trainee Social Worker at Department of Social Work, University of Delhi (India) April 7, 2020
- Multi-dimensional Participation in Combating with COVID-19: Experiences From The Department of Social Work and Social Policy At Renmin University of China (RUC) April 7, 2020
- Impacts of Covid 19 among international students at Delhi

Prepared by
Mr. Johnston H. C. Wong
Social Work and Social Administration Programme

Example 3: Social Work Crisis Intervention Training and Supervision

Social Workers Across Borders (SWAB),

- Advocacy for SW Response
- Crisis Intervention Training
- **Trauma informed Supervision**
- Innovative Community Crisis Intervention
- Promotion of SoPsy EDRM

Example 4: NCP (New Coronavirus Pneumonia) Life Support Network. Heavy rain fall on July 20, 2021, in Zhengzhou

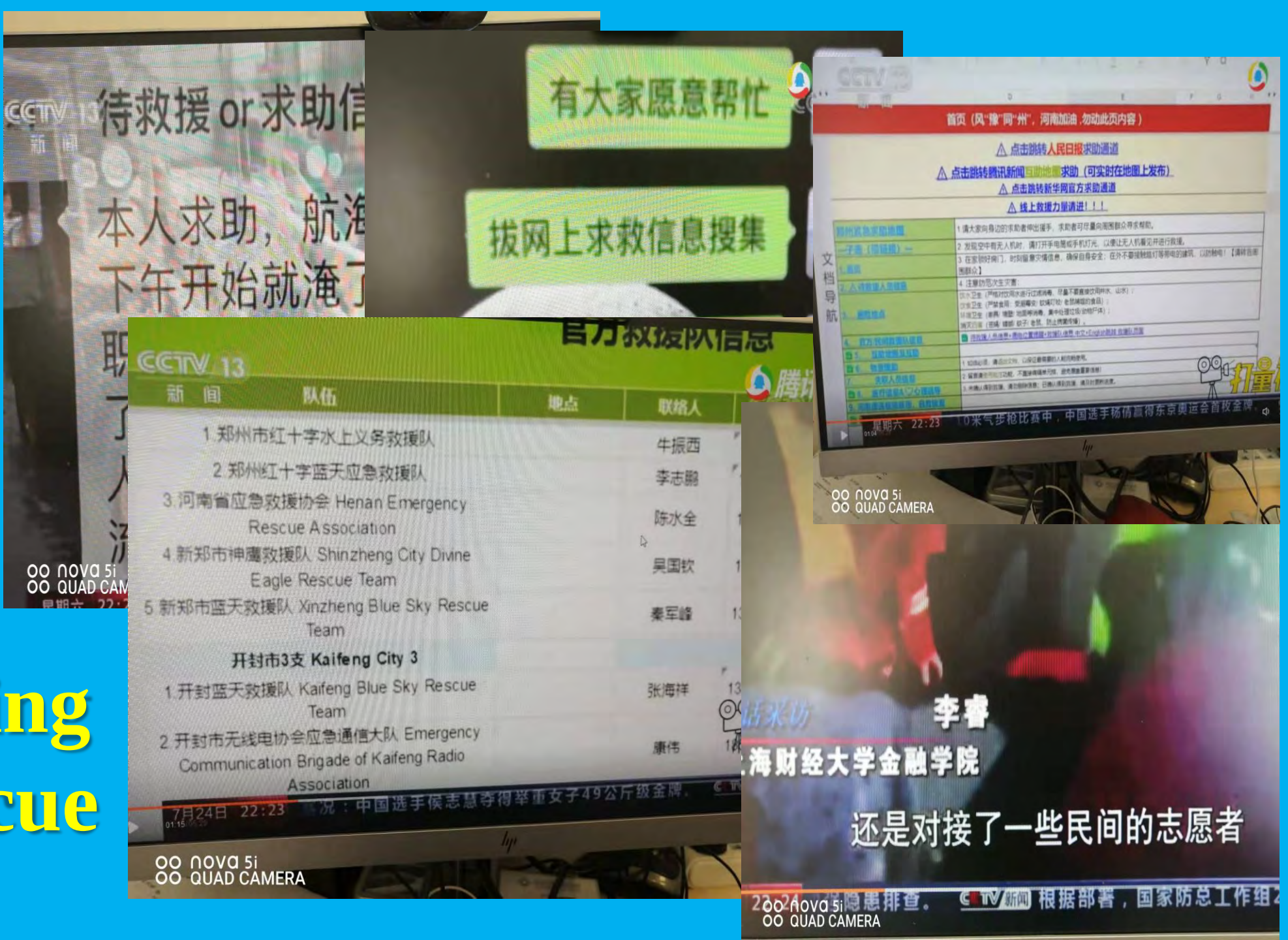


380 people died in the city flood,
12 died in the Metro.



@平原公子赵胜

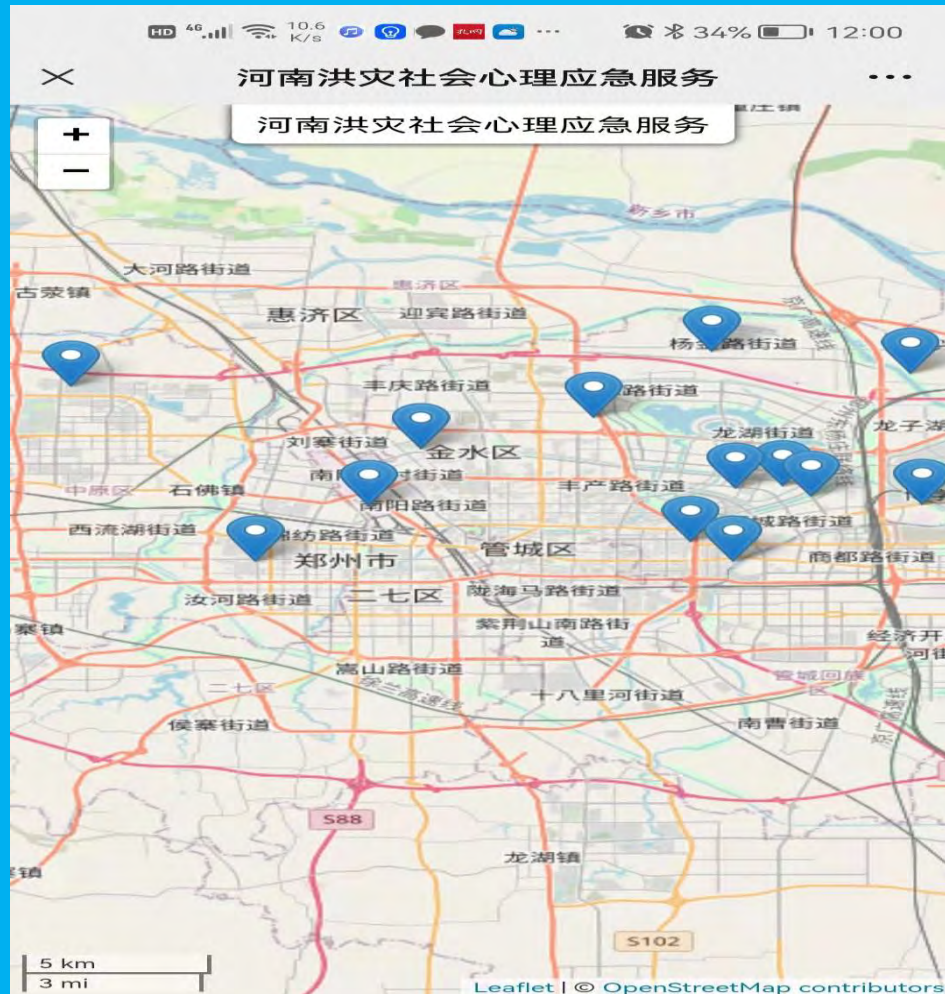
Social Media Matching for rescue



Disaster Digital Connections

- Strangers volunteers were formed into teams
- Connecting trapped people with rescue team;
- Connecting people who are starving with restaurants or food store donors;
- One team has recorded over 100,000 requests for help in 2 days.

Example 5: Zhengzhou SW services centers GIS+ Hybrid Counseling a project of CSWA



- Social work service units opened as temporary shelters and provide distant and in person counseling and information services.

Digital Disaster Social Work will not go away

Sharing platforms to fight against Omicron



珠海儿童福利院社工分享会

守护儿童，托起希望

——隔疫不隔情，隔离不隔爱

讲座内容：

1. 儿童福利院的社工介绍疫情期间的的工作和孩子们平常生活的情况。
2. 社工们分享关于抗疫期间这个岗位的作用和在社会福利中心工作的感受。

主持人：林炜乔（SWSA专学会会长）

时间：2020年3月21日（周六）晚七点

地点：ZOOM

主办单位：北师港浸大社会工作与社会行政专业学会

协办单位：北师港浸大社会工作与社会行政专业及社会管理研究与服务中心

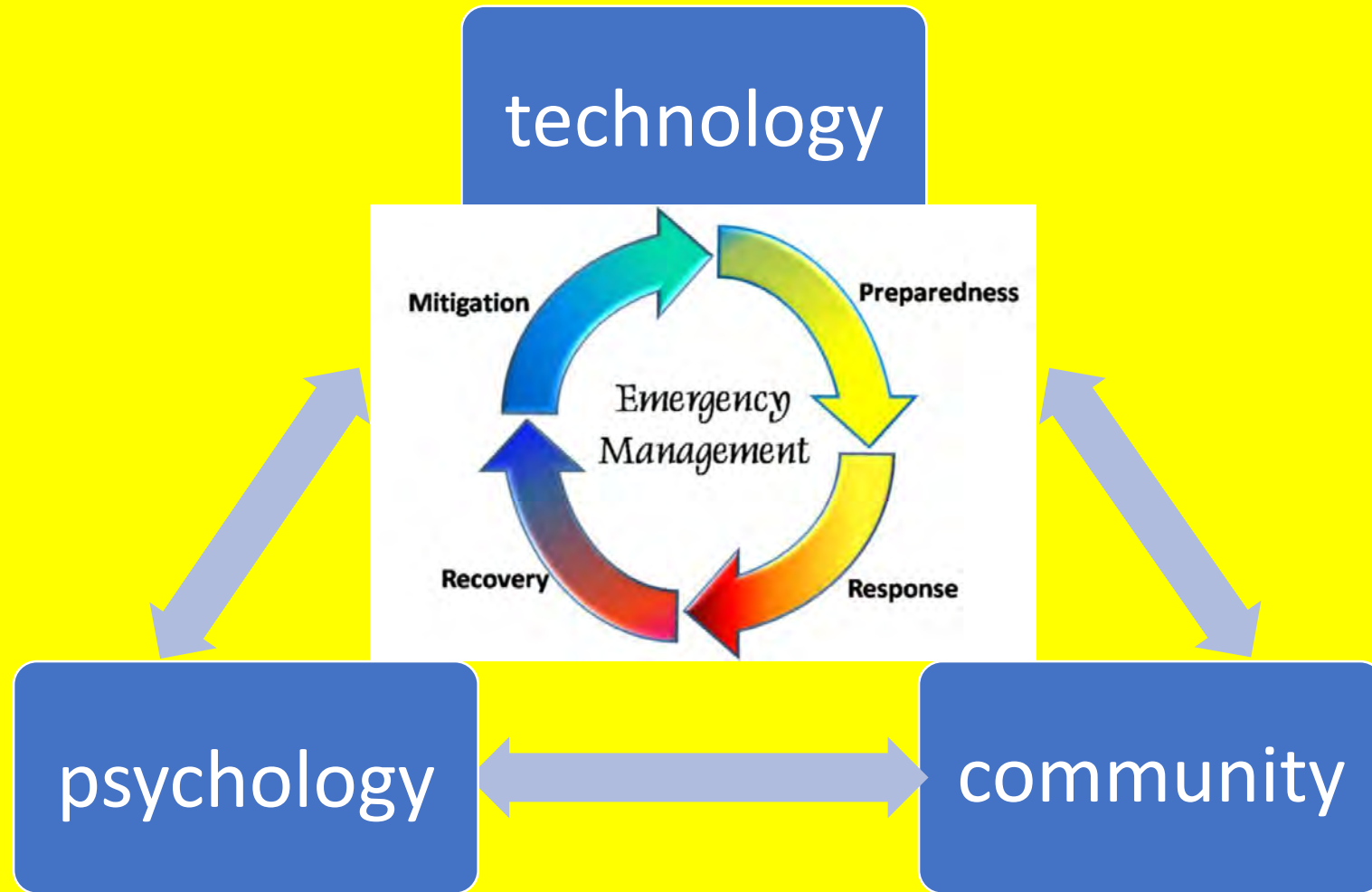
扫二维码进群哦！

Summary: Digital Disaster Social Work is pushed to the front line

1. SW Disaster Responses has fallen into the **Digital Era**
2. It was **pushed to the front line** by **community crisis and lay voluntary responders**
3. It became part of **Rescue, Relocation & Relief**, as **first responders**, not confining to social psychological support
4. It quickly adapted to **hybrid service modes** of Online Training, Data Mining, Digital Information giving, GIS, E-Counseling, E-Assessment and cCBT

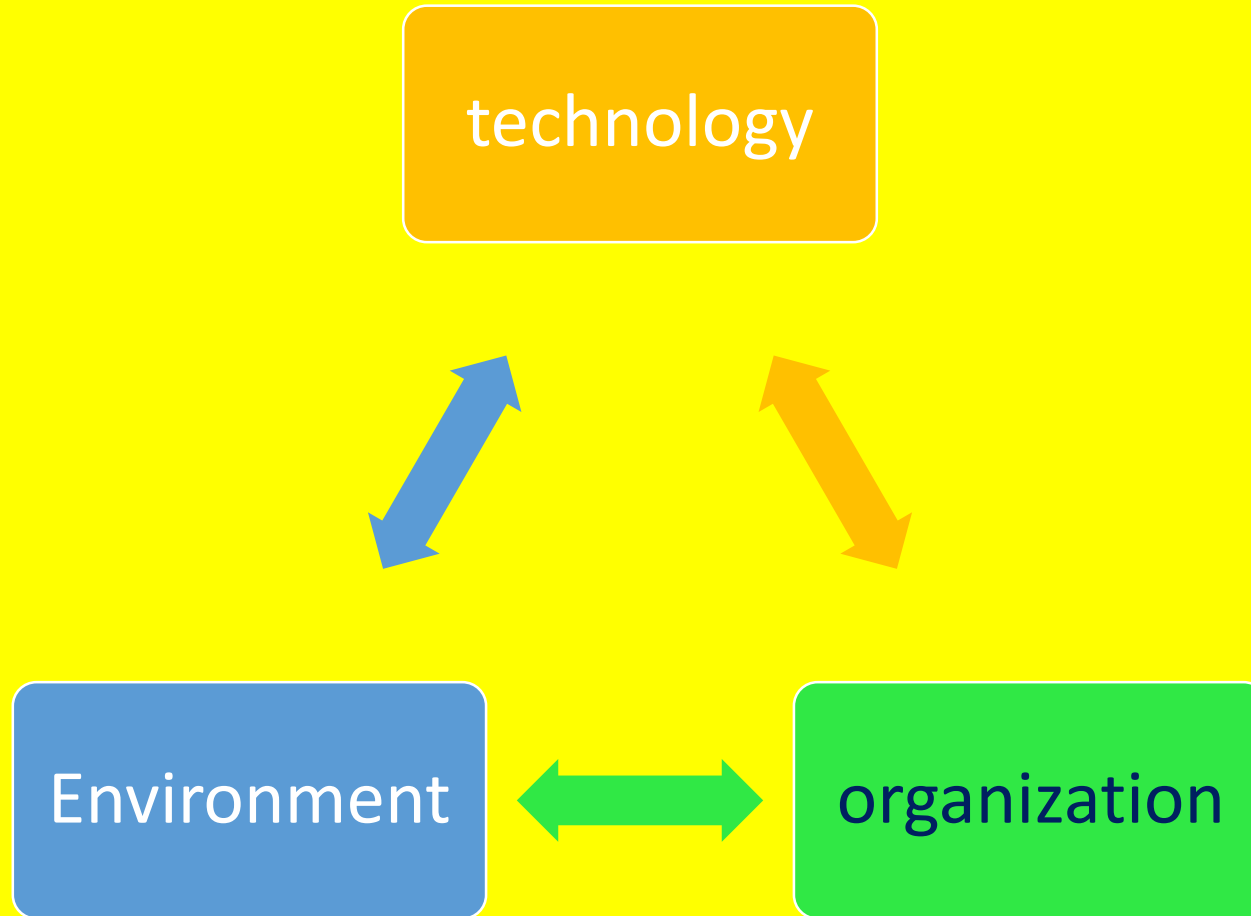
Implications: Disaster-Scape:

Governance=Technology + Community + Psychology



Challenges: we are not prepared

T-O-E analysis



Social Workers and Digitization

Technology - digital	Social Workers Lack digital knowledge and software skills Social work services seldom develop digital platforms
Technology - statistical	Social Workers Lack in depth training in statistical analysis Social work services seldom develop social service database
Environment - Technical	China has high subscriptions of smart phones China has high availability of free WIFI and internet access
Environment - Human	Vulnerable groups may face digital divide Older people needs training in obtaining digital information
Organization - Individual	Social Workers are inclined to face to face interactions Social Workers are not trained in emergency and crisis interventions
Organization - Collective	Social work professionals are weak in cross-domain Interoperability Social work agencies have inadequate resources and flexibilities

Conclusions

- Roberts, Misra, & Tang (2021). Crisis Governance, Emergency Management, and the Digital Revolution (interview w UK Emergency Managers) discovered that:
 - Digital technologies have fundamentally altered emergency and crisis management work through increased potential for **role ambiguity, role conflict, distraction, and overload**
- Perhaps it also applies to Digital Disaster Social Workers.
- However, digital confusions could only be solved by digital innovations and inventions.
- **If we can't beat them, join them.**