DISASTER MANAGEMENT AND EVACUATION UNDER COVID-19 IN TAIWAN

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CECAR9
CIVIL ENGINEERING CONFERENCE IN THE ASIAN REGION
INFRACADE PATHWAY

TC21
Transdisciplinary Approach (TDA)
for Building Societal Resilience to Disasters

OUTLINE

- Introduction
- COVID-19 in Taiwan
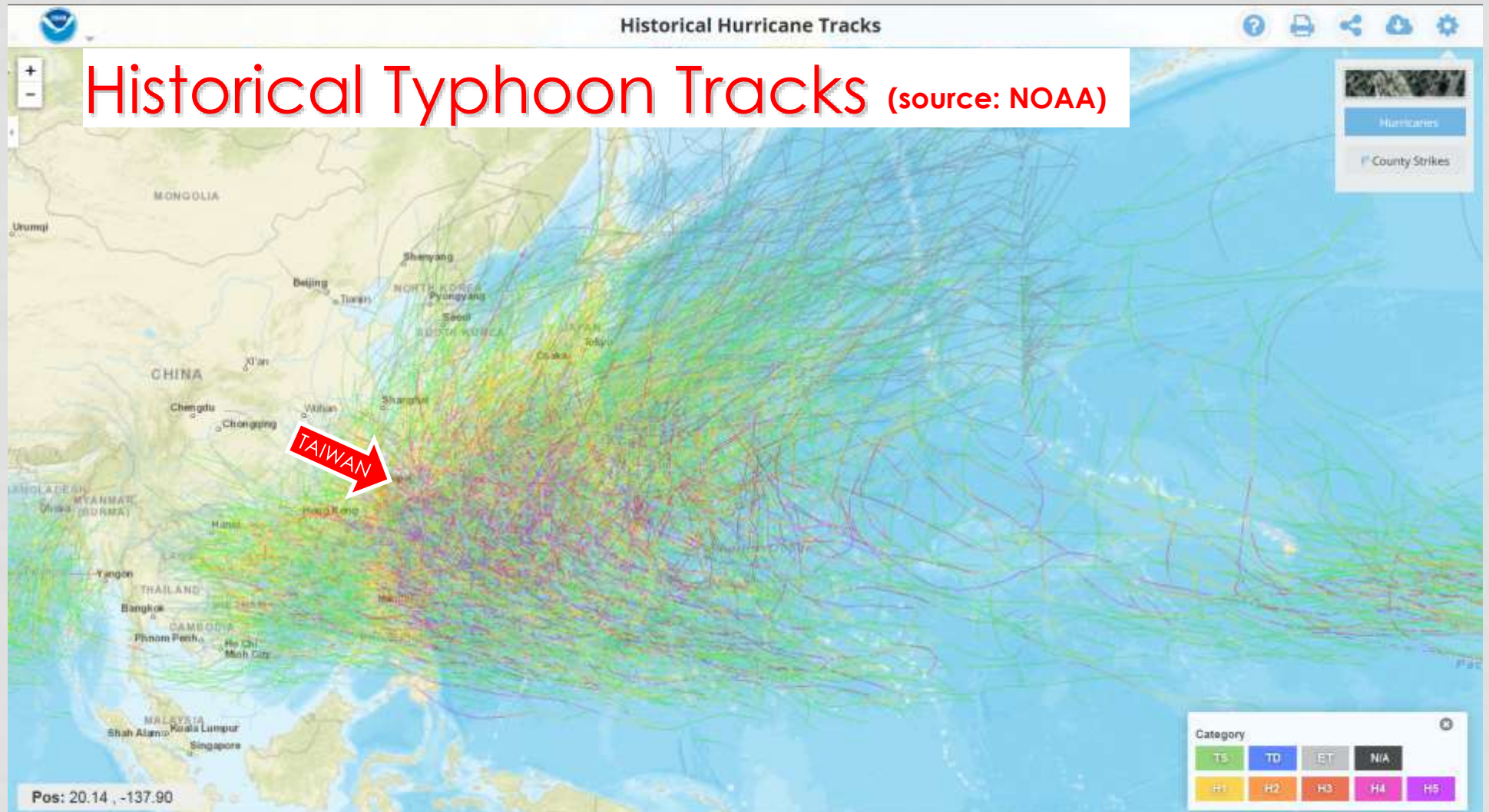- New Normal in Taiwan under COVID-19
- Evacuation and Shelter Management under COVID-19
- QR-Code Contact Based Registration System (& it's successor)
- Conclusions

INTRODUCTION

Historical Typhoon Tracks (source: NOAA)

02

COVID-19 in Taiwan

COVID-19 in Taiwan

COVID-19 DASHBOARD (Sep. 15, 2022)

切換至中文版

Views: 30,696,311

Updated on Sep-15

India: 44,502,363
Japan: 20,209,163

COVID-19 Map

609,031,330
Global cases
+ 509,845 ↑ 0.08%

5,849,748
Taiwan cases
+ 45,470 ↑ 0.78%
Deaths: 10,423

93.28%
TW vaccinated
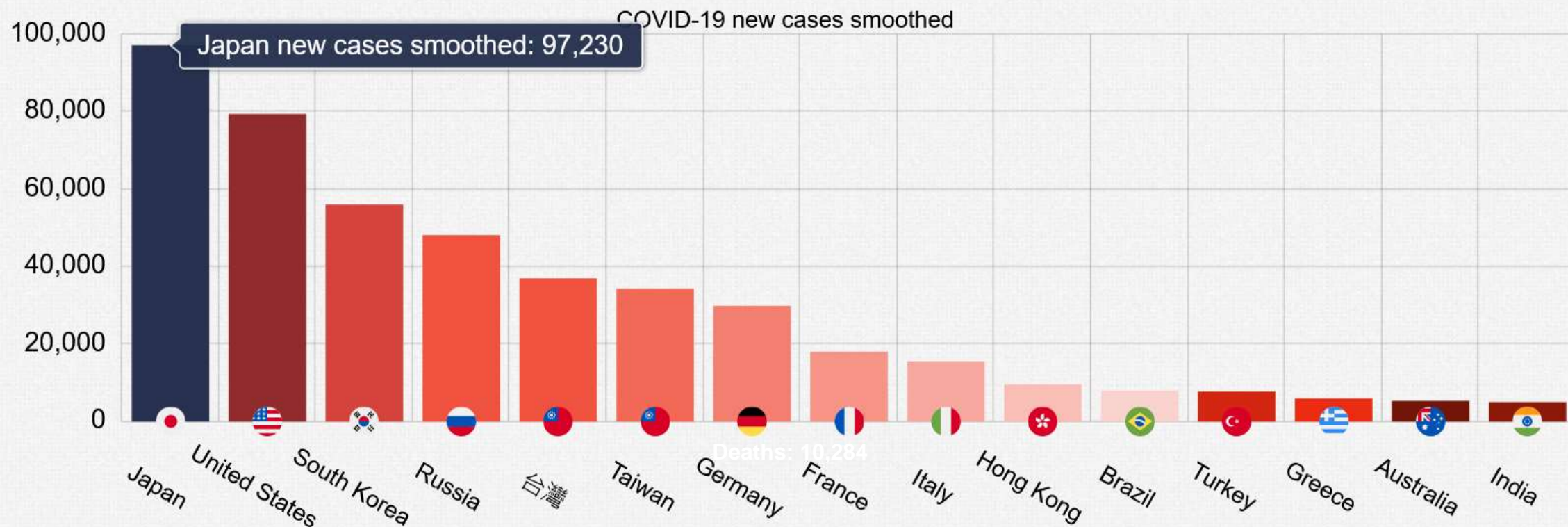2nd-dose 87.13%

City cases
Town level

Source: https://covid-19.nchc.org.tw/

COVID-19 in Taiwan

7 DAY AVERAGE NEW CONFIRMED

[More detail]

(Sep.8~14, 2022)

COVID-19 new cases smoothed

Japan new cases smoothed: 97,230

Deaths: 10,284

Source: https://covid-19.nchc.org.tw/

COVID-19 in Taiwan

Concentrated in Taipei Metropolitan area

Source: https://covid19.colife.org.tw/3dmap/
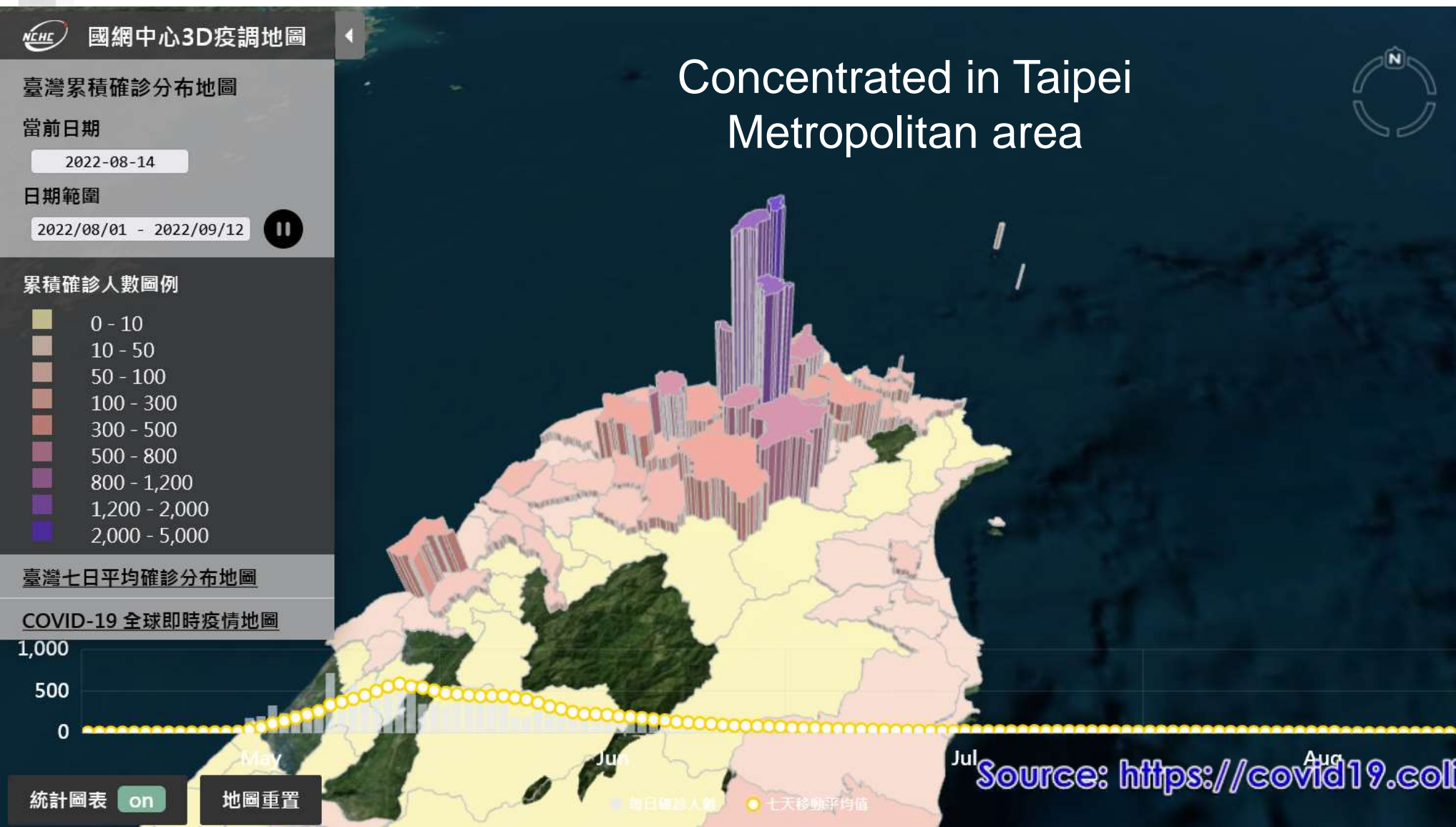
COVID-19 in Taiwan (2021)

TAIWAN COVID-19 TOTAL CASES

Click here for more backlog detail

Taiwan Total confirmed and death, updated on 2021-08-01

Flood (typhoon) season begins

2021-08-01: 15,688 , Confirmed
2021-08-01: 13,972 , Recovered
2021-08-01: 1,716 , Activated
2021-08-01: 789 , Death

15,070

Jan., 2021
May., 2021

— Confirmed — Death — Recovered — Activated
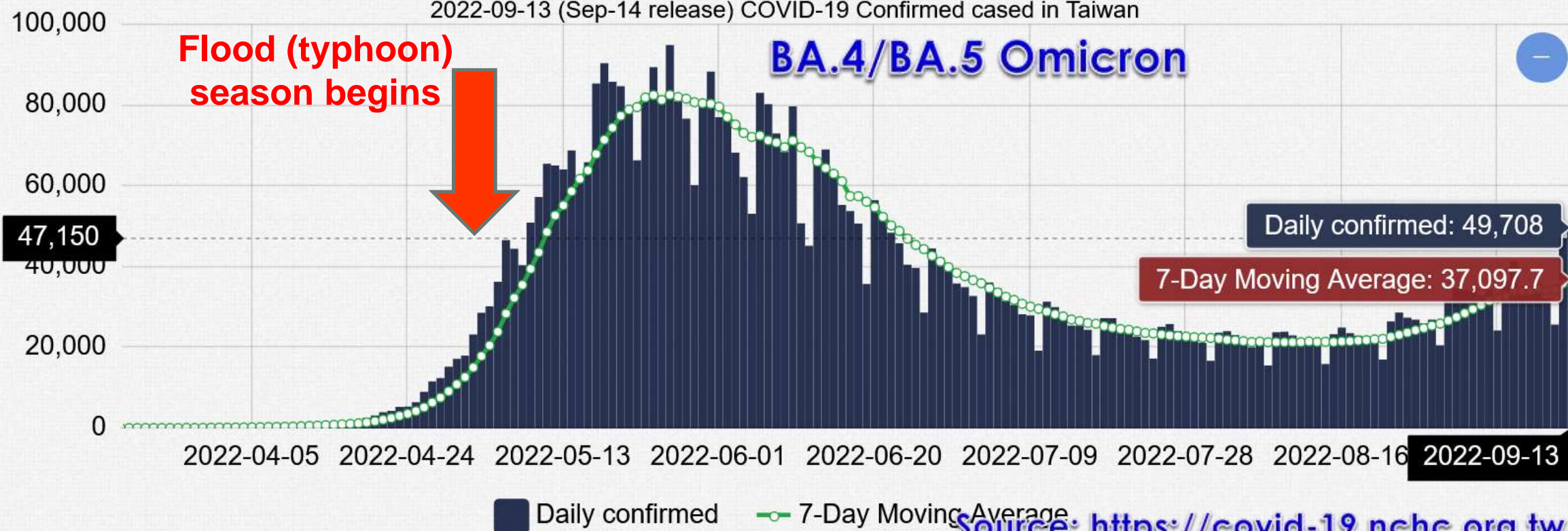
Source: https://covid-19.nchc.org.tw/
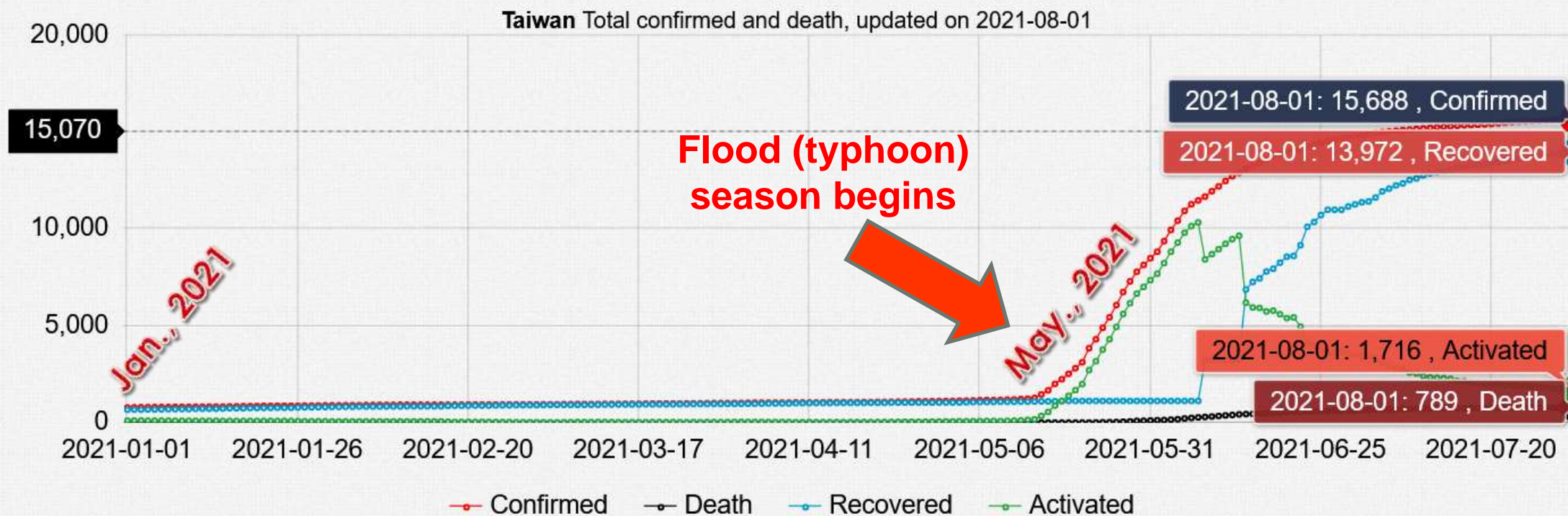
COVID-19 in Taiwan (2022)

TAIWAN COVID-19 DAILY CASES

Daily Confirmed = (Daily Confirmed from CDC in Taiwan) **Click here for more backlog detail**

2022-09-13 (Sep-14 release) COVID-19 Confirmed cased in Taiwan

BA.4/BA.5 Omicron

Flood (typhoon) season begins

Daily confirmed: 49,708

7-Day Moving Average: 37,097.7

47,150

Source: https://covid-19.nchc.org.tw/

Daily confirmed — 7-Day Moving Average

COVID-19 in Taiwan – Level 3 Alert

COVID-19 Level 3 Alert in Effect Around Taiwan Through May 28 (May 2021 to Feb., 2022)

- For all schools, teaching should be conducted online instead. Tutoring centers, kindergartens and day-care services are closed. Employers should allow paid or non-paid leave for workers who need to look after their underage children.
- For businesses and offices that remain open, compliance with COVID-19-related preventive measures are required.
- All members of the public are required to wear a mask at all times except at home.
- Cinemas, sports centers, libraries, exhibitions, bars, and adult entertainment venues are closed.
- Gatherings of 5+ people indoors or 10+ outdoors are prohibited.
- Restaurants are required to use ID-based registration, socially-distant seating and/or partitions or provide take-out/delivery service only.
- Members of the public are adivsed to avoid unnecessary travels.

Source: CECC / CNA graphic 19 May

1. All school closed (study on-line)
2. Work as usual (follow instructions)
3. Wear med. mask at all times
4. Public facilities closed
5. Indoor < 5 people, outdoor <10
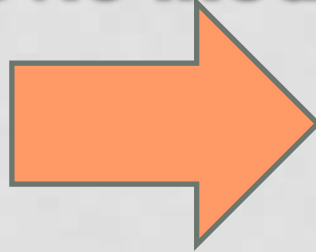6. Restaurants takeout only
7. Avoid travels

Source: https://cna.com.tw

COVID-19 in Taiwan – Level 3 Alert

Source: https://tw.nextmgz.com

Movie theater

https://cna.com.tw

Source: Liberty Times

Metro Taipei

https://cna.com.tw
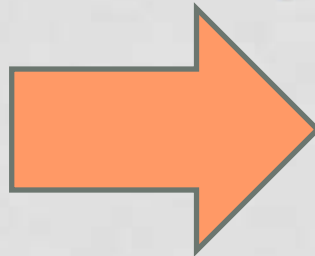
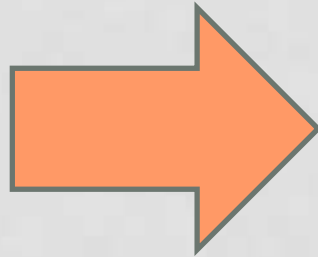# COVID-19 in Taiwan – Level 3 Alert

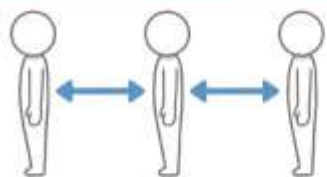# COVID-19 in Taiwan – Level 3 Alert

03

New Normal in Taiwan under COVID-19

New Normal in Taiwan under COVID-19

各行各業一起來 防疫新生活運動

保持社交距離
室內1.5公尺以上、室外1公尺以上
座位採梅花座或增設隔板區隔

落實個人衛生防護
戴口罩、量測體溫
入口及場所內提供洗手用品或設備

出入實名(聯)制
採取實名(聯)制登記
確實執行人流管制及環境的清消

中央流行疫情指揮中心   廣告

1. Social distance (indoor 1.5m, outdoor 1.0m, plastic shields)

2. Personal sanitation (medical mask, wash hands, temperature measures)

3. Contact based registration (QR-Code or paper-based)

New Normal in Taiwan under COVID-19

Emergency Operation Center (National Level)

Source: https://www.chinatimes.com

Emergency Operation Center (County Level)

Source: I-Lan County Government

Emergency Operation Center (Township Level)

Source: https://www.bcc.com.tw

1. Social distance (indoor 1.5m, outdoor 1.0m, plastic shields)
2. Wear medical mask at all times

New Normal in Taiwan under COVID-19

1st and 2nd Operation Center offices (SWCB)

Communicate on-line

Source: Soil & Water Conservation Bureau
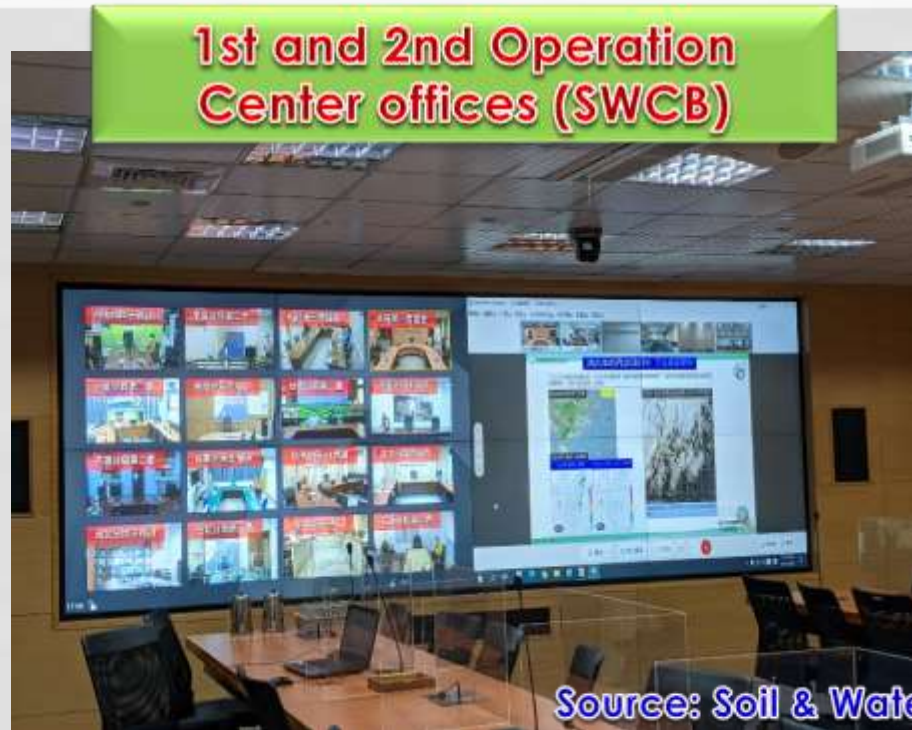
1. Off-site backup commanding center
2. Command, communicate and decision making on-line

New Normal in Taiwan under COVID-19

Tribe Entrance Post

Clean hands

QR-Code Scan

Source: Author

School

Temp. Monitor

Source: Taichung City Gov.

Plastic shield

Source: Liberty Times

New Normal in Taiwan under COVID-19

Field investigation

1 2 3 4 5 6

>1m

Source: Author

1. Outdoor <10 people
2. Outdoor social distance > 1.0m

3. Wear medical mask at all times

4. Clean hands with 75% alcohol

Source: Author

New Normal in Taiwan under COVID-19

Construction Site

Temperature measure

Source: Marven Deng

QR-Code scan

Entrance restriction

Plastic shields

04

Evacuation and Shelter Management under COVID-19

Evacuation and Shelter Management under COVID-19

The Guideline of Evacuation for Disaster during the Pandemic Condition (issued in May, 2020)

防疫時期災害發生眾疏散撤離之應變措施

The Guideline of Refugee Shelters under COVID-19

災民臨時收容安置業務因應嚴重 (Issued in Apr., 2020)
特殊傳染性肺炎(COVID-19)工作指引

EVACUATION PLANNING

1 Secure personal sanitation

執行人員及被撤離者，均應落實配戴口罩等防疫措施。

Crew, staff, and the evacuees should wear medical masks at all times and apply proper pandemic-safe measures

社政單位安置所

2 | 策略3 隔離接觸者 — Quarantine the contacts

勾稽　醫護陪同　簡訊通知

轉介送醫　隔離處所　警政機關協助

3 | 策略6 大眾運輸工具感染控制 — Charter Bus or Special Purpose Taxi

Planning for special purpose transportations

Individuals under quarantine should not place on the same transportation with regulars

Evacuation under COVID-19

Evacuation

Source: udn.com

Wear medical mask at all times

⚠ 警訊通知

[土石流及大規模崩塌警戒]高雄市美濃區福安里已發布土石流黃色警戒，請提高警覺。農委會水土保持局關心您

SMS Warning Message

Jul. 23, 2021 Typhoon In-Fa

Source: udn.com

SHELTER PLANNING UNDER THE PANDEMIC

According to "the Guideline of Refugee Shelters
under COVID-19" (Issued in Apr., 2020)

Home quarantine → Collective quarantine facility or hotels

Go to Shelters

Regular evacuees →

Priority to Hotels, Hostels
For each evacuation shelter
In door <100 persons
Facilities with greater capacity
Special evaluation

Secure proper distance
General: **1.5m** in door, **1m** out door
Dining: **1.5m** + plastic shields

SHELTER MANAGEMENT UNDER COVID-19

05

QR-Code Contact Based Registration System **(May, 2021- Apr., 2022)**

QR-Code Contact Based Registration System (since May, 2021)

Source: Author

QR-Code

Paper based

3 STEPS IN 5 SECONDS

Scan QR Code
A text-message to the 1922 hotline
Will pop up with the code number

Send the message and the FREE SMS
Real-name registration will be completed

✓ No Contact
✓ Free Apps Required
✓ No Need To Type
✓ No Personal Information
✓ Free Of Charge

Source: Taichung City Gov.

1 Scan QR Code on The Bus
2 Click The Link
3 Send The Message

✓ **Developed by Audrey Tang**
✓ **3 Steps in 5 Seconds**
✓ **Contact Free**
✓ **Free SMS**

Audrey Tang 唐鳳
@audreyt

東京オリンピックの防疫対策に協力するため、私は総統および行政院長と話し合った結果、日本への訪問をキャンセルすることにしました。

予定は変わりません。

Minister, Ministry of Digital Affairs

午前10:40 · 2021年7月18日

♡ 12.5万 ♡ 1.0万 **Source: FB of A. Tang**

QR-Code Contact Based Registration System

QR-Code Contact Based Registration System

Source: Author

QR-Code Contact Based Registration System

Taipei Train Station

High Speed Rail Taipei Station

Source: Author

QR-Code Contact Based Registration System

- ✓ **0.62 billion** (620,000,000) **SMS in the first 40 days** (2021/05-2021/06)

- ✓ **47.9 billion** (4,790,000,000) **SMS in 340 days** (2021/05-2022/04)

- ✓ **43 million** (43,000,000) **inquiries in total** (2021/05-2022/04)

- ✓ **A large-size department store would have 70,000 SMS per day.**

06

Taiwan Social Distancing APP
(replaced QR-Code system since Apr., 2022)

Taiwan Social Distancing APP (from Apr., 2022)

Source: CNA

Source: Taichung City Gov.

Central Epidemic Command Center

Taiwan Social Distancing App
Together to prevent epidemics

❌ No need to register ❌ No collect data from users ❌ No need fill in personal information

第06診

R<2m

Download NOW

The app meets the standards of the General Data Protection Regulation

Source: CDC

 App Store   Google Play

For more information, please visit: https://cdc.gov.tw, hotline: 1922

1 R<2m

✓ **Detect via Bluetooth**
✓ **No GPS**
✓ **No need to register**
✓ **No collect data from users**
✓ **No need fill in personal information**

Taiwan Social Distance APP

✓ Detects nearby users via **Bluetooth** signals **(<2m & >2min)**

✓ Records the **duration** of distance from each contact

✓ Alerts users to any contact with COVID-positive users in the **past 14 days**

✓ **Decentralized** and requires no registration or information to be uploaded

下午4:51

← 每日接觸狀況

DATE	Contact Duration
2022年9月12日	接觸 50 分鐘 (50min)
2022年9月11日	無
2022年9月10日	無
2022年9月9日	無
2022年9月8日	接觸 2 小時 43 分鐘 (2hr 43min)
2022年9月7日	接觸 47 分鐘 (47min)
2022年9月6日	接觸 2 小時 41 分鐘 (2hr 41min)
2022年9月5日	接觸 2 小時 14 分鐘
2022年9月4日	無
2022年9月3日	無
2022年9月2日	接觸 3 小時 25 分鐘
2022年9月1日	接觸 3 小時 9 分鐘
2022年8月31日	接觸 3 小時 8 分鐘
2022年8月30日	接觸 2 小時 6 分鐘
2022年8月29日	無

上次檢查時間為 2022/9/12

Source: Author

07

Conclusions

CONCLUSIONS

▷ Covid-19 has affected Taiwan dearly **since May, 2021**.

▷ New normal includes regulation and instructions were applied in **daily life** and also in **disaster management**.

▷ **More** pre-planning and management **efforts** considering COVID-19 for evacuation and shelters were required.

▷ New IT tech (**QR-Code scan, APP social distance**) were introduced to monitor the flow of the crowds.

THANK YOU

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