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## HADR in the Time of the 4th Industrial Revolution



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With the dawn of the 4th Industrial Revolution (IR) in Southeast Asia, it seems timely to assess the current state of humanitarian affairs in the region and how they may be affected by this significant disruption. Southeast Asia is one of the most disaster-prone regions in the world, with some of the most devastating global disasters of the 21st century- the 2004 Indian Ocean Tsunami, Cyclone Nargis in 2008 and Typhoon Haiyan in 2013- having taken place here. Together with climate change and the increased global uncertainty, the region is facing more humanitarian challenges than ever before. As such, the 4th IR and its characteristic advanced information systems and future-oriented technologies could be used to enable the region to further enhance its humanitarian mechanisms.

Artificial intelligence, big data, advanced robotics and blockchain- these are all hallmarks of the 4th Industrial Revolution, as well as technologies that the ASEAN member-states are extremely eager to adopt. Particularly useful for the humanitarian sector in the region, 4th IR technologies can be used to lessen the effects of humanitarian disasters as well as aid in recovery. Mobile networks can allow access to life-saving information or even content for educating children without access to formal systems. They can also be used to better coordinate relief efforts and recovery efforts. For example, Indonesia's National Disaster Management Agency (BNPB) has collaborated with Jakarta-based company Qlue to use their app to allow people on the ground to report and map city damage during the floods in Bima and Nusa Tenggara, which were then followed up by officials. This sped up

the recovery period significantly. However, this relies heavily on internet and mobile access--access which may not always be available.

One of the biggest proponents of 4th IR technologies are, perhaps not unsurprisingly, militaries. Unlike other regions, militaries in Southeast Asia form the backbone of state response to humanitarian disasters. As seen by the 2019 expansion of the partnership between Singapore's Defence, Science and Technology Agency and the US Joint Artificial Intelligence Centre to include cooperation in developing AI capability to support HADR operations, they are also increasingly eager to adopt these new possibilities.

On the other hand, this adoption of advanced information systems and technologies must be explored with caution. With the advances in data management, data sharing across space and time has be-

come easier. This has also made data gathering and analysis easier for those who work in HADR, by nature a trans-boundary field. While useful in the humanitarian context, this gathered data is also likely to contain sensitive and strategically-valuable information, which could be used by actors who are not bound by humanitarian principles.

The 2018 discovery of the vulnerabilities of Red Rose, a popular aid distribution system used by several INGOs including Oxfam, is a stark reminder of the possibilities of data leakage of already-vulnerable populations. In this age of constant data breaches, how certain are humanitarian organisations that they are able to keep this valuable data safe in the face of actors actively attempting to exploit vulnerabilities in their systems?

The 4th IR has the power to disrupt every area of human life- from society to the economy. Breathing life into what was formerly only theoretical, its technologies also have the potential to improve the lives of the millions affected by humanitarian disasters. However, humanitarian actors must take care not to adopt advanced technologies wholesale without thorough consideration of its potential implications. If used strategically and carefully, the age of the 4th Industrial Revolution will indeed prove a boon for the HADR sector.

## Suggested Readings

- Raymond, NA, Scarnecchia, DP & Campo, SR 2017, 'Humanitarian data breaches: The real scandal is our collective inaction', *The New Humanitarian*
- World Economic Forum 2019, 'Civil society in the Fourth Industrial Revolution: Preparation and response', *World Economic Forum*
- ICRC 2019, 'Rewards and risks in humanitarian AI: An example', *ICRC blog*
- Willitts-King, B Bryant, J & Holloway, K 2019, 'The Humanitarian 'Digital Divide'', *Overseas Development Institute*

## CLIMATE SECURITY

## NEWS &amp; COMMENTARIES

**Melaka govt takes measures to boost water security in bid to solve state's water supply**

*Malay Mail*

12 February 2020

**Australian fires 'contained' for first time in New South Wales**

*Emma Reynolds*

*CNN*

13 February 2020

**Deepwater Horizon disaster had much worse impact than believed, study finds**

*Edward Helmore*

*The Guardian*

13 February 2020

**Climate change pushes January 2020 to hottest in 141 years**

*Eric Roston*

*Bloomberg*

14 February 2020

**Climate change: Why do Western environmental crises get more media attention than Asian ones?**

*Chandran Nair*

*South China Morning Post*

15 February 2020

**UN chief calls for greater global efforts to tackle climate change**

*Mu Xuequan*

*Xinhua*

17 February 2020

## SELECTED PUBLICATIONS

**Accelerating the low carbon transition: The case for stronger, more targeted and coordinated international action**

*David G. Victor, Frank W. Geels, Simon Sharpe,*

*Brookings*

2019

**Achieving abundance: Understanding the cost of a sustainable water future**

*Colin Strong, Samantha Kuzma, Samuel Vionnet, and Paul Reig,*

*World Resources Institute*

2020

## EVENTS &amp; ANNOUNCEMENTS

**International Mother Earth Day**

22 April 2020

Worldwide

**6th International Climate Change Adaptation Conference**

27-30 April 2020

New Delhi, India



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## ENERGY SECURITY

## NEWS AND COMMENTARIES

**Electric shock: China power demand drops as coronavirus shuts plants**

*Reuters*

*Yahoo News*

14 February 2020

**ASEAN's future power source**

*ASEAN Post*

14 February 2020

**Countries to provide US\$20 million to IAEA Nuclear Security Fund**

*Inna Pletukhina*

*IAEA News*

17 February 2020

**Fusion research in Southeast Asia**

*IAEA News*

17 February 2020

**India may give reprieve to solar projects delayed by coronavirus fallout**

*Nidhi Verma and Promit*

*Mukherjee*

*Reuters*

18 February 2020

**UAE loads fuel rods at Arab's first nuclear power plant**

*AFP*

*Yahoo News*

19 February 2020



Courtesy of Flickr account of [Jeanne Menjoulet](#) and used under a creative commons license.

**SELECTED PUBLICATIONS**

**IAEA bulletin: Nuclear security**  
*International Atomic Energy Agency*  
 Vienna: IAEA  
 2020

**Initiating nuclear power programmes: Capabilities and responsibilities of owners and operators**  
*International Atomic Energy Agency*  
 Vienna: IAEA  
 2020

**EVENTS AND ANNOUNCEMENTS**

**National Energy Efficiency Conference 2020**  
 26-27 May 2020  
 Melbourne, Australia

**7th International Conference on Nuclear and Renewable Energy Resources**  
 20-23 September 2020  
 Ankara, Turkey

**FOOD SECURITY**



Courtesy of Flickr account of olly301 and used under a creative commons license.

**SELECTED PUBLICATIONS**

**FAO framework for the Urban Food Agenda**  
*UN FAO, Rome: Food and Agriculture Organization of the United Nations*  
 2019

**Sustainable food system assessment: Lessons from Global Practice**  
*Alison Blay-Palmer et al. (Eds)., London: Routledge*  
 2020

**NEWS & COMMENTARIES**

**The outlook of Agritech: Agriculture is ripe for disruption**  
*Nidya Ramalia Novita Medium and The Jakarta Post*  
 24 January 2020

**Amid the coronavirus outbreak, China is now also fighting deadly bird flu in chickens**  
*Paulina Cachero Business Insider US*  
 10 February 2020

**\$9 cabbages, emergency pork: Coronavirus tests china on food**  
*Raymond Zhong The New York Times*  
 5 February 2020

**Global food markets need buffer against China's gyrations**  
*Nikkei Editorial Nikkei Asian Review*  
 12 February 2020

**Supermarkets restock shelves after coronavirus concerns lead to queues; some say hoarding is 'ridiculous'**  
*Michelle Ng The Straits Times*  
 8 February 2020

**Coronavirus outbreak spurs hoarding in Asia**  
*Shashank Bengali and Ralph Jennings Los Angeles Time*  
 12 February 2020

**EVENTS & ANNOUNCEMENTS**

**Nutrition-Sensitive Agriculture Design Guide: Practical Guidance For Implementing Partners**  
 26 February 2020  
 Online (Webinar)

**Global Food Security Symposium**  
 26 March 2020  
 Washington, DC, USA



Courtesy of Flickr account of World Fish and used under a creative commons license

**HEALTH SECURITY**



Courtesy of Flickr account of Al Jazeera English and used under a creative commons license.

**SELECTED PUBLICATIONS**

**Other considerations than: how much will universal health coverage cost?**  
 Sarah L Barber et al.,  
*Bulletin of the World Health Organisation*, Vol. 98, No. 2  
 2020

**Developing the health workforce for universal health coverage**  
 Giorgio Cometto et al.,  
*Bulletin of the World Health Organisation*, Vol. 98, No. 2  
 2020

**NEWS & COMMENTARIES**

**Amid the coronavirus outbreak, China is now also fighting deadly bird flu in chickens**  
 Pauline Cachero  
*Business Insider*  
 10 February 2020

**Women face some unique risks for heart disease. Here are symptoms to look out for**  
 Audrey McNamara  
*CBS News*  
 11 February 2020

**Coronavirus: How disinfectants and hot, humid weather can keep virus away**  
 Audrey Tan  
*The Straits Times*  
 10 February 2020

**Coronavirus disease named Covid-19**  
 BBC  
 12 February 2020

**Coronavirus death toll tops 1100 as China reports more than 90 new deaths**  
 CBS  
 11 February 2020

**Coronavirus: South Korea steps up measures as infections spike**  
 BBC News  
 21 February 2020

**EVENTS & ANNOUNCEMENTS**

**3rd International Conference on Research in Life-Sciences & Healthcare (ICRLSH)**  
 28-29 March 2020  
 Singapore

**The Asian Symposium on Water, Sanitation and Hygiene WASH 2020**  
 28-29 March 2020  
 Osaka, Japan



Courtesy of Flickr account of CDC Global and used under a creative

**HUMANITARIAN ASSISTANCE AND DISASTER RELIEF**

**NEWS & COMMENTARIES**

**Six trends that will shape the future of humanitarian action**  
 United Nations OCHA  
 20 January 2020

**Behind the Headlines: 10 Crises to Watch**  
 The New Humanitarian  
 30 January 2020

**The cyber attack the UN tried to keep under wraps**  
 Ben Parker  
 The New Humanitarian  
 29 January 2020

**Philippines government issues first ever catastrophe funds**  
 Philippine Information Agency (PIA)  
 2 February 2020



Courtesy of Flickr account of US Army and used under a creative commons license.

**Disasters displace more people than conflict and violence**

Patrick Fuller  
UNDRR  
3 February 2020

**PulseSatellite: A collaboration tool using human-AI interaction to analyse satellite imagery**

Felicia Vacarelu  
UN Global Pulse  
10 February 2020

**SELECTED PUBLICATIONS**

**Climate and disaster displacement: The importance of disaster law and policy - Factsheet**  
International Federation of Red Cross and Red Crescent Societies (IFRC)  
2020

**Urban resilience to climate extremes in South-east Asia (URCE)**  
Asian Disaster Preparedness Center (ADPC)  
2020



Courtesy of Flickr account of Jeffrey Pioquinto, SJ and used under a creative commons license.

**EVENTS & ANNOUNCEMENTS**

**Disaster Recovery Institute International Annual Conference (DRI 2020)**  
29 February-4 March 2020  
Savannah, Georgia

**3rd International Workshop on Disaster Resilient Infrastructure (IWDR)**  
19-20 March 2020  
New Delhi, India

**MIGRATION**



Courtesy of Flickr account of ILO Asia Pacific and used under a creative commons license.

**High court rules Aboriginal Australians are not 'aliens' under the constitution and cannot be deported**

Paul Karp  
The Guardian  
11 February 2020

**Time to amend hukou, tackle mass migrations: China Daily contributor Li Tie**

The Straits Times  
13 February 2020

**SELECTED PUBLICATIONS**

**A voice in their future: The need to empower Rohingya refugees in Bangladesh**

Daniel P. Sullivan,  
Refugees International  
2020

**World population: 2020 overview - analysis**

Joseph Chamie,  
Eurasia Review  
2020

**NEWS & COMMENTARIES**

**Why Rohingya women and girls are risking dangerous smuggling routes**

Caleb Quinley  
The New Humanitarian  
16 January 2020

**Commentary: A UN ruling has decided that climate refugees is a thing**

Yvonne Su  
Channel News Asia  
3 February 2020

**Climate migrants still face 'immense disaster'**

Alex Kirby  
Eco-Business  
23 January 2020

**Population, climate, and politics—a new phase is emerging**

Jack A. Goldstone  
New Security Beat  
5 February 2020

**EVENTS & ANNOUNCEMENTS**

**Twentieth International Conference on Diversity in Organizations, Communities & Nations**  
10-12 June 2020  
Milan, Italy

**International Conference on Refugee and Forced Migration Studies**  
27-28 August 2020  
Sydney, Australia