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## Tsunami warning chains and SOPs: Roles and responsibilities

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ICG Indian Ocean Tsunami Warning & Mitigation System SOP Workshops July 2023:  
*Standard Operating Procedures (SOPs) for  
National Tsunami Warning Centres (NTWCs) and  
Disaster Management Organisations (DMOs)*

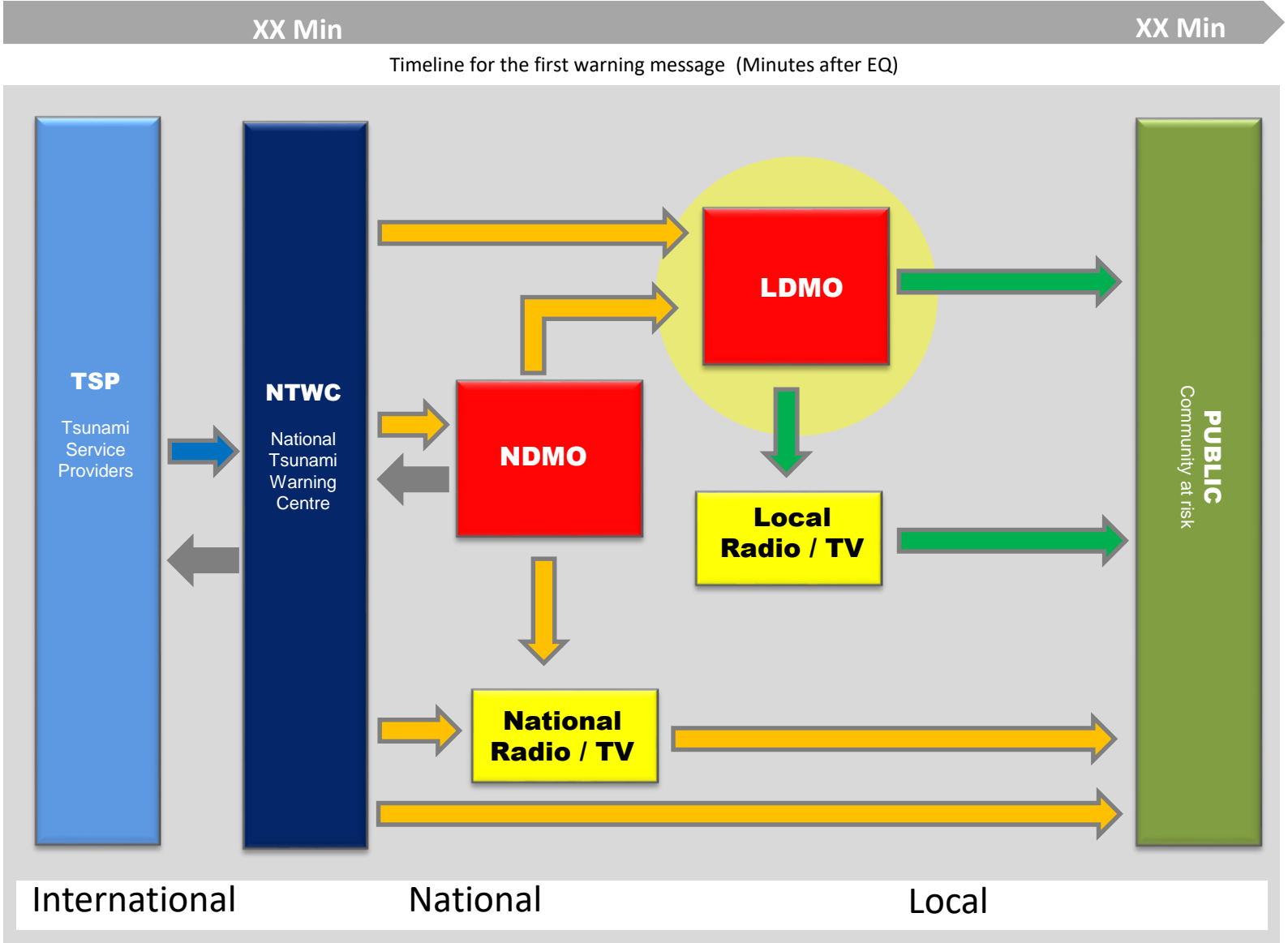


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# ROLES & RESPONSIBILITIES IN THE TSUNAMI WARNING CHAIN

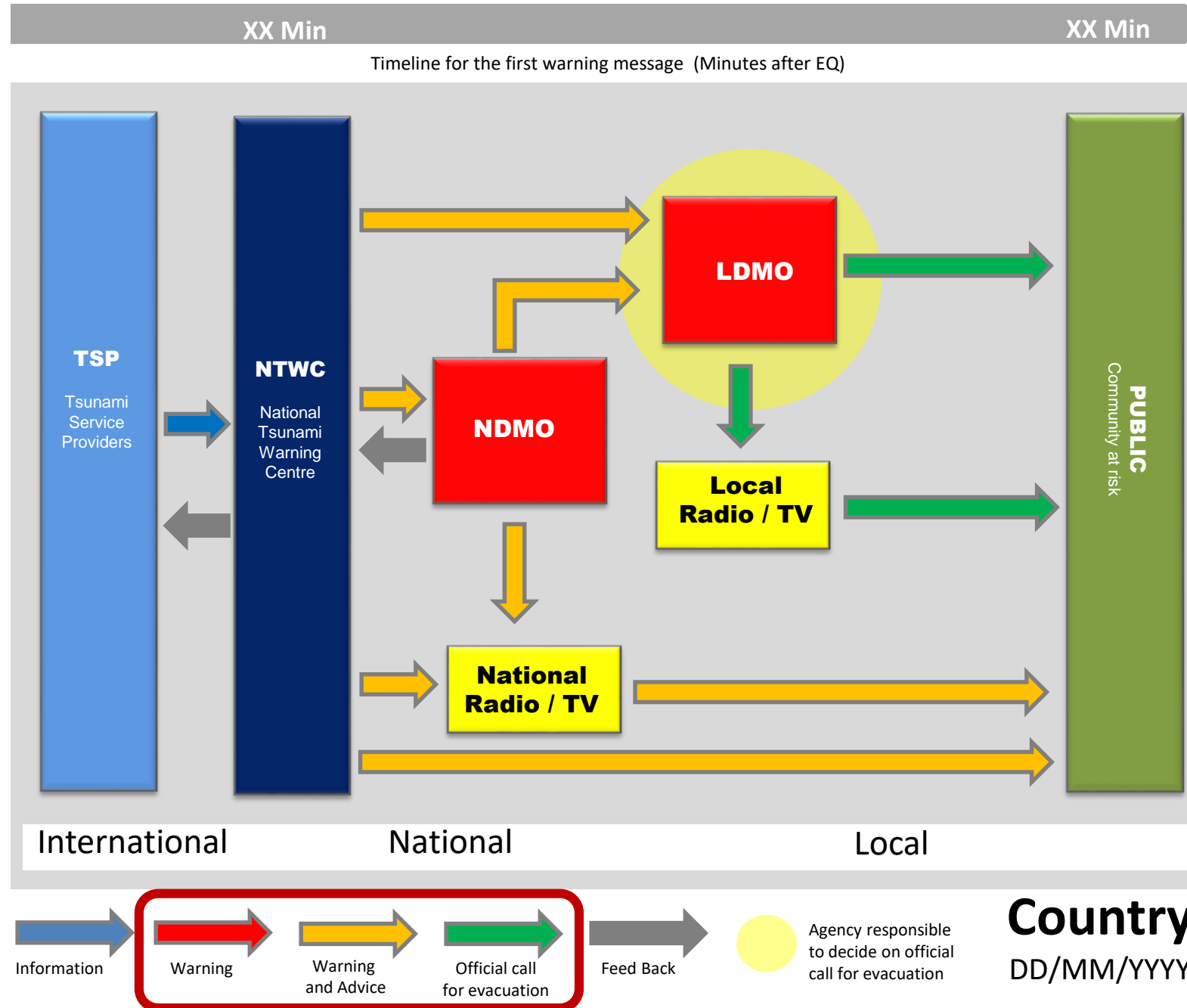
# Main actors, overall flow of information and time frame



→ Information    
 → Warning    
 → Warning and Advice    
 → Official call for evacuation    
 → Feed Back    
 ● Agency responsible to decide on official call for evacuation

**Country**  
DD/MM/YYYY

# Types of Information: Warning, Advice & Call for Evacuation



# Roles & Responsibilities

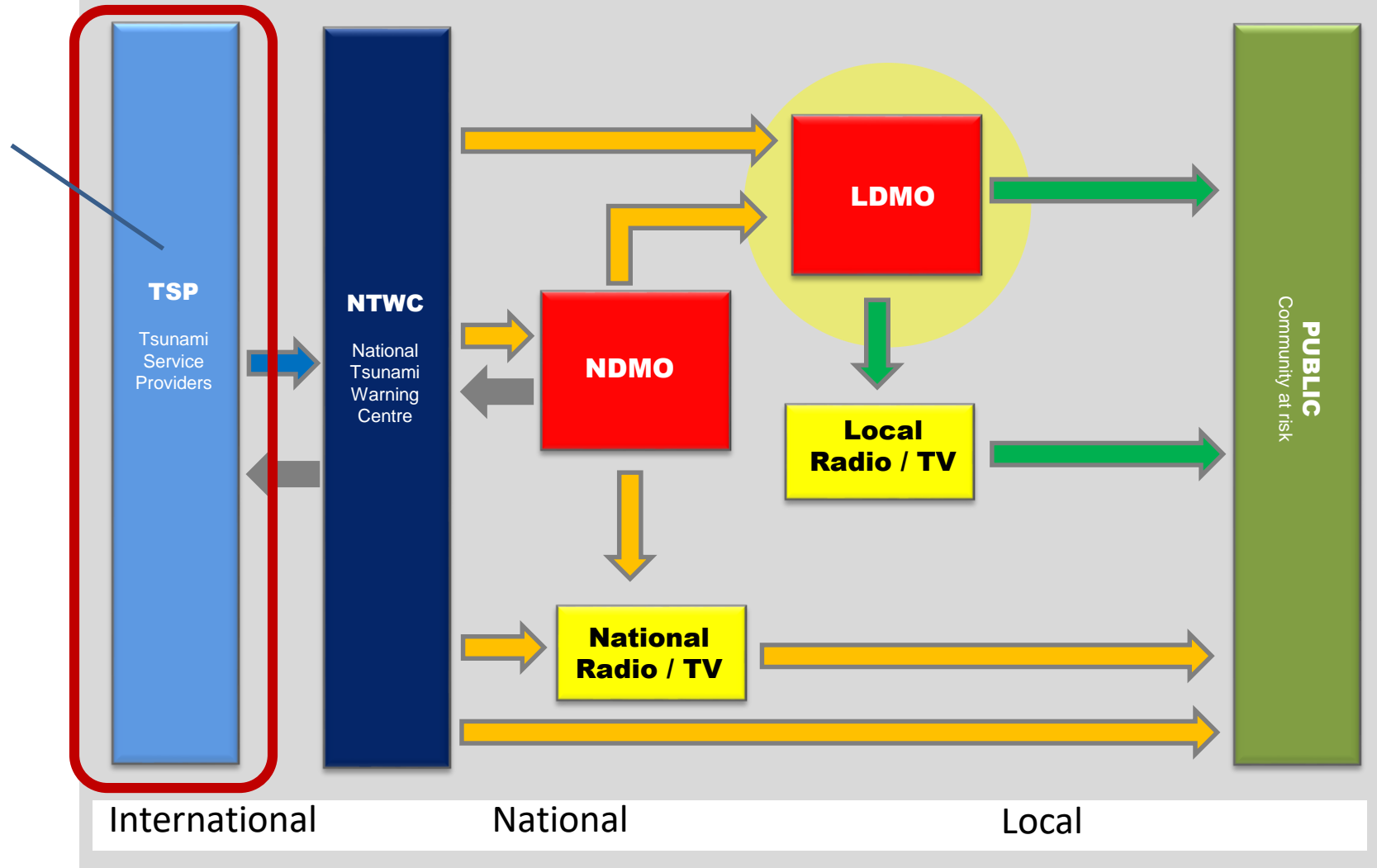
XX Min

XX Min

Timeline for the first warning message (Minutes after EQ)

**TSP**

- Monitoring & detection
- Provide timely earthquake and tsunami threat forecast information as guidance to NTWCs for use in preparing and issuing of national tsunami warnings
- Provide timely observed tsunami wave amplitude data for use by other TSPs and NTWCs
- Provide 'Final Bulletin' once the threat is over



Agency responsible to decide on official call for evacuation

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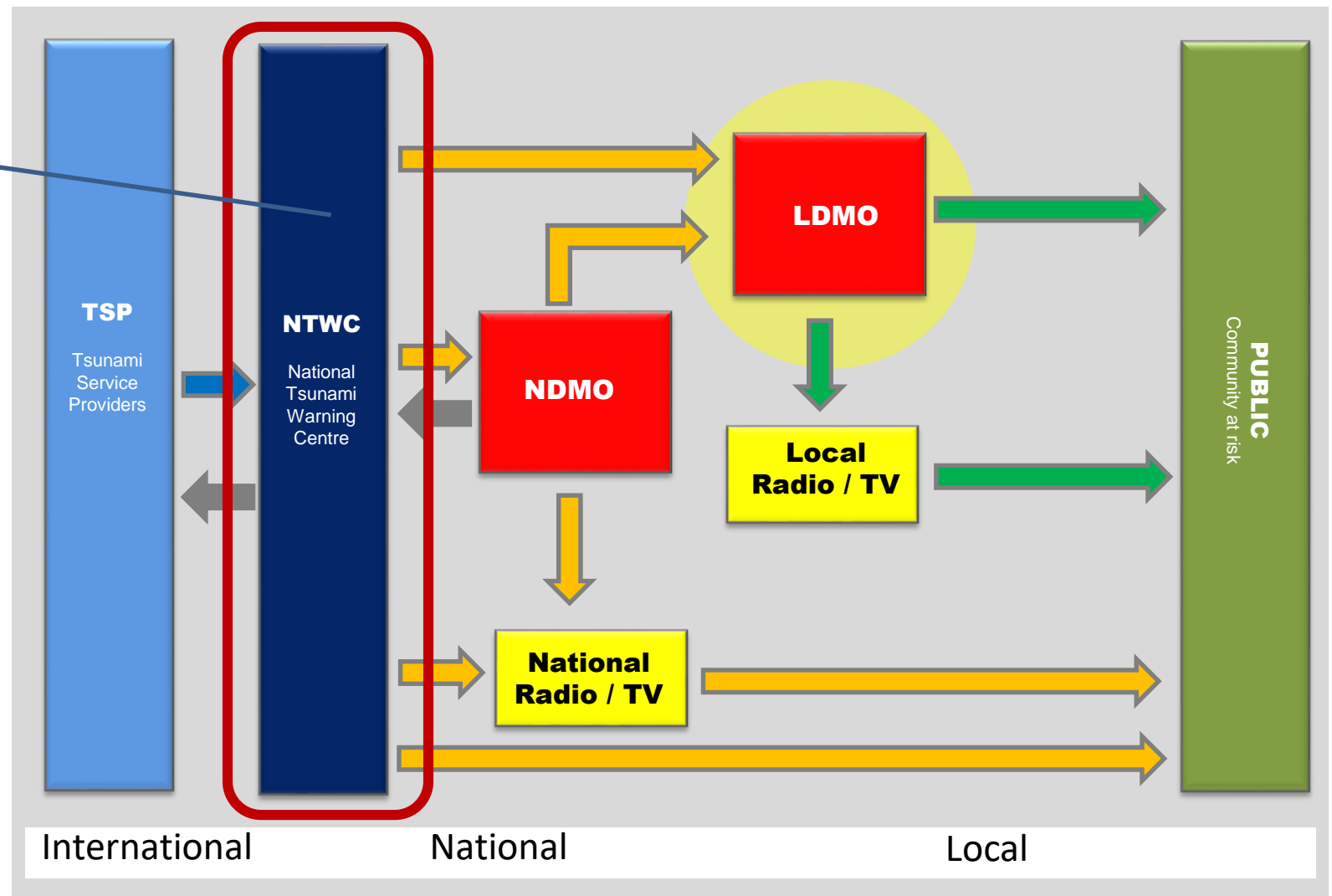
# Roles & Responsibilities

XX Min XX Min

Timeline for the first warning message (Minutes after EQ)

- ## NTWC

  - Monitoring & detection
  - Receive TSP threat information
  - Decision on national warning (level)
  - Issue warnings to DMOs & Media (and Public)
  - Provide 'Final Warnings' once the threat is over



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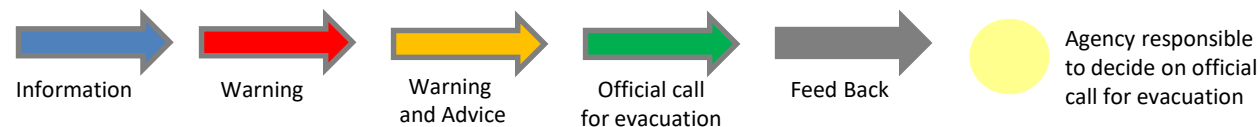
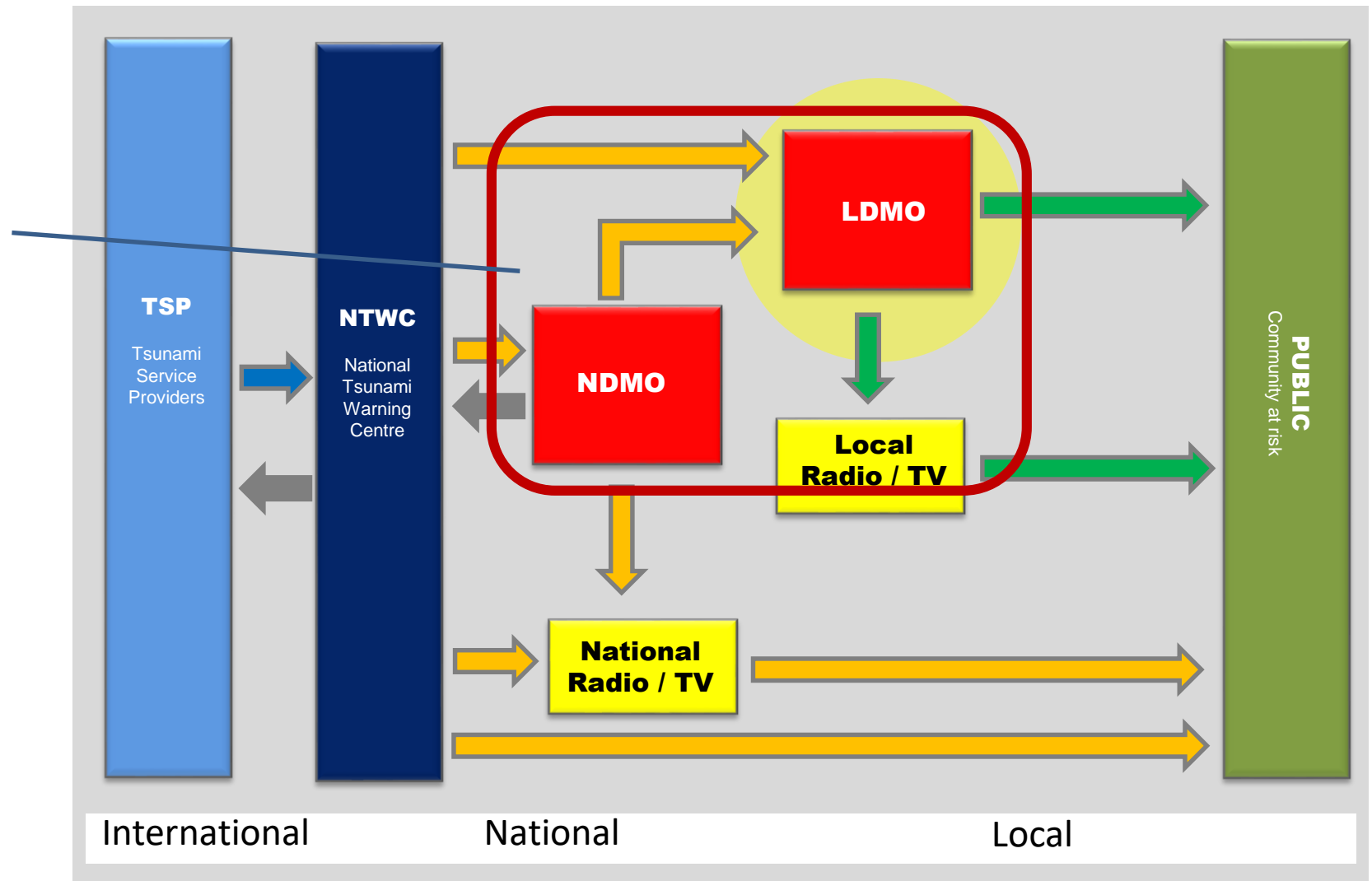
# Roles & Responsibilities

XX Min XX Min

Timeline for the first warning message (Minutes after EQ)

- N/LDMO**

  - Receive warnings from NTWC
  - Decide on appropriate action and evacuations
  - Communicate the warnings, with instructions, via public alerting systems (incl. sirens) and the Broadcast Media
  - Communicate 'All Clear' once the threat is over and safe to return to any impacted areas

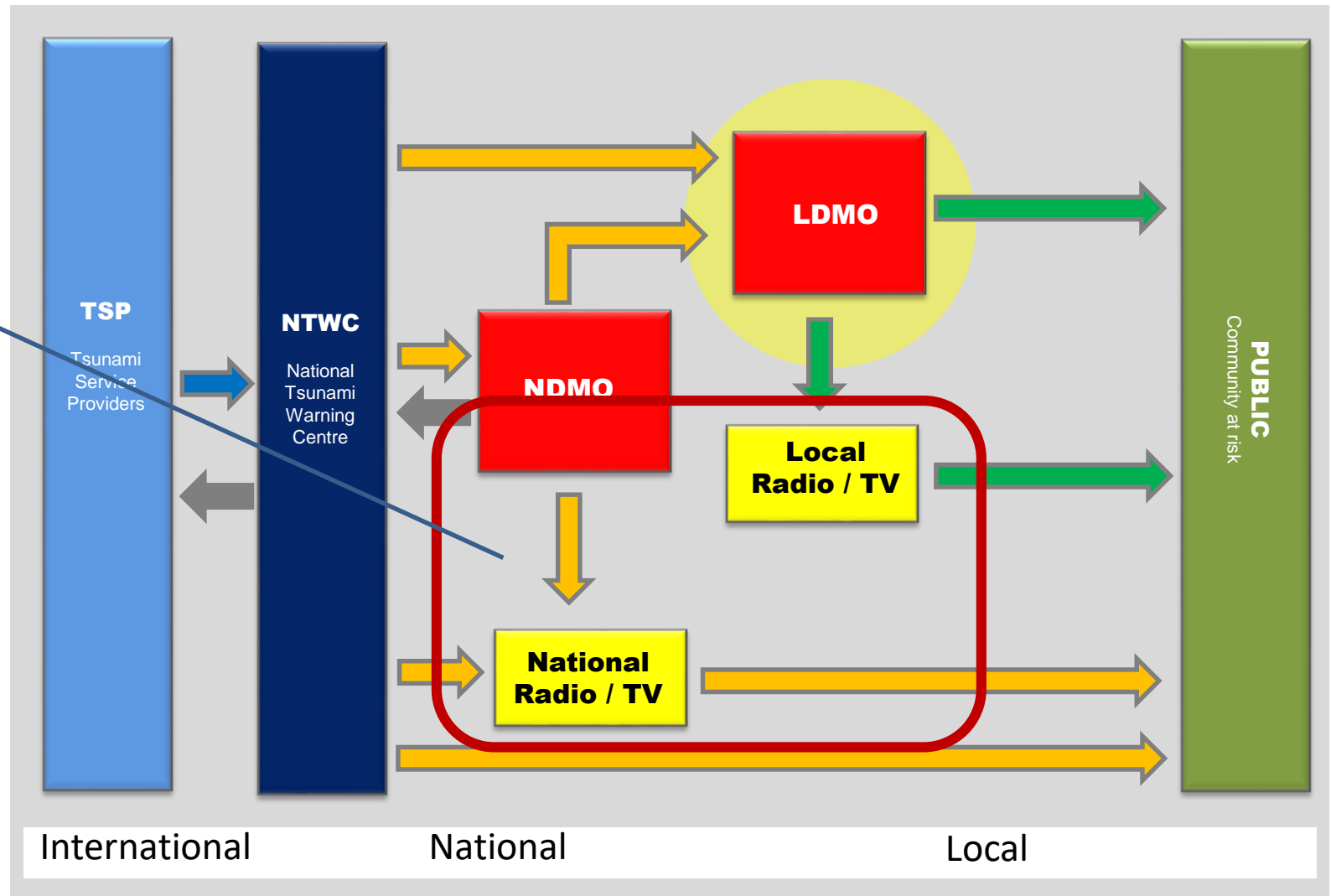


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# Roles & Responsibilities

XX Min XX Min

Timeline for the first warning message (Minutes after EQ)



## BROADCAST MEDIA

- Receive warnings from official sources (NTWC / national or local DMOs)
- Broadcast warnings (immediately / timely)
- On advice from the authorities help inform public once the threat is over and safe to return to impacted areas



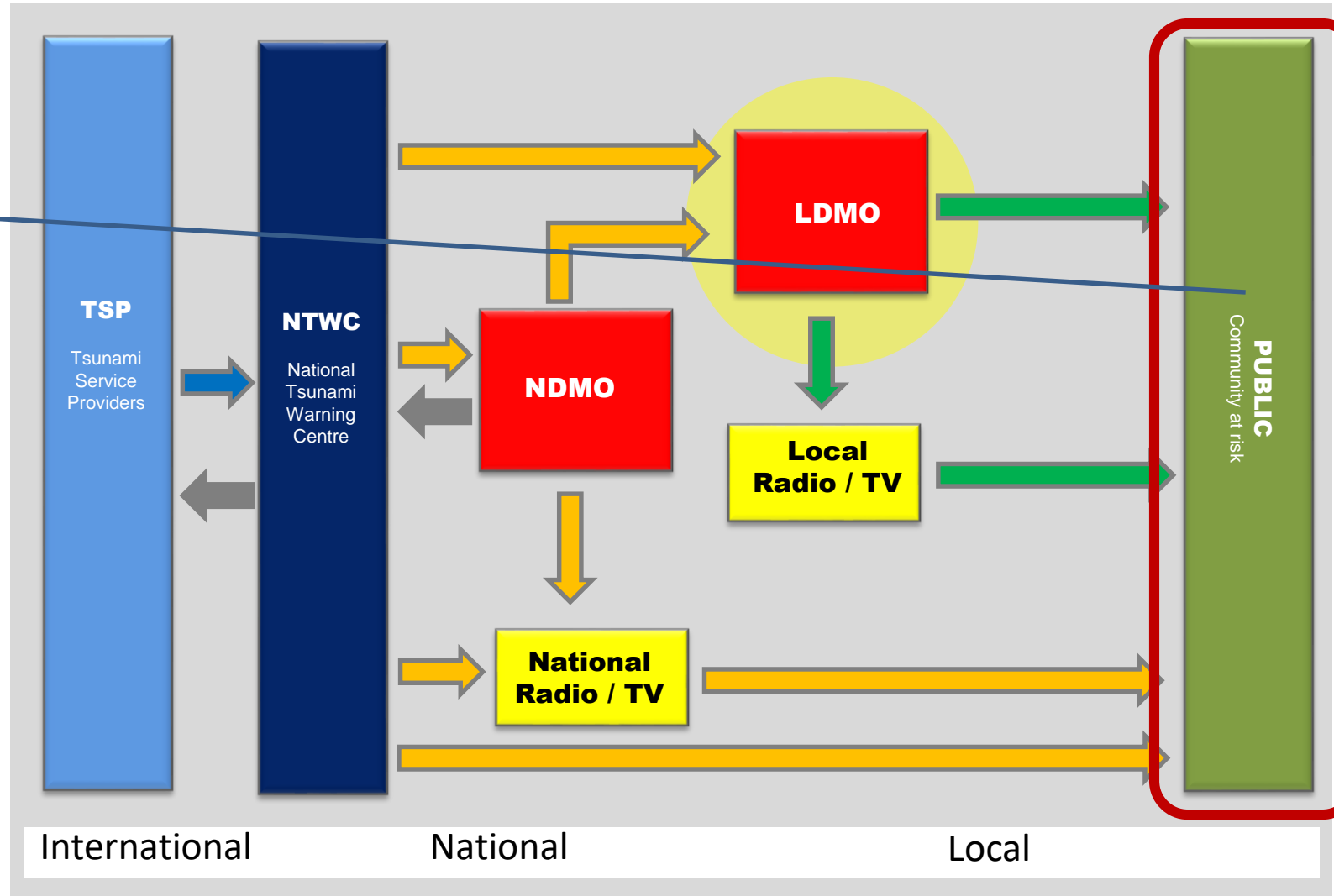
# Roles & Responsibilities

XX Min XX Min

Timeline for the first warning message (Minutes after EQ)

**PUBLIC**

- Understand and react on natural warning signs
- Able to access and understand official warnings
- Response to warnings following local evacuation procedures or “thumb rules” in case no evacuation zones are defined
- Stay out of impact zones until “all clear” is provided



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# OPERATING TSUNAMI WARNING CHAINS BY STANDARD OPERATING PROCEDURES

# Definition: Standard Operating Procedure (SOP)

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A SOP is a written document that describes the **actions to be taken in a system or process**.

A SOP describes each individual activity in a sequence of activities, documenting **who does what, when, where, and how** for each activity.

Source: IOC Manuals and Guides, 76

# Definition: Standard Operating Procedure (SOP)

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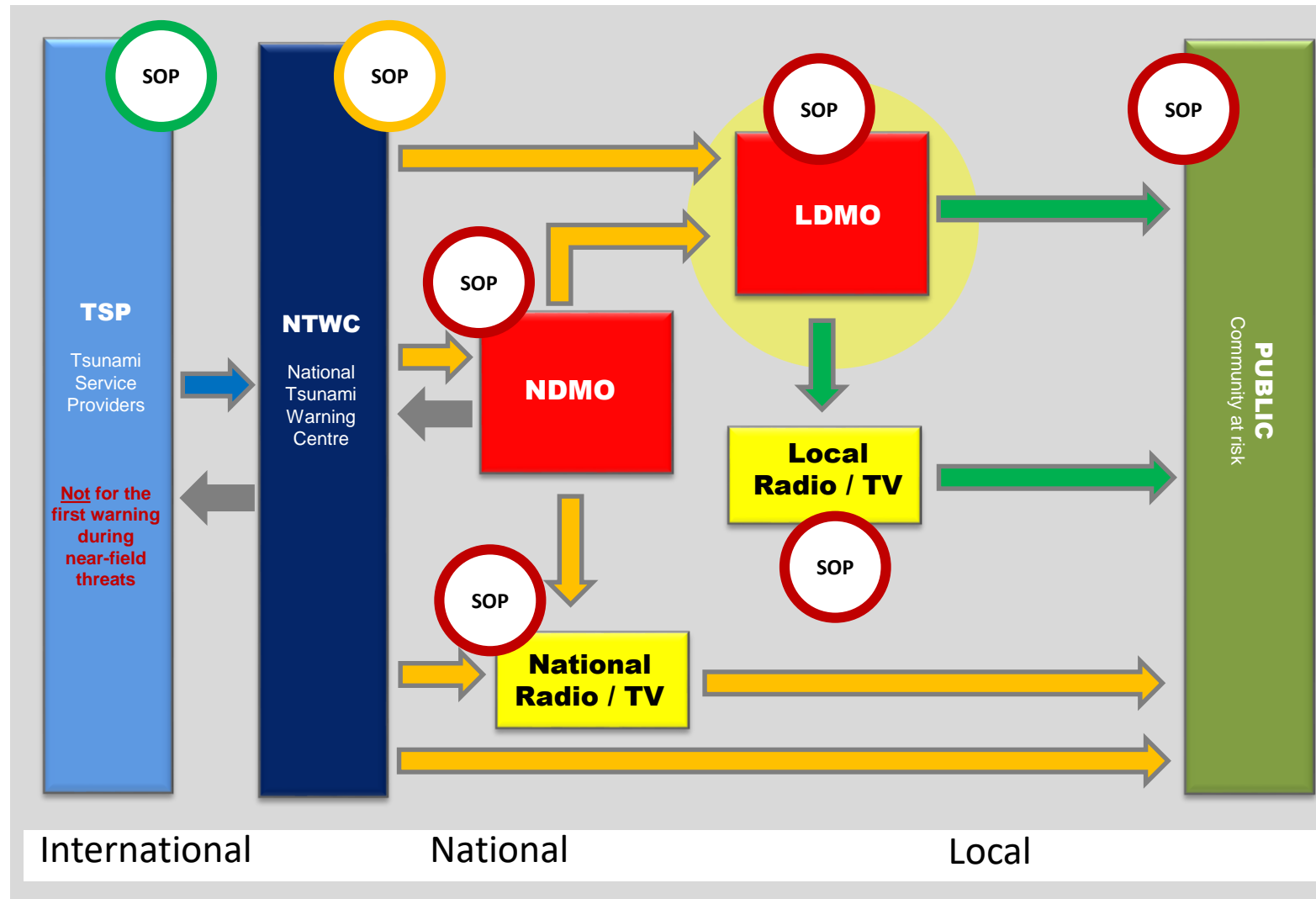
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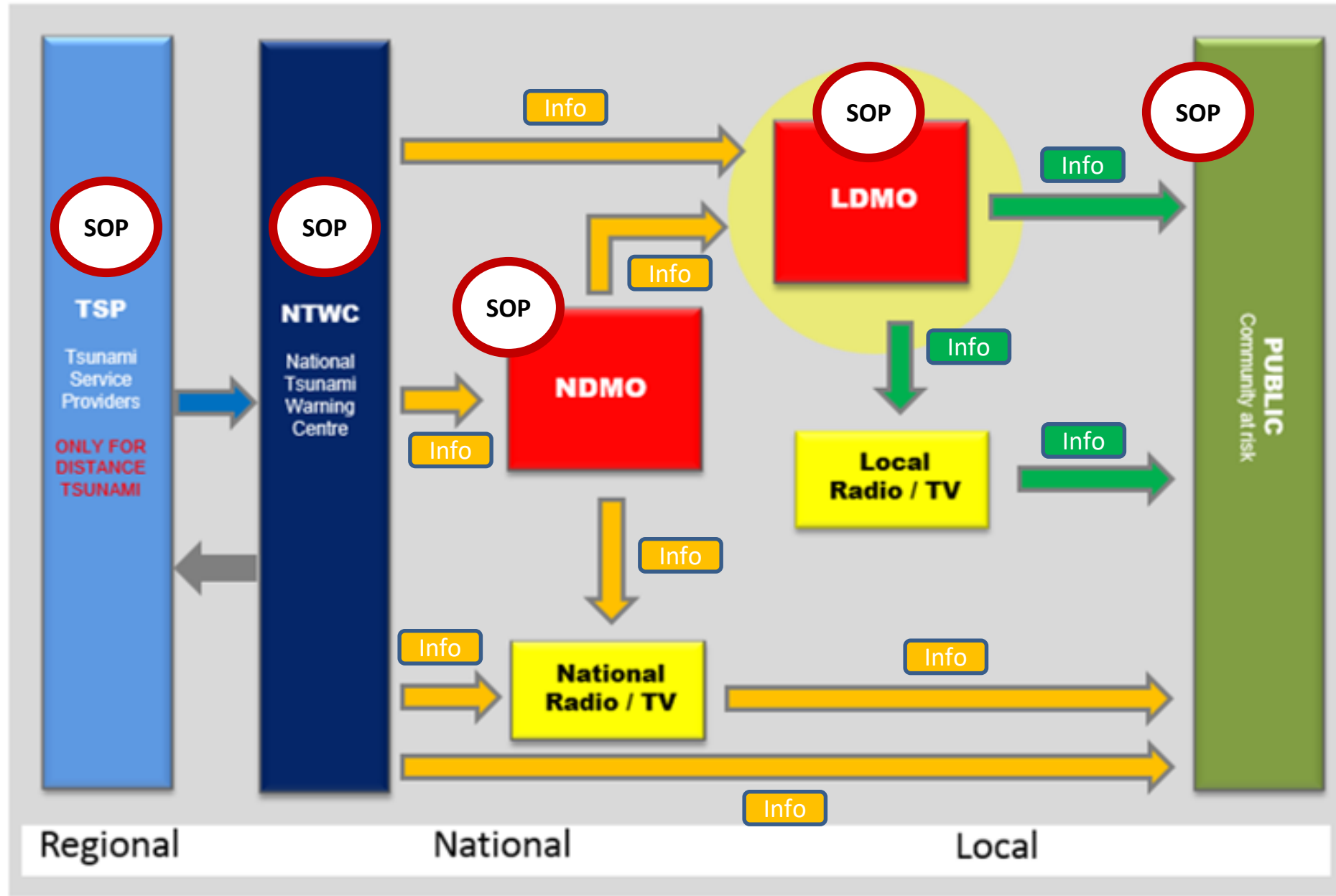
“A description and **procedure on agreed steps** by institutions used in coordinating **who, what, when, where** and **how** for tsunami early warning and response”.

**Source: SOP Workshop Indonesia**

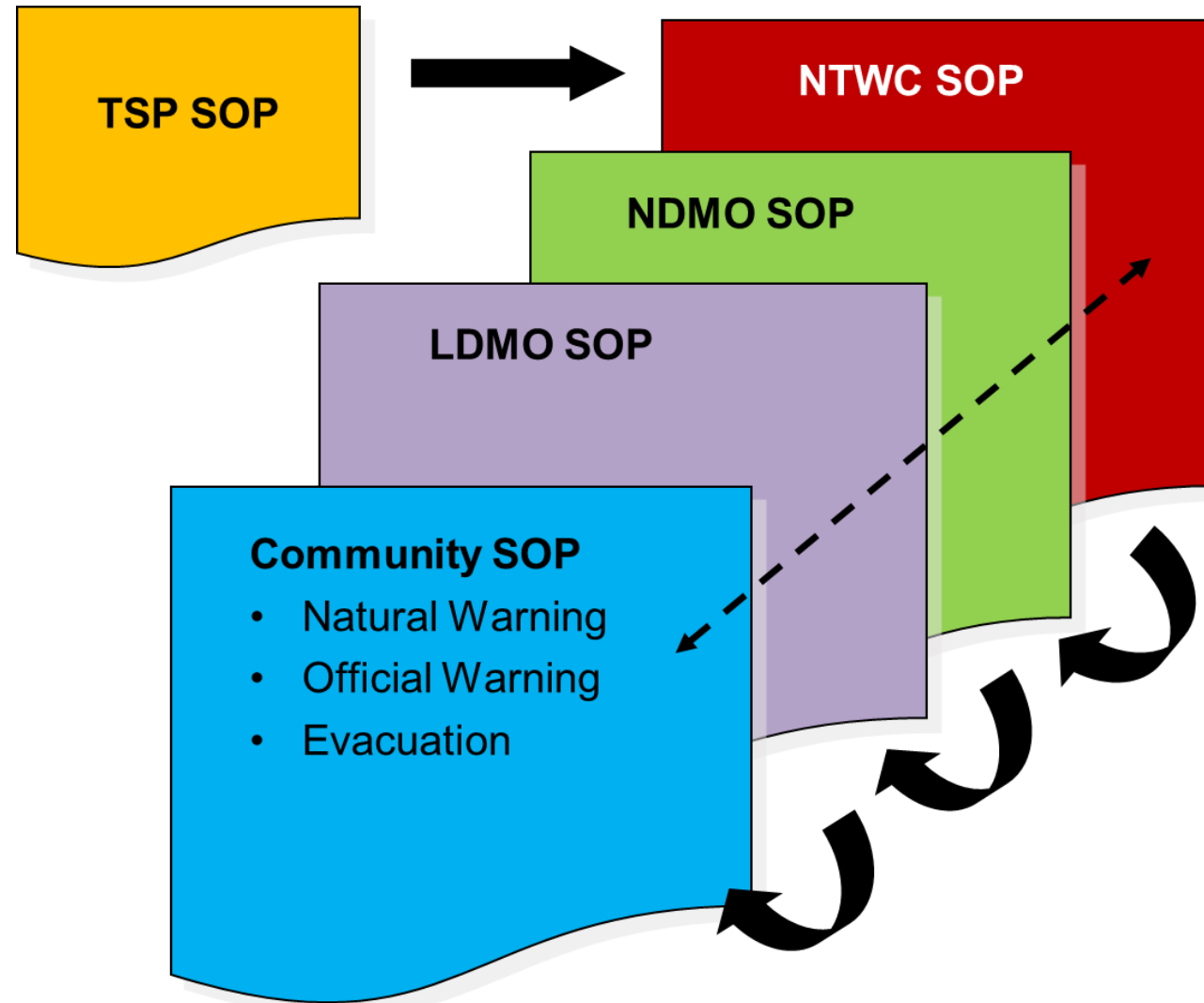
# Tsunami warning chain is operated by institutional SOPs



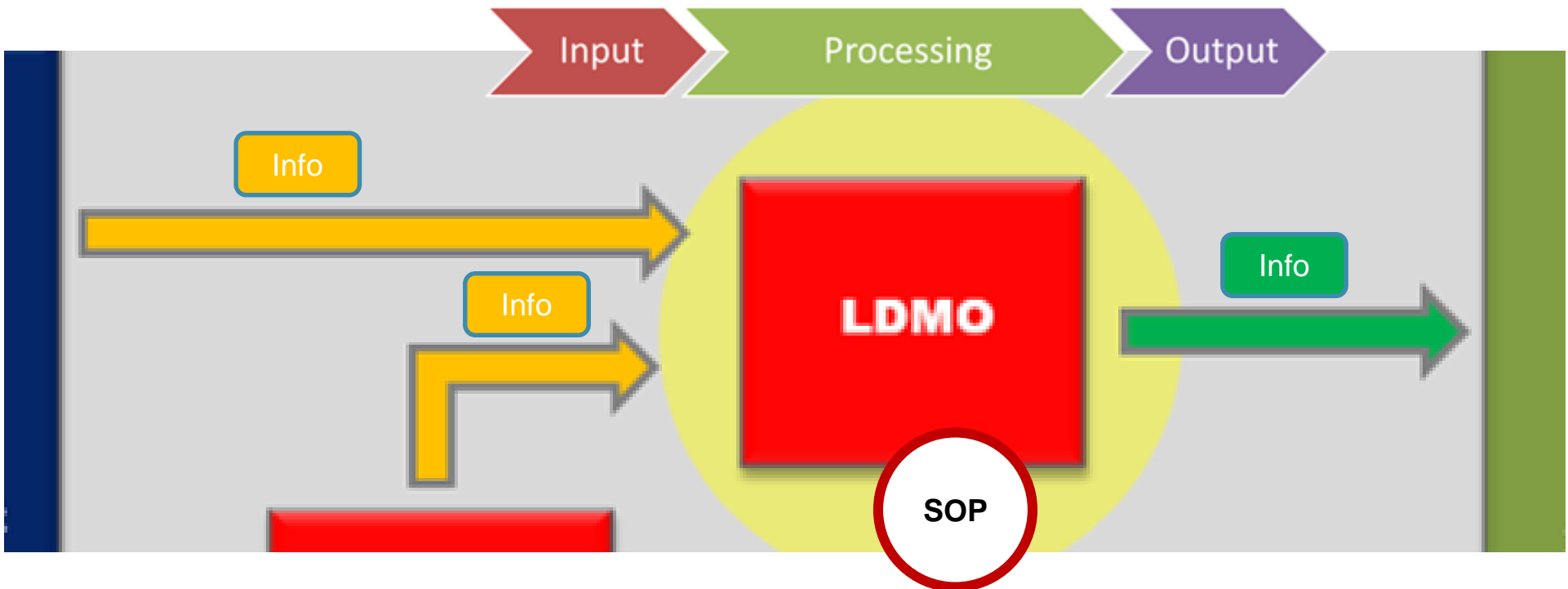
# Information products are distributed and processed along the warning chain



# Institutional SOPs must be well integrated





# Example of logic of institutional SOPs in the warning chain



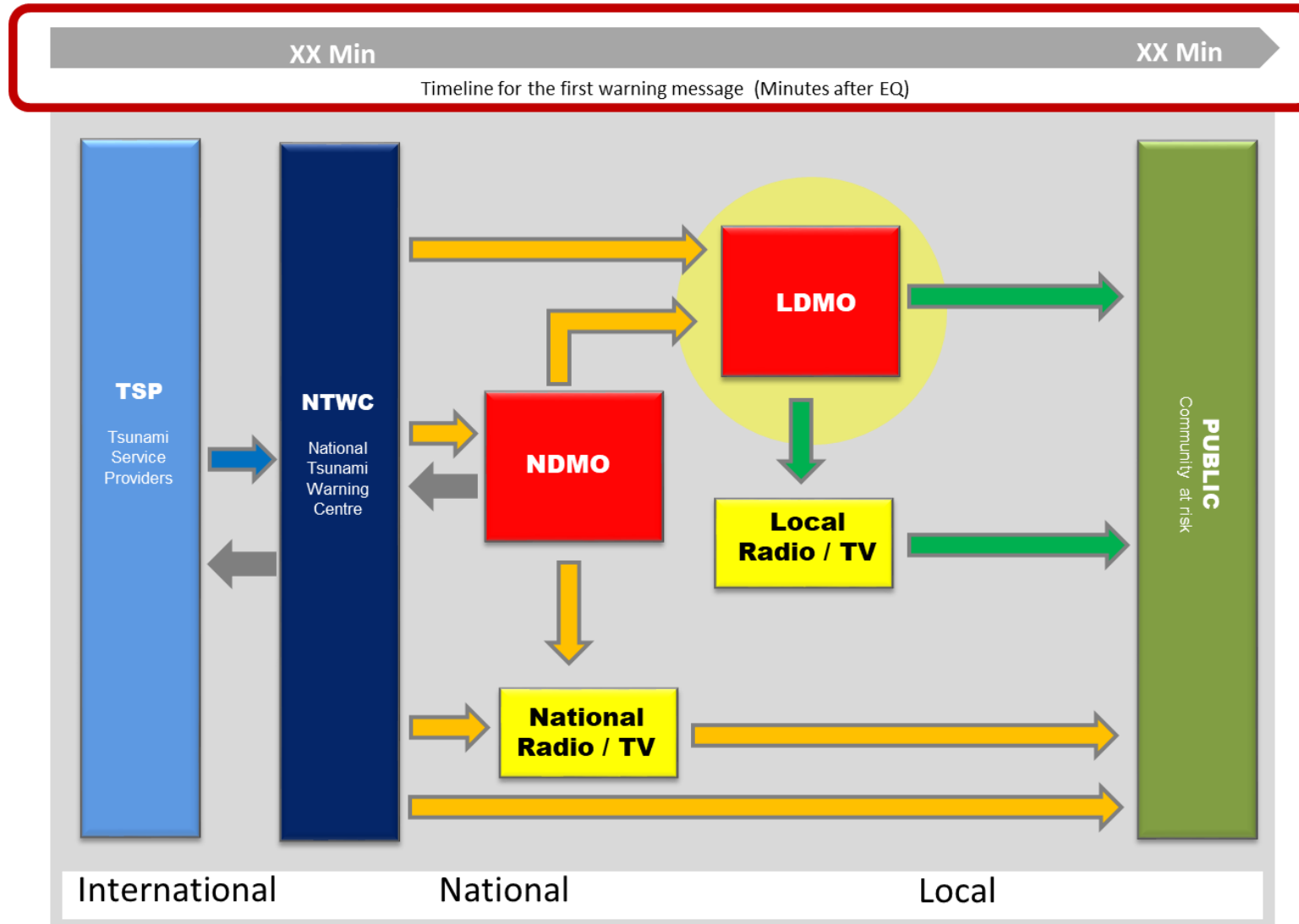


# The logic of institutional SOPs in the warning chain

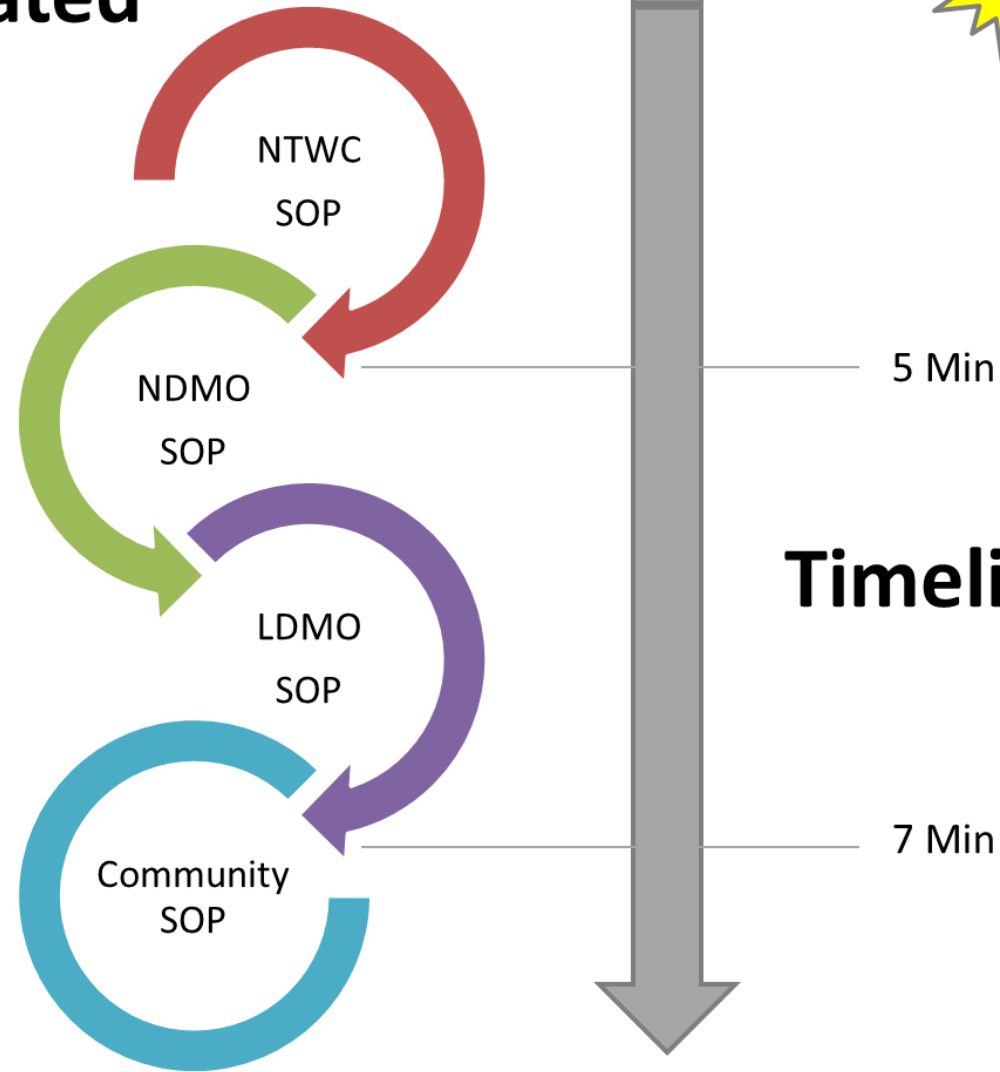


Input			Proceeding	Output		
What	From whom	How received	Processing the input, decision making and generating the output	What	To whom	How disseminated
						
Time in: EQ + x min			<b>Timeline</b>	Time out: EQ + x min		

# The timeline provides the framework and constraints



# Integrated



# Timeline-driven

## Warning chain scheme & timeline

- describe the **overall flow of information** and provide the **time frame**
- display the **main actors** involved and their **principal role** in the process
- both are a main reference for the SOP development

## SOPs

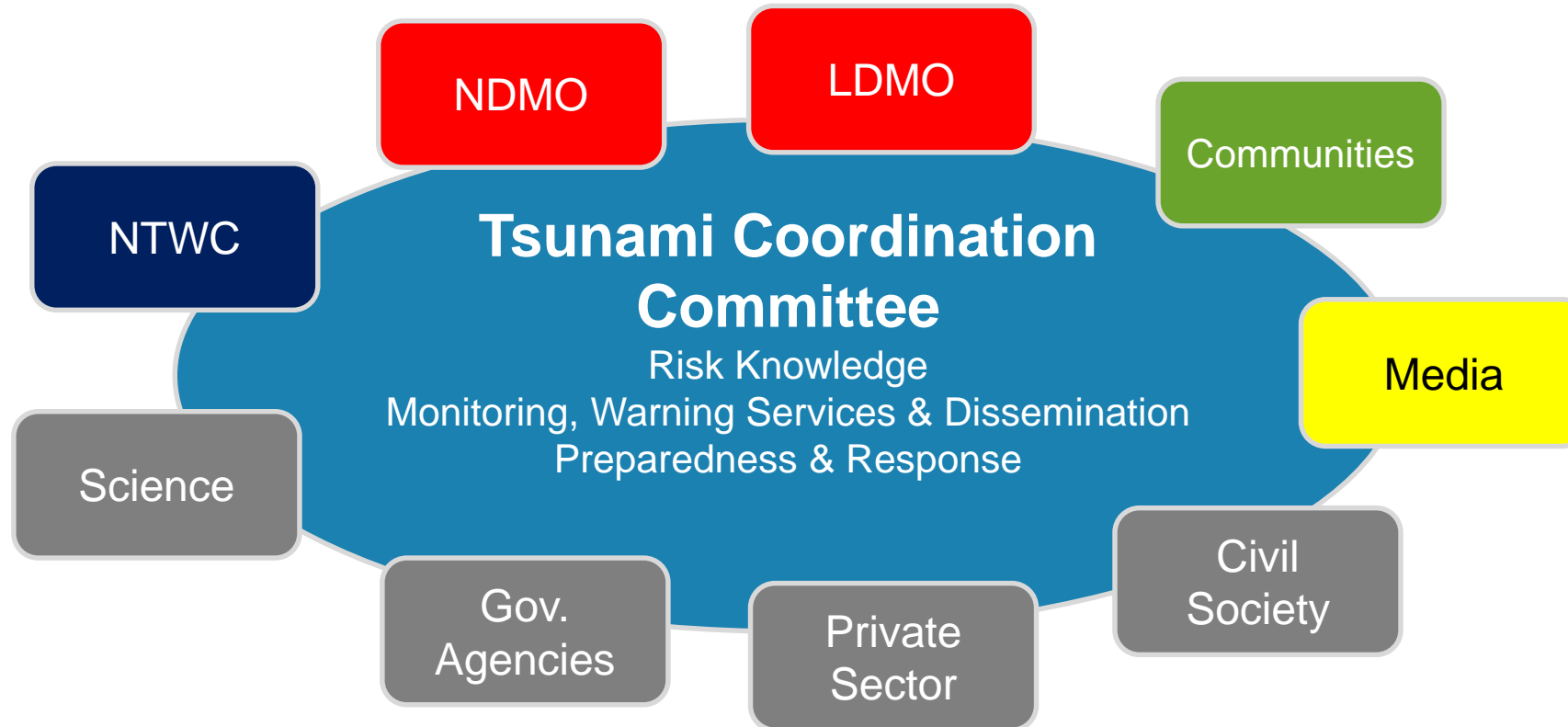
- provide concrete and **detailed instructions to operate the warning chain** at institutional levels
- describe decision making processes as well as contents and dissemination of warning messages
- Must be **integrated** and **timeline-driven**

# Stakeholder Coordination is Essential!



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