



National Steering Committee for Natural Disaster Prevention and Control

# **EARLY WARNINGS – EARLY ACTIONS**

## **DRM LESSONS LEARNT IN VIETNAM**

*Brisbane, September 2022*

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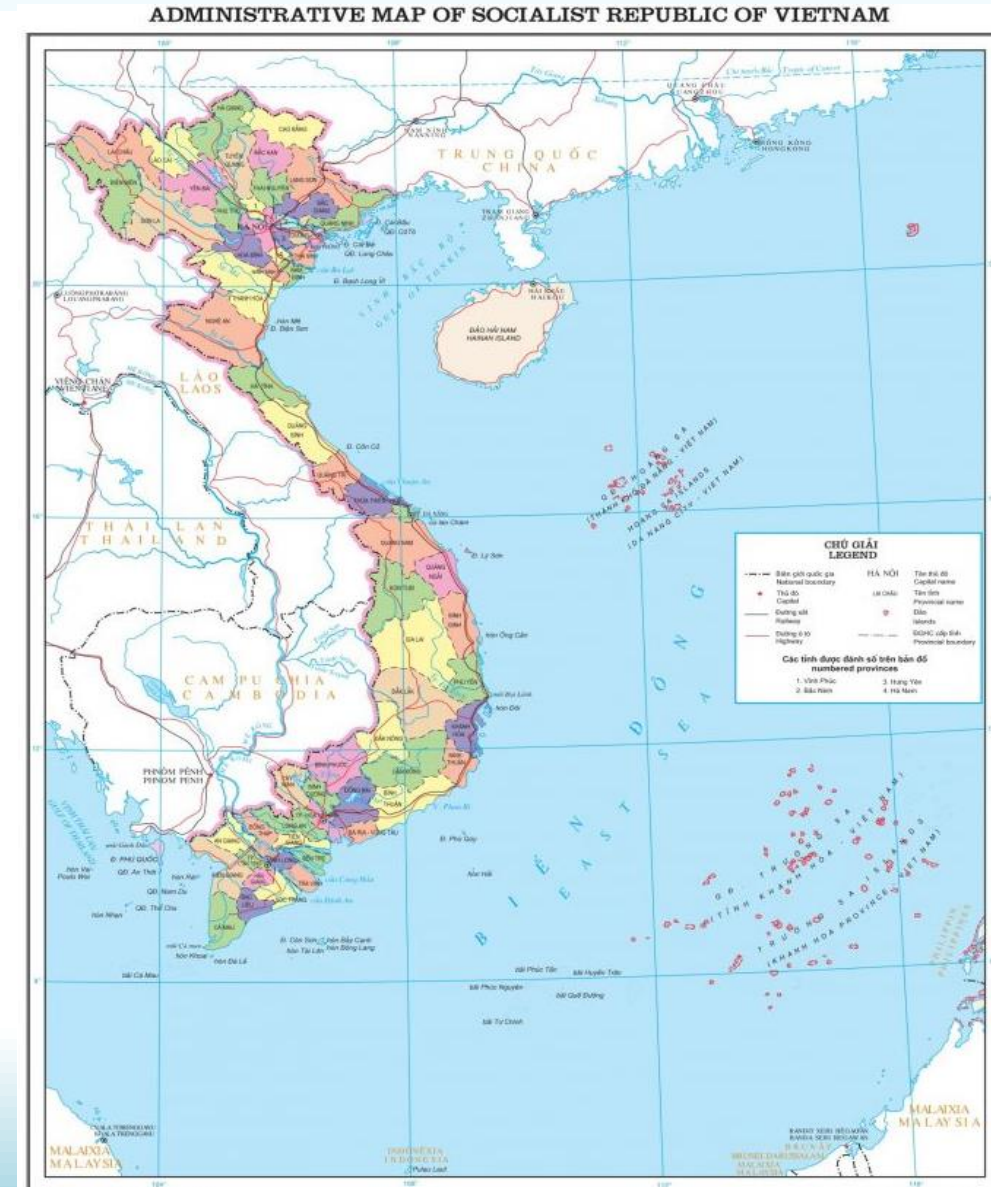
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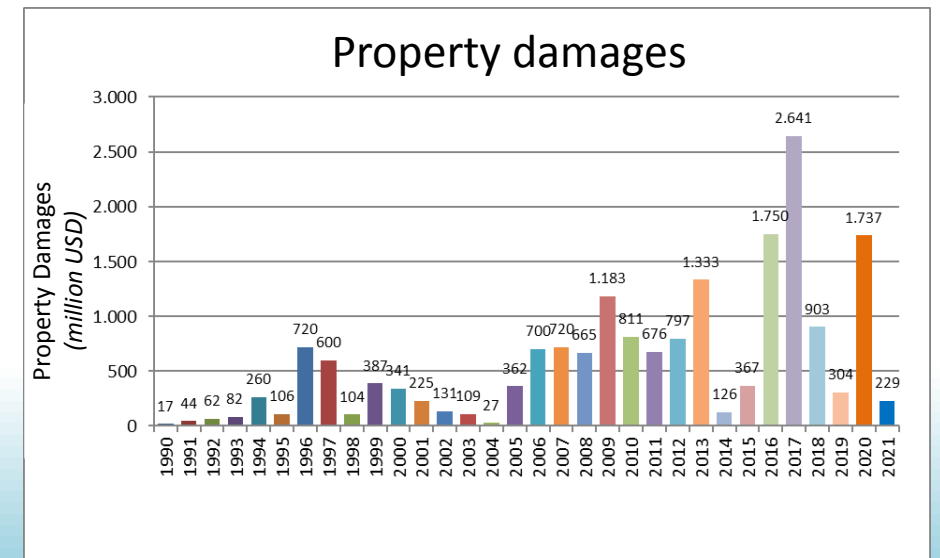
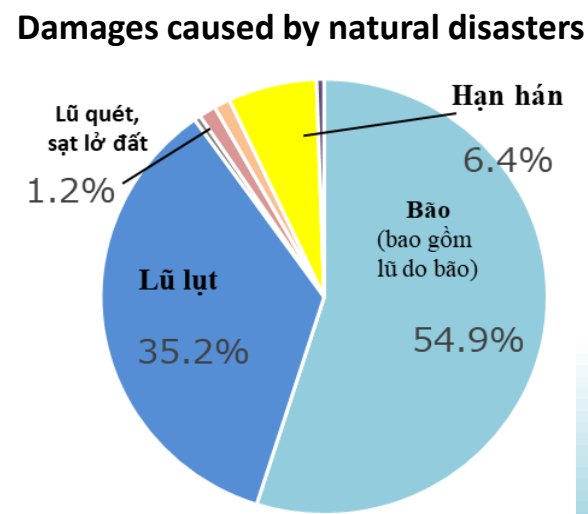
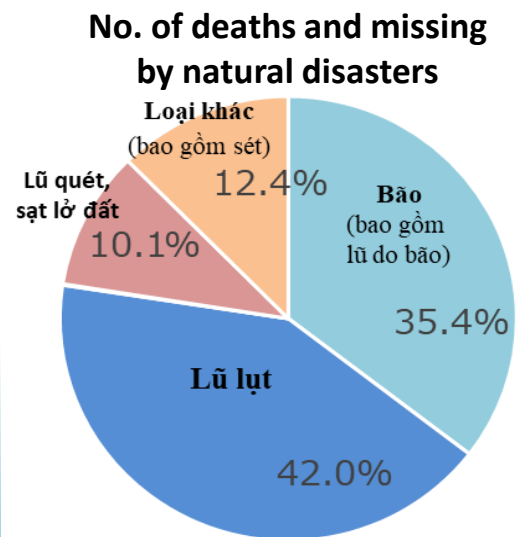
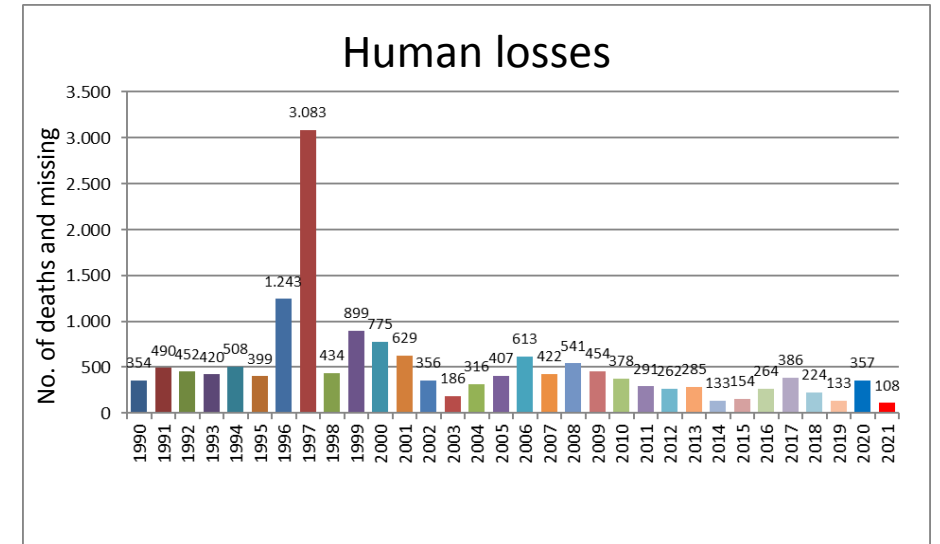
# BACKGROUND INFORMATION

- **Location:** in Southeast Asia, adjacent to China, Laos and Cambodia.
- **Capital:** Hanoi
- **Natural area:** 331,210 km<sup>2</sup>
- **Population:** 98,603,978 people (up to December 2021)
- **Topography:**  $\frac{3}{4}$  as mountains
- **Coastal length:** 3,260km
- **GDP:** 362 billion USD (2021)

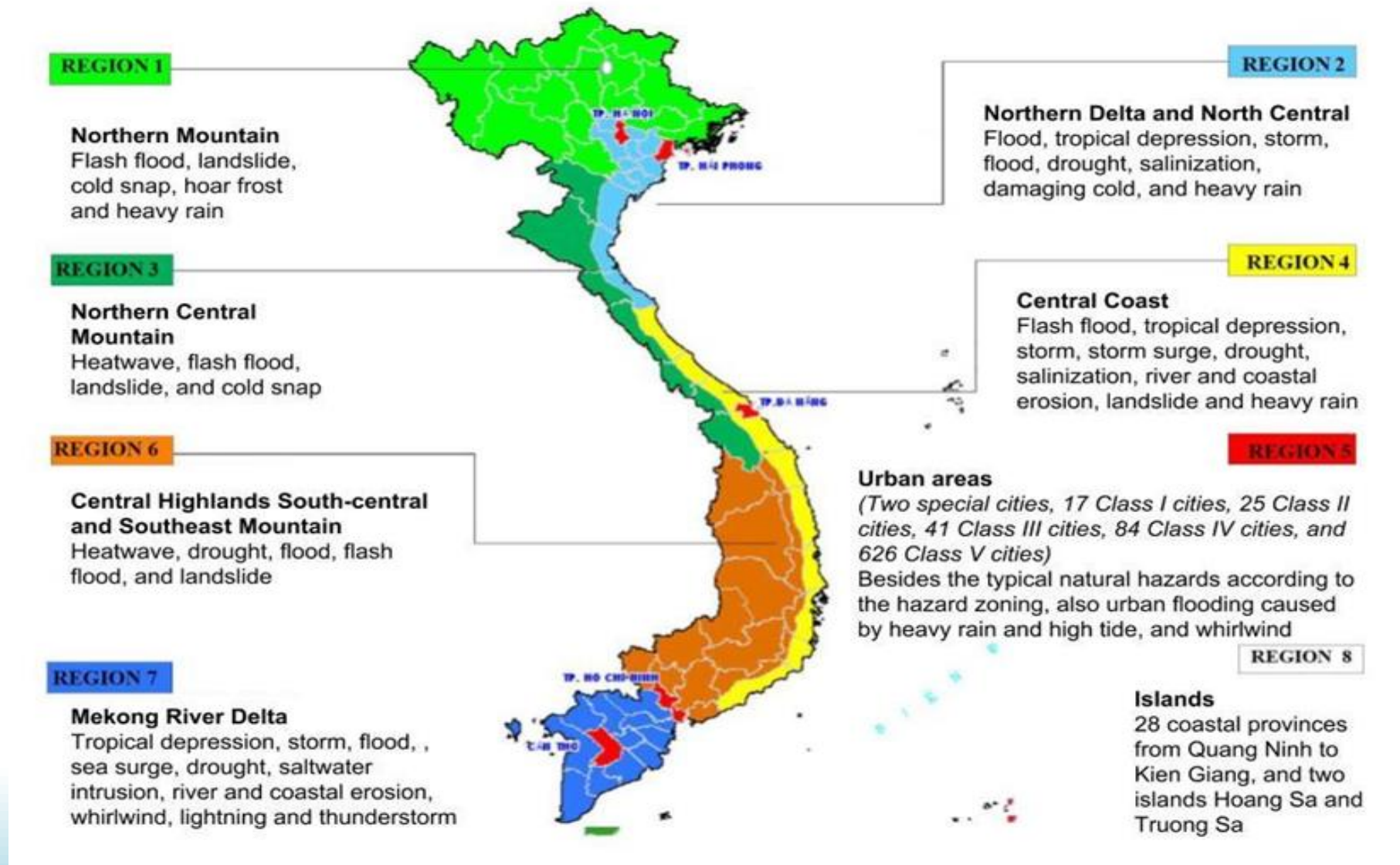


# NATURAL DISASTERS IN VIETNAM

- Vietnam is one of the 5 countries most heavily affected by climate change with unusual manifestations of natural disasters such as storms, floods, droughts, saltwater intrusion, high tides, etc.
- Vietnam has identified more than 22 types of natural disasters that have been stipulated in laws.
- 70% of the country's population lives in coastal areas which are prone to storms and floods, especially in the context of increasingly severe and abnormal climate change.
- In the past 20 years, natural disasters have caused 500 deaths and missing people, and economic losses of about 1 ÷ 1.5% GDP each year

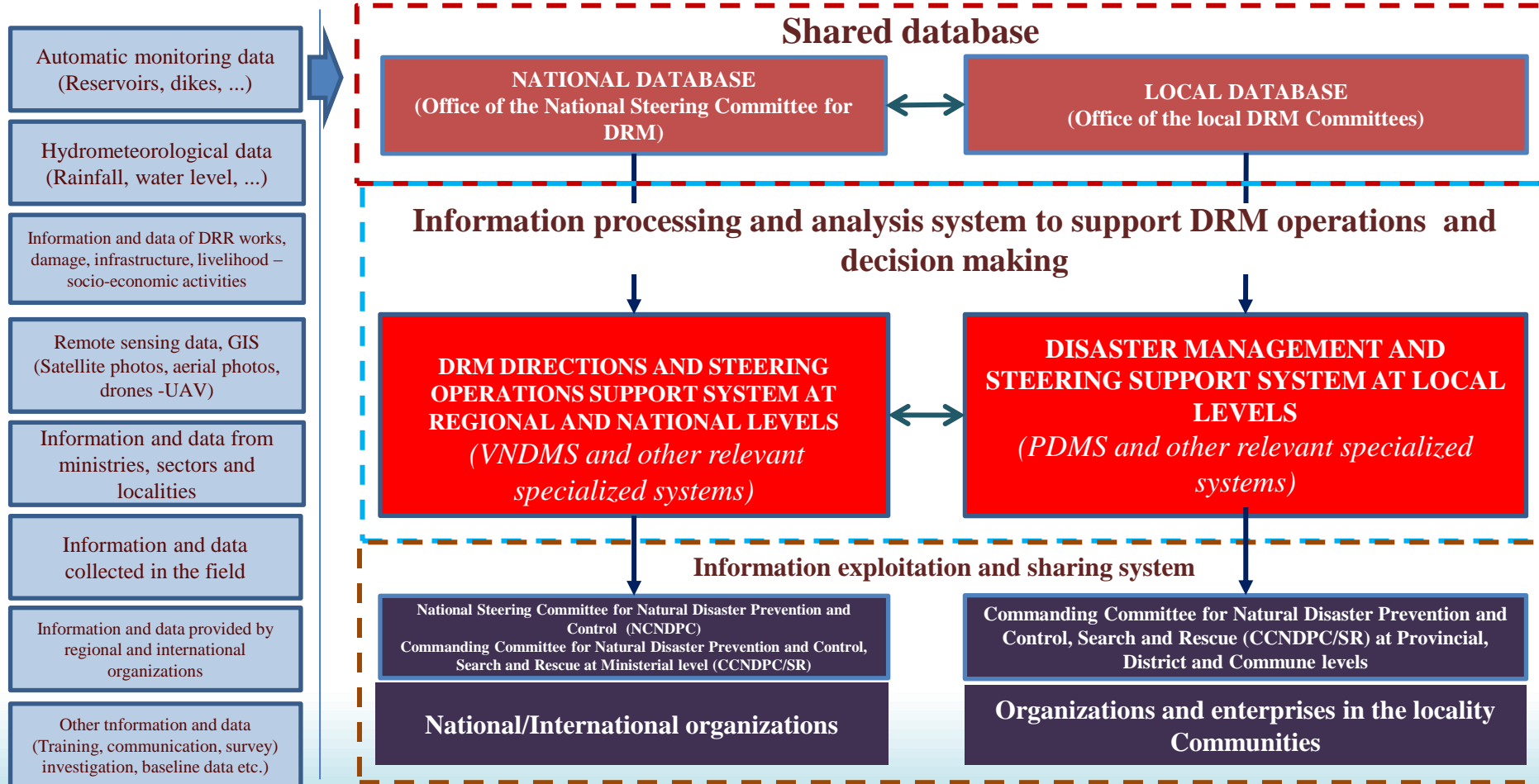


# NATURAL DISASTER ZONING MAP OF VIETNAM



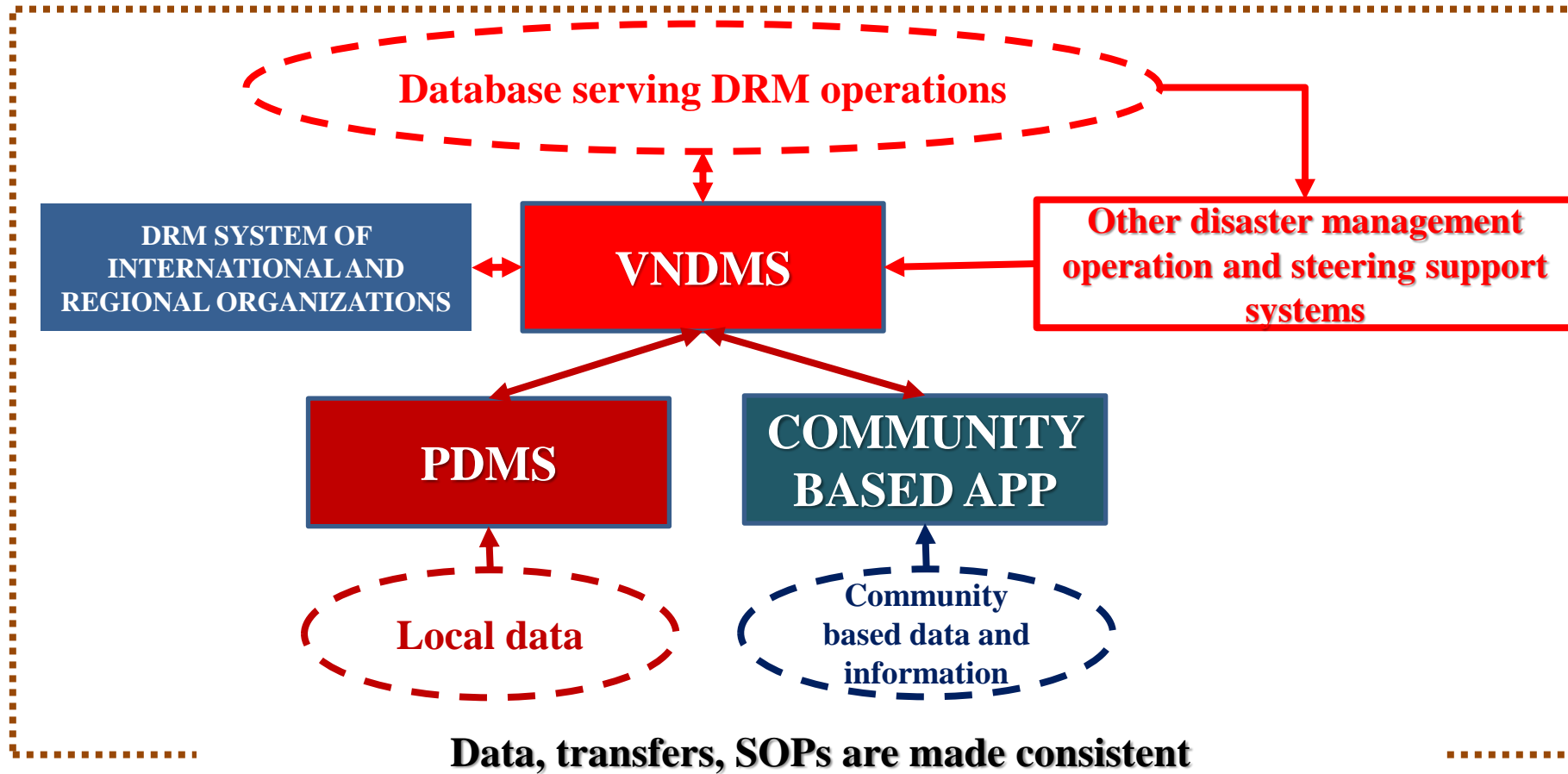
# FORECAST AND WARNING SYSTEM FOR DISASTER RISK MANAGEMENT (VNDMS)

## Data and information

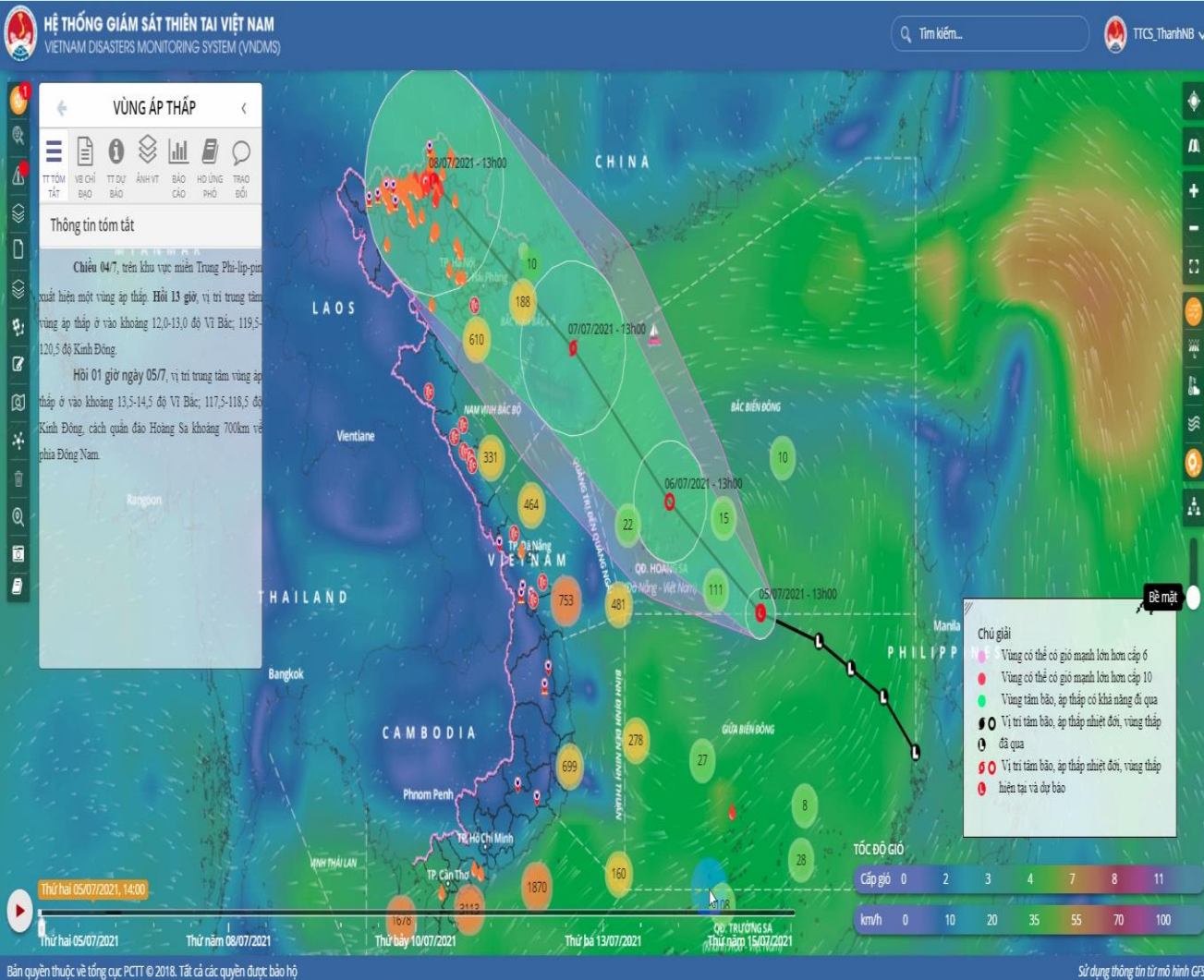




# ROLES AND FUNCTIONS OF VNDMS



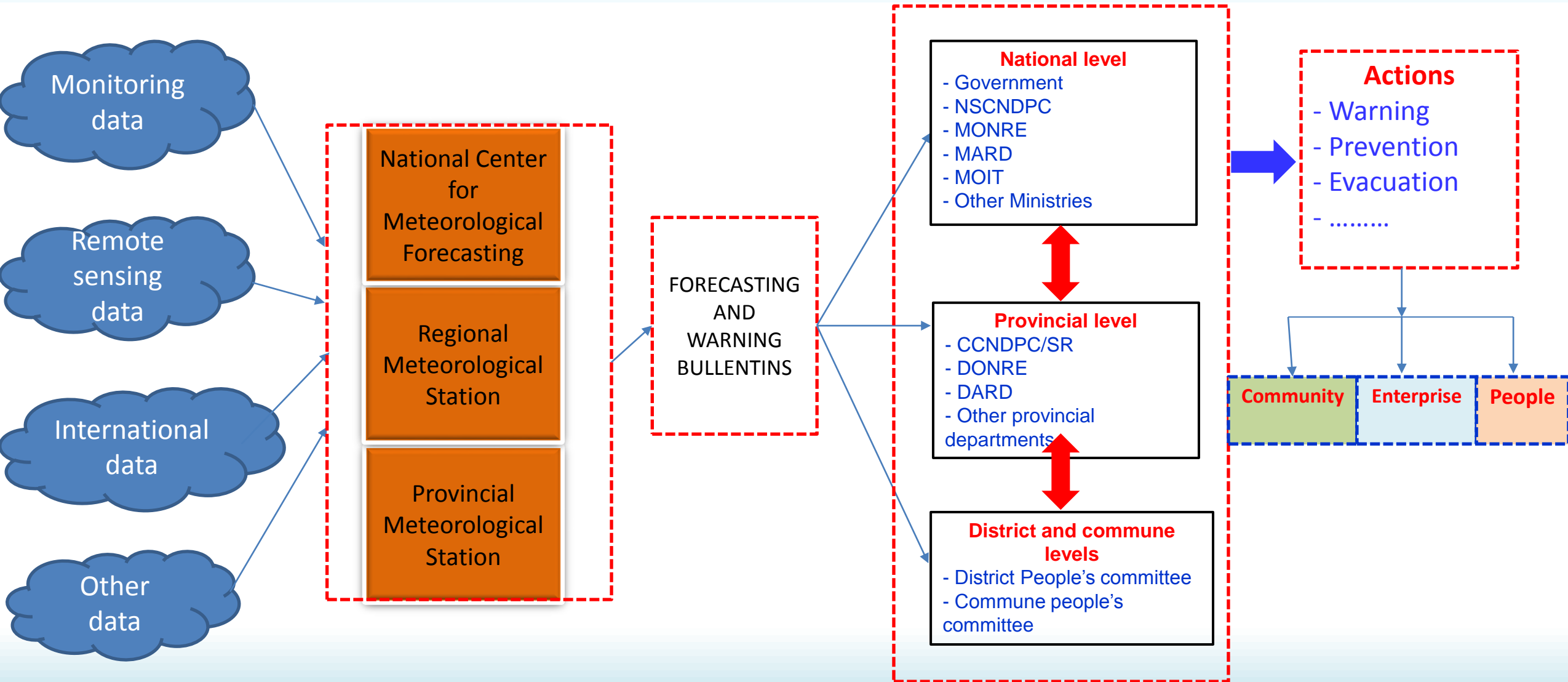
# VIETNAM DISASTER MONITORING SYSTEM (VNDMS)



- 408 irrigation reservoirs with capacity > 01 million m<sup>3</sup> (total: 6,750 reservoirs).
- 241 hydroelectric reservoirs
- 07 weather radar stations
- 51 multi-disaster warning stations
- 193 meteorological stations
- 02 systems of watch and tsunami warning; 51 stations transmitting information and warnings.
- 454 hydrological stations (42 automatic measuring stations); 23 oceanographic stations
- 2,166 automatic rain monitoring stations
- 269 automatic water level monitoring stations
- 414 automatic temperature monitoring stations
- 45 international measuring stations: 05 monitoring stations for rain, water level, discharge (Red River Basin), 40 water level measurement stations (Mekong River Basin)
- 414 automatic wind monitoring stations
- 133 cameras to monitor reservoirs, dike systems
- 71 boat anchorages, capacity 46,212 ships.
- Fishing vessel monitoring system: 28,067 ships
- Population and housing data of 11,000 communes and wards.



# DIAGRAM OF NATURAL DISASTER RESPONDING IN VIETNAM



# STORM RESPONDING ACTIONS

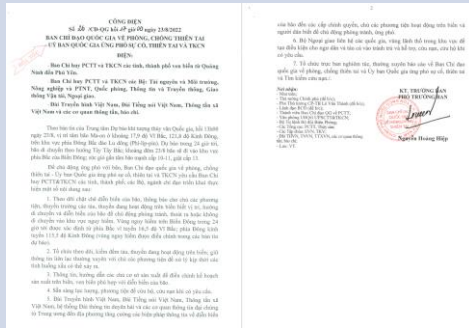
		24H (CÁCH BỜ < 500KM)	48H (CÁCH BỜ 500-1000KM)	72H (CÁCH BỜ >1000KM)																												
<p><b>CÔNG ĐIỆN</b></p> <p>CHỈ ĐẠO ỨNG PHÓ LỘ</p> <p>TIẾP TỤC SƠ TÁN DÂN VÙNG TRÙNG</p> <p>THÔNG KẾ THIẾT HẠI DO BÃO</p> <p>CẤM VỚT CÙI TRONG LỘ</p> <p>TỔ CHỨC TÌM KIẾM CỨU NẠN</p> <p>CẤM ĐÓ NGANG, ĐÓ ĐOC, QUẢN LÝ GHE, TÀU THUYỀN</p> <p>XỬ LÝ VỆ SINH MÔI TRƯỜNG</p>	<p><b>NGUY CƠ GIÓ MẠNH TRONG BÃO</b></p> <table border="1"> <thead> <tr> <th>Vùng</th> <th>Nguy cơ cấp gió mạnh nhất</th> <th>Cấp gió mạnh nhất đã ghi nhận</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>11-12, giát &gt; 13</td> <td>10, giát 12-13</td> </tr> <tr> <td>II</td> <td>10-11, giát &gt; 13</td> <td>9, giát 12-13</td> </tr> <tr> <td>III</td> <td>15-16, giát &gt; 17</td> <td>14, giát 15-16</td> </tr> <tr> <td>IV</td> <td>15-16, giát &gt; 17</td> <td>14, giát 15-16</td> </tr> <tr> <td>V</td> <td>14-15, giát &gt; 16</td> <td>13, giát 14-15</td> </tr> <tr> <td>VI</td> <td>14-15, giát &gt; 16</td> <td>13, giát 14-15</td> </tr> <tr> <td>VII</td> <td>10-11, giát &gt; 12</td> <td>9, giát 10-11</td> </tr> <tr> <td>VIII</td> <td>11-12, giát &gt; 13</td> <td>10, giát 12-13</td> </tr> </tbody> </table>	Vùng	Nguy cơ cấp gió mạnh nhất	Cấp gió mạnh nhất đã ghi nhận	I	11-12, giát > 13	10, giát 12-13	II	10-11, giát > 13	9, giát 12-13	III	15-16, giát > 17	14, giát 15-16	IV	15-16, giát > 17	14, giát 15-16	V	14-15, giát > 16	13, giát 14-15	VI	14-15, giát > 16	13, giát 14-15	VII	10-11, giát > 12	9, giát 10-11	VIII	11-12, giát > 13	10, giát 12-13	<p>XÁC ĐỊNH VÙNG ẢNH HƯỞNG TRÊN ĐẤT LIỀN</p> <p>8-16 BẢN TIN CẢNH BÁO NGÀY 01 GIỜ PHÁT TIN 1 LẦN</p> <p>BCĐ TIỀN PHƯƠNG</p> <p>DỪNG CÁC CUỘC HỌP TẬP TRUNG CHỈ ĐẠO</p> <p>BCH HIỆN TRƯỞNG</p> <p>NGẬP LỤT</p> <p>LỘ QUÉT</p> <p>SẠT LỎ</p> <p>NƯỚC DẶNG</p> <p>ỨNG PHÓ VỚI BÃO VÀ CÁC LOẠI HÌNH THIÊN TAI KÈM THEO</p> <p>SƠ TÁN NGƯỜI LAO ĐỘNG</p> <p>QUYẾT ĐỊNH CẤM BIẾN</p> <p>SẮP XẾP TÀU THUYỀN</p> <p>ĐỊA ĐIỂM</p> <p>LƯƠNG THỰC</p> <p>Y TẾ</p> <p>AN NINH</p> <p>PHÁT LỆNH SƠ TÁN DÂN</p> <p>VẬT NUÔI</p> <p>LÚA HOA MÀU</p> <p>THỦY SẢN</p> <p>HOÀN THÀNH CÔNG TÁC THU HOẠCH NÔNG SẢN DI CHUYỂN LÔNG BÈ, BẢO VỆ VẬT NUÔI</p> <p>LỰC LƯỢNG</p> <p>PHƯƠNG TIỆN</p> <p>LƯƠNG THỰC</p> <p>SẴN SÀNG LỰC LƯỢNG, PHƯƠNG TIỆN, VẬT TƯ ĐỂ TKN THEO PHƯƠNG CHẤM 4 TẠI CHỖ</p> <p>XEM XÉT CHO HỌC SINH NGHỈ HỌC</p> <p>VẬN HÀNH LIÊN HỒ CHỨA</p> <p>ĐẢM BẢO THÔNG SUỐT GIAO THÔNG</p> <p>ĐẢM BẢO LƯỚI ĐIỆN</p> <p>CHẶNG CHÓNG NHÀ CỬA</p> <p>RÀ SOÁT CHẤT TĨA CÀNH CÂY</p>	<p>VÙNG NGUY HIỂM TRÊN BIỂN, DỰ KIẾN VÙNG ẢNH HƯỞNG ĐẤT LIỀN</p> <p>8 BẢN TIN CẢNH BÁO NGÀY 01 GIỜ PHÁT TIN 1 LẦN</p> <p>CÔNG ĐIỆN CHÍNH PHỦ</p> <p>CÔNG ĐIỆN BAN CHỈ ĐẠO</p> <p>AN TOÀN HỒ CHỨA</p> <p>KẾ HOẠCH ỨNG PHÓ THEO DIỄN BIẾN</p> <p>BẢO VỆ ĐỀ ĐIỀU</p> <p>KIỂM ĐÉM TÀU THUYỀN</p> <p>SẴN SÀNG CỨU HỘ CỨU NẠN</p> <p>KÊU GỌI TÀU THUYỀN</p> <p>XÂY DỰNG VÀ HOÀN THÀNH KẾ HOẠCH SƠ TÁN</p> <p>THU HOẠCH NÔNG SẢN VÙNG DỰ KIẾN ẢNH HƯỞNG</p> <p>RÀ SOÁT ĐẢM BẢO THÔNG TIN LIÊN LẠC</p> <p>ĐẢM BẢO LƯỚI ĐIỆN</p> <p>CHẶNG CHÓNG NHÀ CỬA</p> <p>RÀ SOÁT CHẤT TĨA CÀNH CÂY</p>	<p>XÁC ĐỊNH VÙNG NGUY HIỂM TRÊN BIỂN</p> <p>4 BẢN TIN CẢNH BÁO NGÀY 02 GIỜ PHÁT TIN 1 LẦN</p> <p>THÔNG BÁO CÔNG ĐIỆN</p> <p>VĂN PHÒNG THƯỜNG TRỰC BAN CHỈ ĐẠO TW VỀ PCTT</p> <p>RÀ SOÁT PHƯƠNG ÁN ỨNG PHÓ BÃO MẠNH, SIÊU BÃO</p> <p>THÔNG BÁO DIỄN BIẾN BÃO</p> <p>RÀ SOÁT PHƯƠNG ÁN SƠ TÁN DÂN</p> <p>RÀ SOÁT THU HOẠCH SẢN XUẤT</p> <p>RÀ SOÁT PHƯƠNG ÁN BÓN TẠI CHỖ</p> <p>TĂNG CƯỜNG CÔNG TÁC TRUYỀN THÔNG VỀ KỸ NĂNG ỨNG PHÓ VỚI BÃO</p>	<p><b>DỰ BÁO BÃO</b></p> <p><b>CHỈ ĐẠO CHỈ HUY</b></p> <p><b>RÀ SOÁT PHƯƠNG ÁN ỨNG PHÓ</b></p> <p><b>TÀU THUYỀN</b></p> <p><b>SƠ TÁN DÂN</b></p> <p><b>NÔNG NGHIỆP</b></p> <p><b>BÓN TẠI CHỖ</b></p> <p><b>NHIỆM VỤ KHÁC</b></p>
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# “FOUR ON THE SPOT” APPROACH TO RESPOND TO STORMS

## COMMANDING ON THE SPOT

### 1.1. Central level

- The National Steering Committee for Natural Disaster Prevention and Control shall allocate responsibilities to its members.
- The National Committee for Incident and Disaster Response and Search and Rescue – the Commanding Committee for Natural Disaster Prevention and Control, Search and Rescue of Ministries shall allocate tasks to its subordinates and units as legally defined.
- Organize on-duty tasks and regularly monitor weather forecast/disaster warning bulletins to keep updated of disaster developments, including floods and storms.
- Organize briefing meetings of Standing Office of the NSCNDPC to launch necessary responses to storms/floods.
- Issue telegraphs of the NSCNDPC Standing Office



### 1.2. Local level

The Commanding Committee for Natural Disaster Prevention and Control, Search and Rescue (CCNDPC/SR) at provincial, district and commune levels shall allocate responsibilities to its members during responses to storms and other disasters



## FORCES ON THE SPOT

### 2.1. Central level

The National Committee for Incident and Disaster Response, Search and Rescue (VINASARCOM) shall arrange forces and resources to support localities depending on situations and requirements.



### 2.2. Local level

Provinces have reviewed and inventoried their forces available at provincial, district and commune levels, including: Army (provincial, district); Borderlands security; Police; Health; Youth volunteers; personnel of enterprises; Red Cross; Militia and self-defense forces; Women union; disaster first responders; Farmers Union, and other mass organizations; Members of the CCNDPC/SRs, Standing Offices of CCNDPC/SRs, public employees; Specialized dike management forces; community based dike management force and other forces



# “FOUR ON THE SPOT” APPROACH TO RESPOND TO STORMS

## MEANS ON THE SPOT

### 3.1. Central level

- The National Committee for Incident and Disaster Response, Search and Rescue (VINASARCOM) shall arrange forces and resources to support localities depending on situations and requirements.
- The National Steering Committee for Natural Disaster Prevention and Control shall mobilize the resources and supplies of its regional branches.

### 3.2. Local level

Measures to allocate and deploy vehicles and equipment (to vulnerable areas as the priority)

Agencies and units manage and use vehicles and equipment for DRM which have been equipped to them:

- Before the rainy and storm season, organize inspections, trial operations, maintenance and repairs to ensure the readiness of these equipment once required.
- Arrange means and equipment to be ready at site in vulnerable and critical areas before storms come or floods above alarming level 3 occur (in accordance with prepared and agreed disaster risk management plan).
- Organize steering and commanding staff and relevant personnel for the operation of equipment and machinery in stockpiling area and in disaster affected areas where disaster responses and search and rescue activities will take place
- Organize the gathering and storage of supplies and materials to respond to disaster situations; regularly monitor and check to ensure the required quality and quantity of these supplies and materials.

## LOGISTICS ON THE SPOT

**Provincial level:** Allocating funds from the provincial budget reserve. Plans to reserve food, foodstuff and necessities for the province are issued by the Department of Industry and Trade.

**District level:** Organize the reserve and storage of food and drinks to ensure relief in disaster situations (stockpiling at warehouses, principle supply contracts with producers and service providers; with focus on areas that are often isolated due to natural disasters.).

**Commune level:** Organize the stockpiling of goods and food; proactively contract with suppliers – businesses and advocate community and local people to store foods for the use of their families for a minimum of 7-15 days depending on disaster situation. Essential supplies are rice, instant noodles, bread etc.

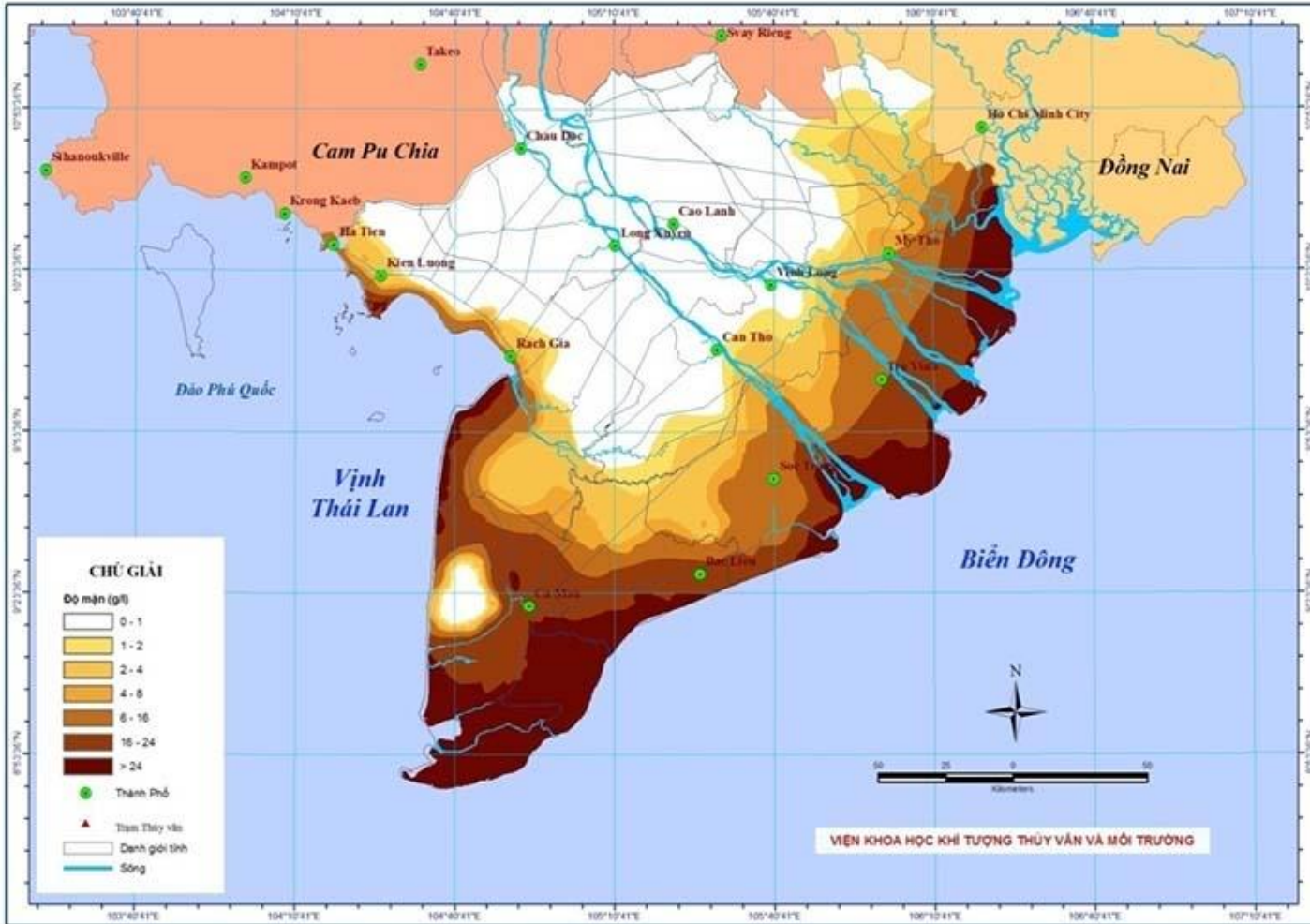
For the preparation of supplies, means and logistics, local governments proactively coordinate with vehicle owners, supermarkets, and grocery stores to sign principle contracts for the supply of goods, means and equipment for disaster responses in the area

**EARLY WARNING – EARLY ACTION  
RESPONSE TO DROUGHT AND SALTWATER INTRUSION IN  
MEKONG DELTA**



# SALTWATER INTRUSION AND DROUGHT IN 2015 – 2016

## DAMAGES:



Rice damages **232.95 ha**



Fruit trees, cash trees **10,831 ha**



Vegetable **6,561 ha**



**226,605** households lack of domestic water supply  
(~ 01 million people)



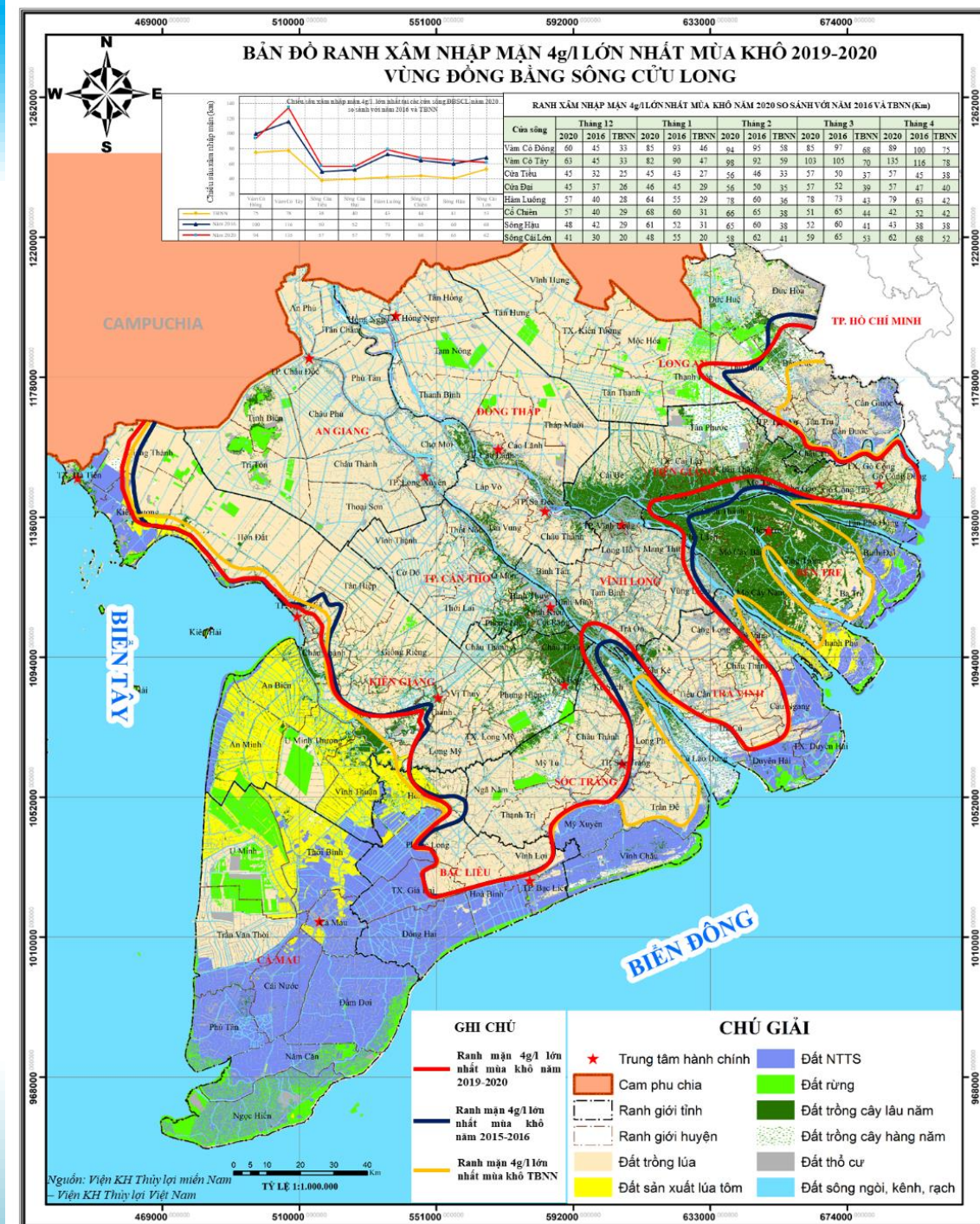
**4,678 billion VND ~ > 220 million USD**

For the first time, the growth of the agricultural sector in the first 6 months of 2016 was only **-0.18%**

# EARLY WARNINGS: SALTWATER INTRUSION AND DROUGHT IN 2020

*Saltwater intrusion has been forecasted since June 2019, WITH impact extent and scope determined*

- Saltwater intrusion occurred 3 months earlier than multi-year average, and **1-1.5 months earlier compared to 2015-2016.**
- Affecting time is twice as long as in 2015-2016.
- The saltwater intrusion extent in river mouths is 30-40km further compared to multi-year average and 3-9 km compared to 2015-2016



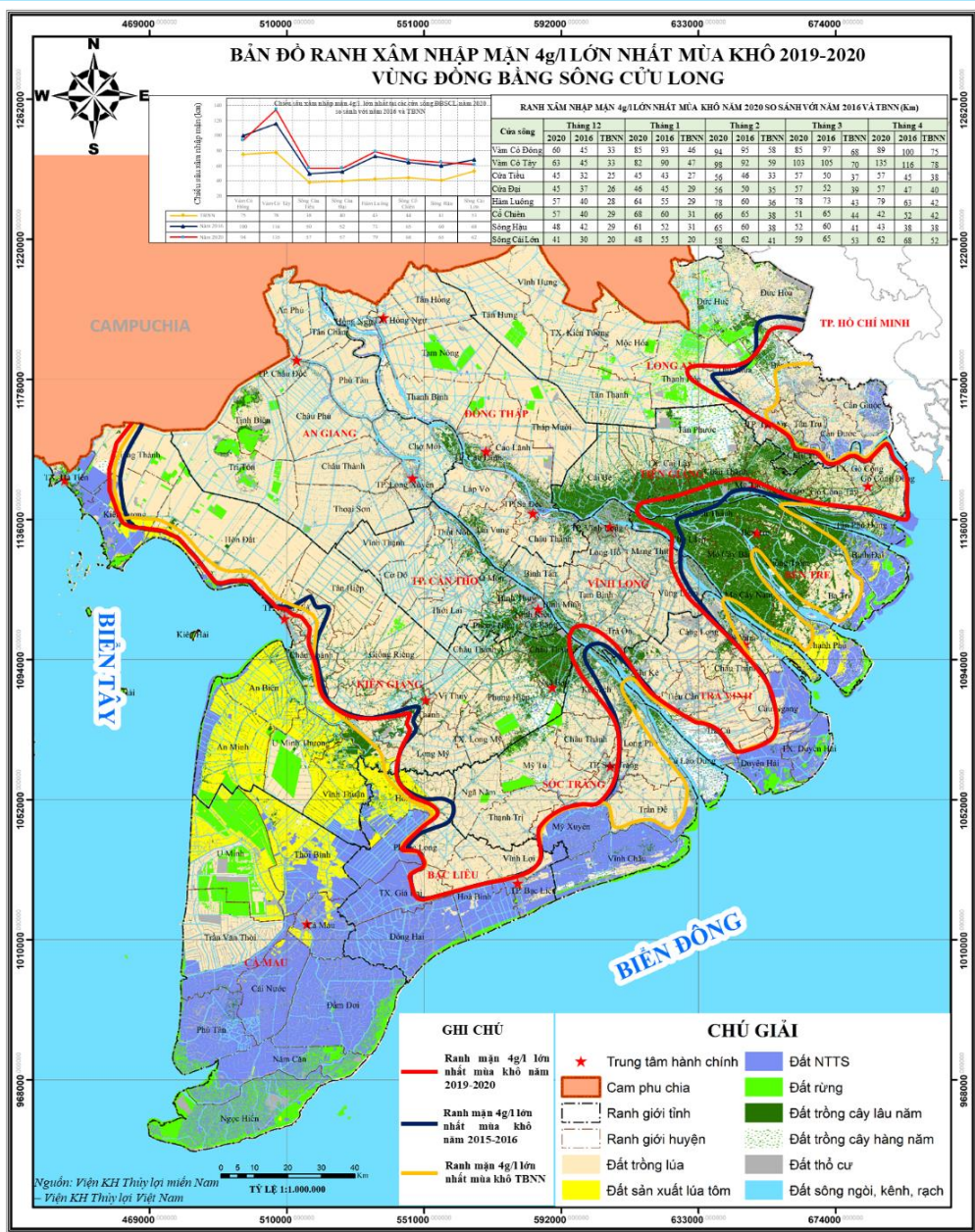


# ANTICIPATORY ACTIONS:

## SALTWATER INTRUSION AND DROUGHT IN 2020

National government	Ministry	Locality
<ul style="list-style-type: none"><li>- Meeting with leaders of provinces and cities in the Mekong Delta in September 2019.</li><li>- Issued directives and legal documents for drought and saltwater intrusion responses.</li><li>- Organized a Conference on drought and saltwater intrusion prevention and control</li><li>- Meeting with localities and inspecting the implementation on the ground.</li><li>- Allocated funds to support local drought and saltwater intrusion efforts</li></ul>	<ul style="list-style-type: none"><li>- Issued directives and legal documents for the implementation of response solutions by sectors and fields.</li><li>- Established a Frontline working group to support localities.</li><li>- Monitored, forecast and warned effectively</li><li>- Implement solutions:<ul style="list-style-type: none"><li>+ Structural measures</li><li>+ Non-structural measures (instructions, propaganda, ...)</li></ul></li></ul>	<ul style="list-style-type: none"><li>- Changed and adapt the agricultural production plan.</li><li>- Implemented structural solutions: built temporary dams to prevent salinity, store water, operate irrigation works, etc.</li><li>- Regularly monitor salinity.</li><li>- Issued information and guidance to local people on proper response to saltwater intrusion and drought.</li></ul>

# PROGRESS COMPARED TO PERIOD 2015 - 2016



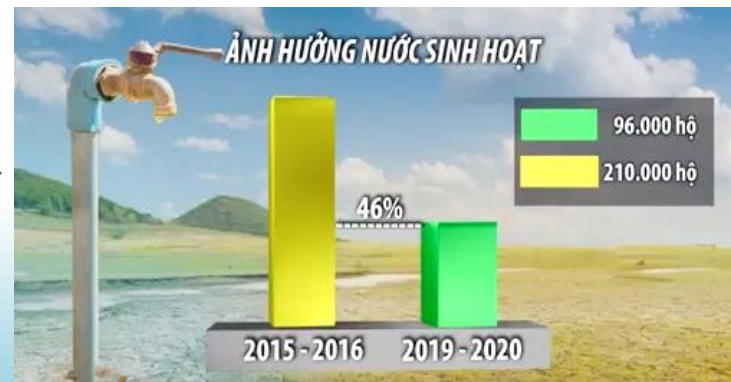
Total rice damages



Total fruit tree, cash tree damages



Total households with water affected



# LESSONS LEARNT



1

Accurate forecasting and warning play an important role

2

Strong leadership and directions of the Government, ministries and sectors

3

Smooth coordination and synchronous implementation of solutions among ministries, sectors and localities

4

Effective coordination in information and communication to proactively and best evaluate the disaster situation

5

Develop disaster response plans that adapt to actual situation

6

Taking full advantage of available resources for preparedness and response

7

Improved community awareness plays an important role in DRR



# ORIENTATIONS IN THE FUTURE

