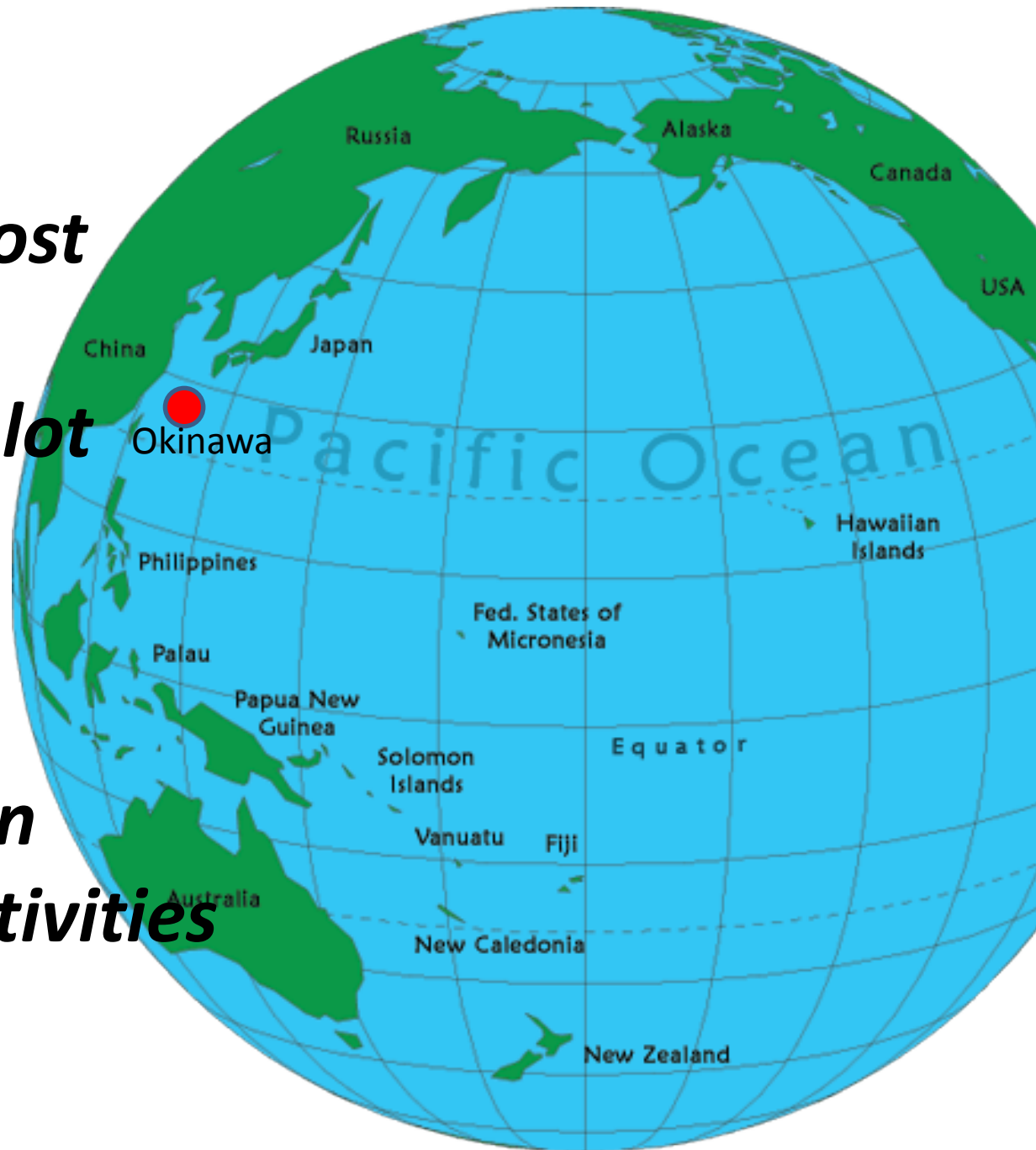




*Kunitoshi Sakurai, Dr. Eng.  
Professor Emeritus, Okinawa University  
Chairman of the JPRISM Project Council*

***Okinawa*** is  
the southernmost  
island of Japan  
and it shares a lot  
with PICs.  
As such,  
***JICA Okinawa***  
is quite active in  
cooperation activities  
with PICs.



***Session 1.4.A***

***Planning &  
Responding to  
Disaster Wastes***

# *Session 1.4.A*

## *Background (1)*

- The past historical events which plagued the Pacific, more recently TC Gita, Winston and Pam triggered countries to consider **a more planned approach** to managing disaster wastes.*
- The generated wastes in a single disaster is oftentimes equivalent to several months to a year of regular wastes. This puts pressure on the limited disposal facility of most PICs.*
- There was also disruption of waste collection and disposal due to limited access to service delivery routes **leading to health issues** in affected communities.*

# *Session 1.4.A*

## *Background (2)*

- *Recovery efforts were hampered by the **inadequacy of coordinated actions** to remove debris on affected areas apart from **interrupted delivery of waste services**.*
- *Although support from donor countries are pouring in the aftermath of these events, utilization of available resources need to be optimized to facilitate and ensure greater recovery.*

# *Session 1.4.A*

## *Background (3)*

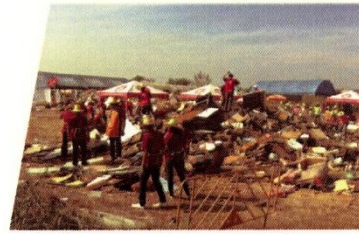
- *One of the 4 Outputs (**Output No.3**) of **JPRISM II** is on DWM. It aims to develop a **Regional DWM Guideline** and promote its implementation at the national level.*
- *The initiative to develop a **Pacific Regional DWM Guideline** is now ongoing in collaboration with the formulation member of **DWM Guideline in Asia and the Pacific** supported by **Ministry of the Environment, Japan**.*



- *The experiences and lessons in disaster response in Japan, a disaster-prone country, must be effective and adaptable for other countries around the world after considering differences in geographical conditions and types of disasters.*
- *In the month of **June 2018**, the Ministry of Environment, Japan, published a Guideline supported by the Japan Society of Material Cycles and Waste Management (JSMCWM).*

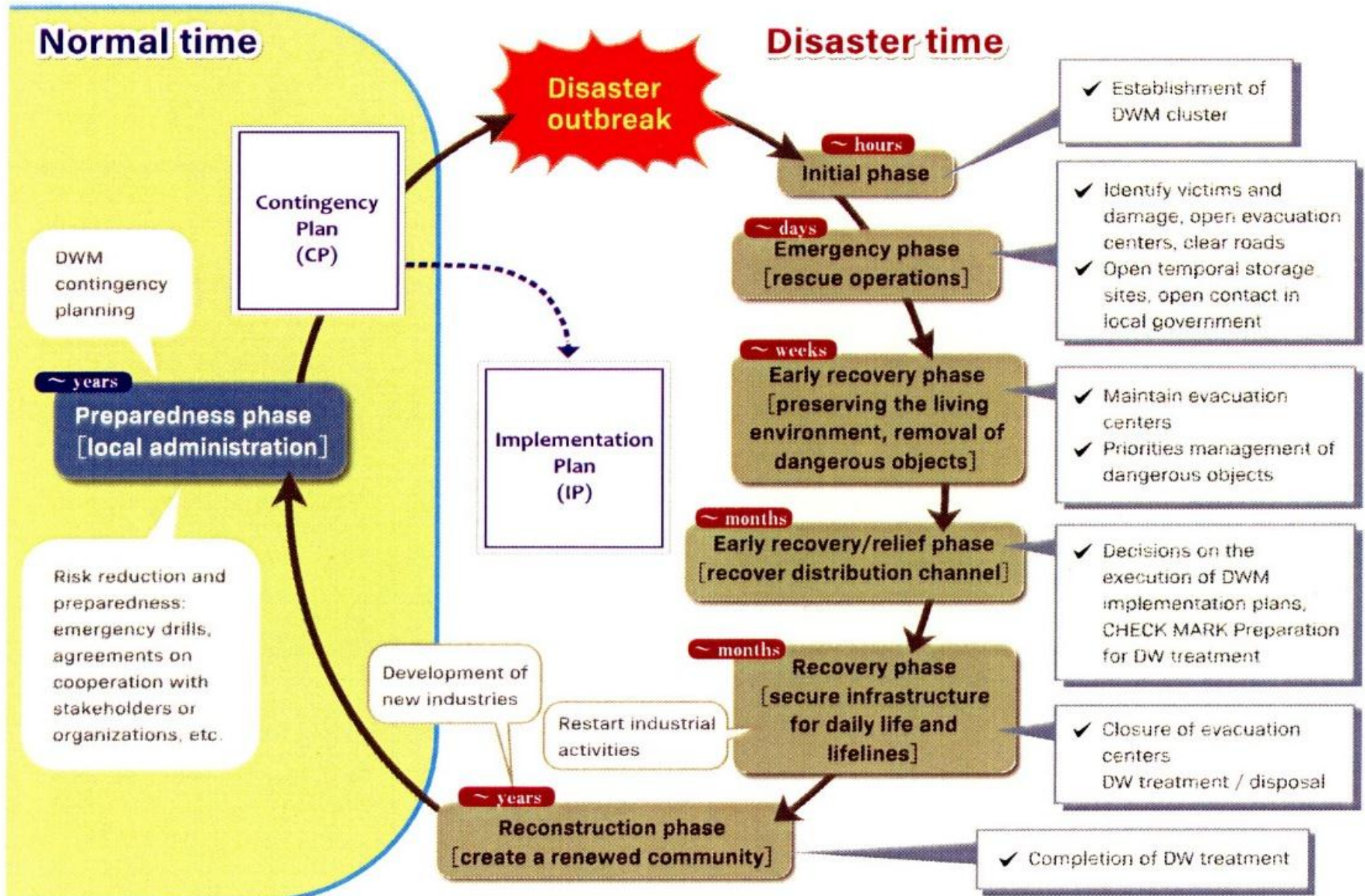
# Disaster Waste Management Guideline

in Asia and the Pacific





# Management Cycle Recommended in DWM Guideline in Asia & the Pacific





# *Session 1.4.A*

# *Objectives*

- *To promote the concept of aligning waste management with National Disaster Management Plans, Processes and Systems for improvement of both humanitarian and waste management responses when disaster occurs, with emphasis to enhance strategic planning for improved preparedness, emergency responses, recovery and reconstruction processes.*
- *To promote collaboration between Waste and Disaster Management Agencies for better responses to national disasters in the future at the regional and national level.*

# *Session 1.4.A*

## *Expected Outcomes*

- *Full understanding of the merits of integrating waste and disaster management approaches as a way forward for the countries.*
- *Commitment and support from the countries and stakeholders in the development of the planned **Regional DWM Guidelines** and respective **National Guidelines**, which promote the integration of waste management into disaster responses as a way forward.*
- *Improved national coordination of disaster waste management with the view to facilitate post-disaster recovery, protect the environment and the affected communities and promote 3R + Return.*



# ***Huge Amount of Disaster Wastes Piled Up Along the Trunk Road After the West Japan Flooding Disaster\****

***\*The biggest flooding disaster in the last 30 years. Fatalities numbered 225 as of 20 July 2018.***



***Kurashiki City, Okayama, Japan, 16 July 2018***



# 東北・関東大震災

*Great East Japan Earthquake*  
*March 11, 2011*

**JAPAN 2011**





# ***Tsunami Caused by the Great East Japan Earthquake***







*No.3 Reactor*

*No. 4 Reactor*

*The Fukushima Daiichi  
Nuclear Disaster*



# ***Serious Problem***

## ***Management of Tsunami Debris***





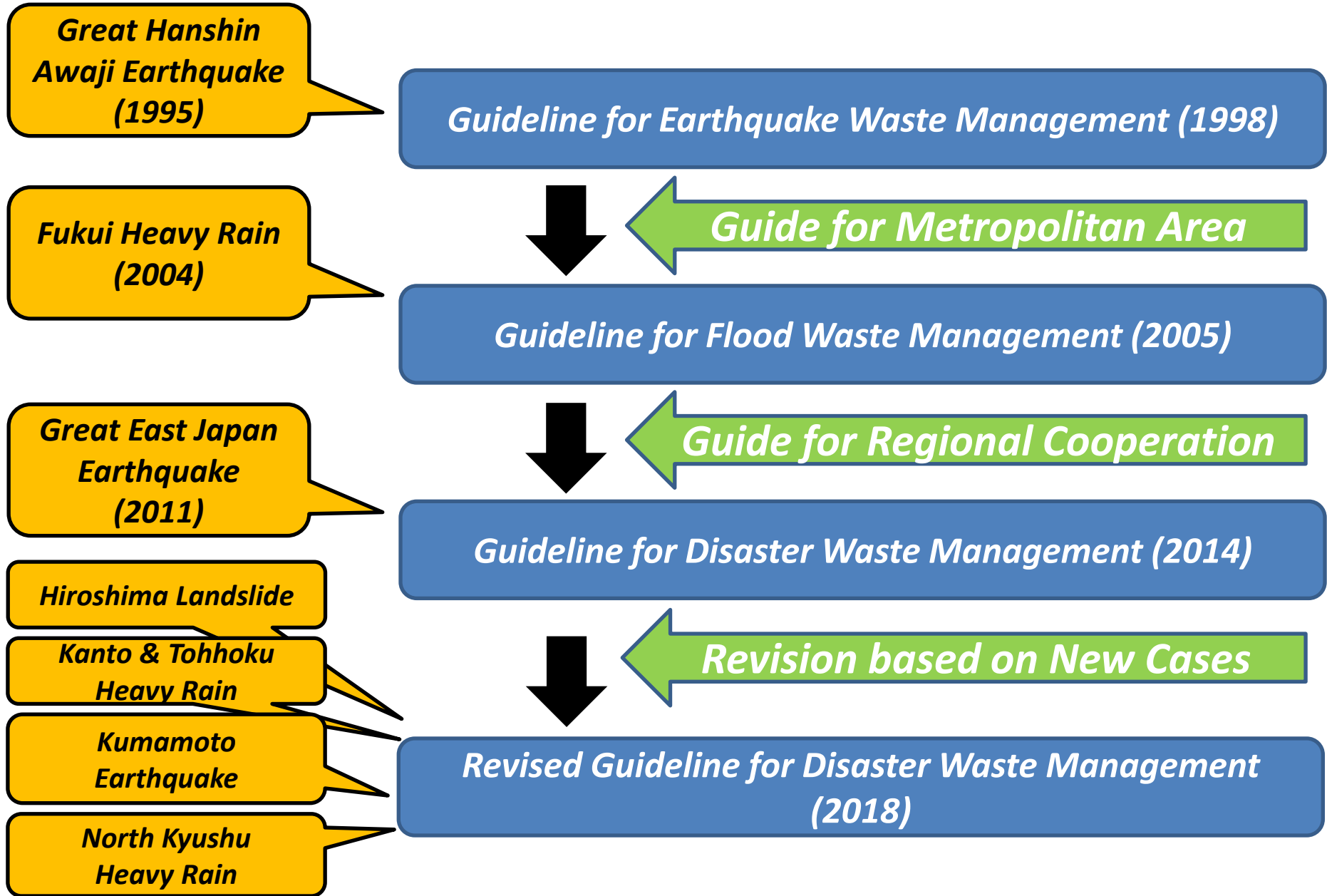
# ***Elimination of Tsunami Debris***

***Total amount was estimated to be more than 20 years equivalent of municipal solid waste.***





# *Historical Development of DWMG in Japan*





# ***Guideline for the Formulation of Disaster Waste Management **Plan*****

**2011**

- ***The Great East Japan Earthquake***

**2014**

- ***Guideline issued by the Ministry of Environment***

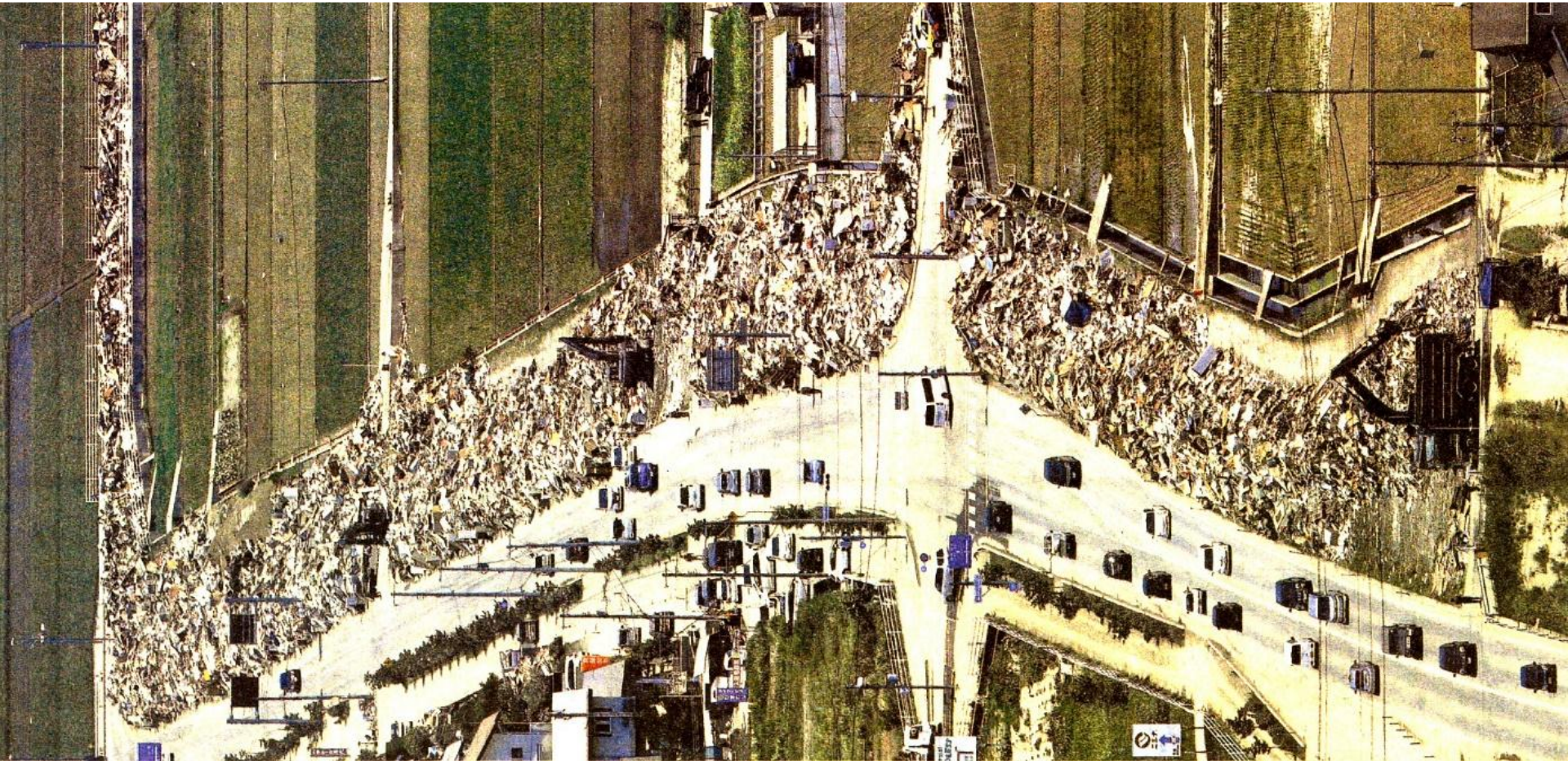
**2017**

- ***24% of local governments have formulated the **Plan** as of March 31, 2017. \****

***\*Kurashiki City failed to formulate the Plan before the West Japan Flooding Disaster.***

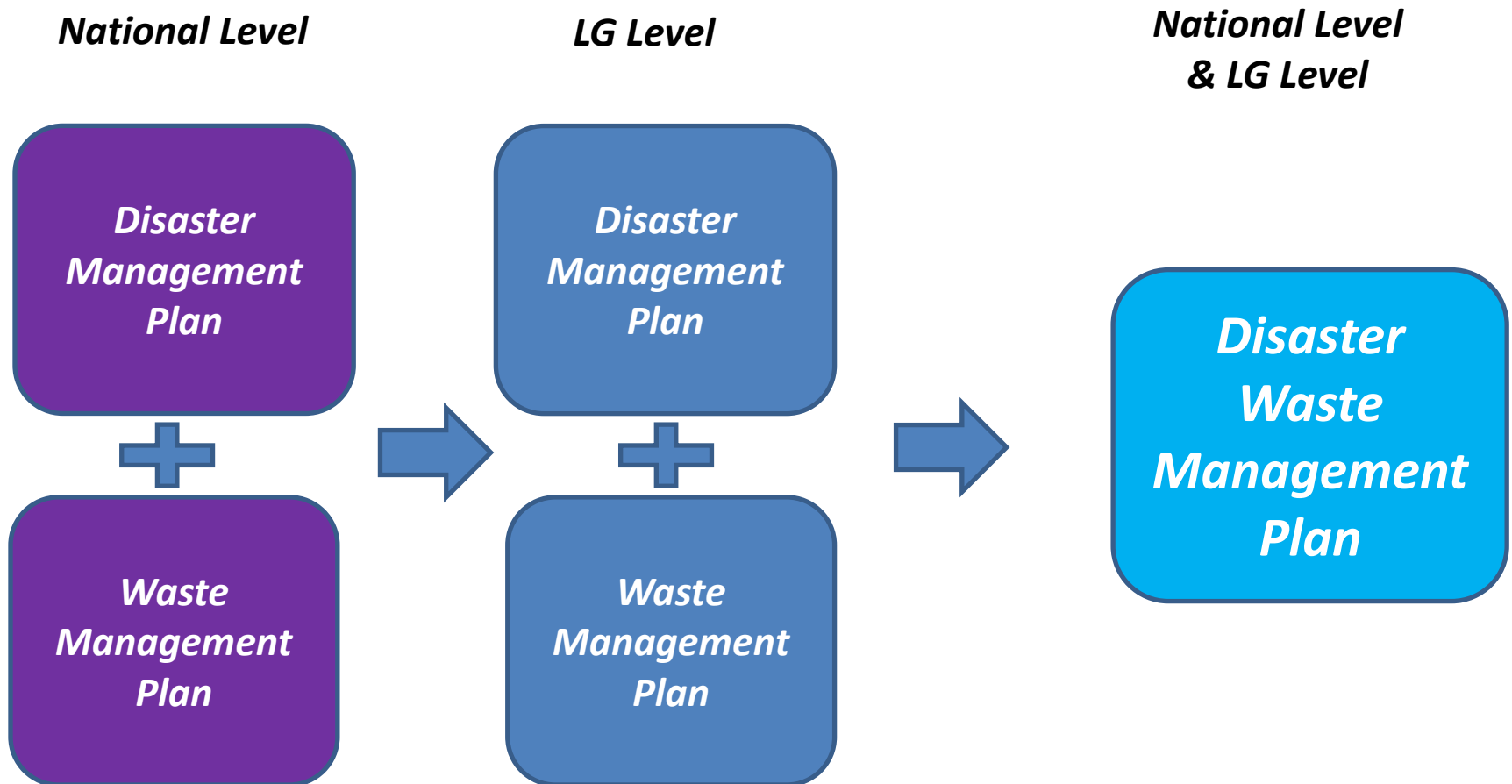
***Kurashiki City is the worst hit City by the West Japan Flooding Disaster.***

***They also suffered very seriously due to the lack of Disaster Waste Management Plan.***





# *Sequence of DWMP Formulation*



# ***Disasters to be Prepared***

***Earthquake & Tsunami***

***Typhoon & Flooding***

***High Tide & Flooding***

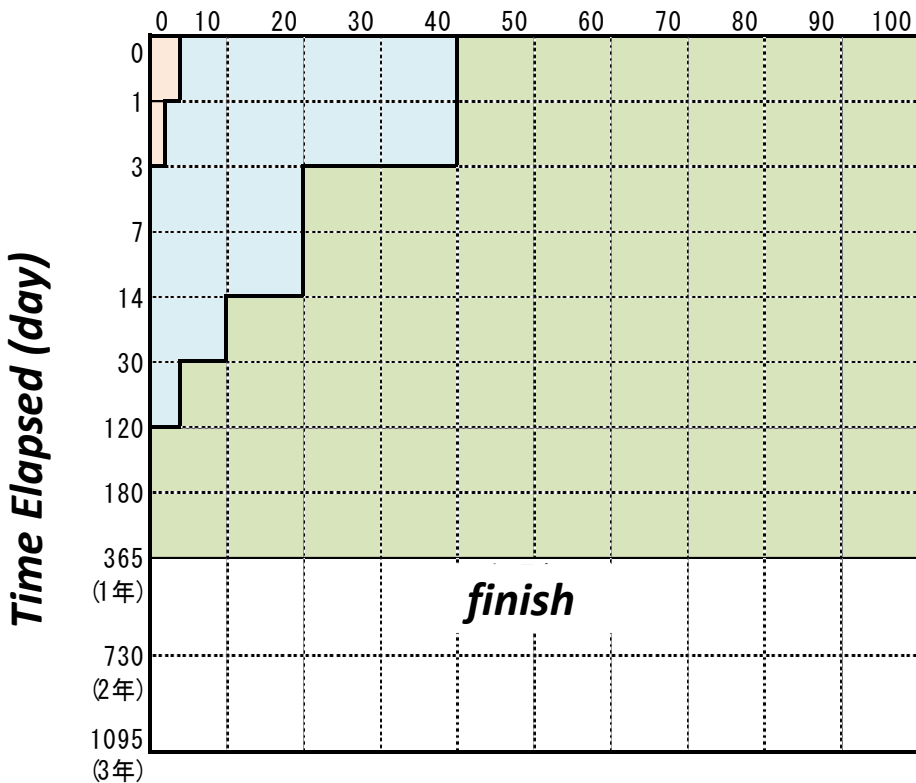


# Examples of Disaster Response Timeline

*It depends on the type and the size of disaster.*

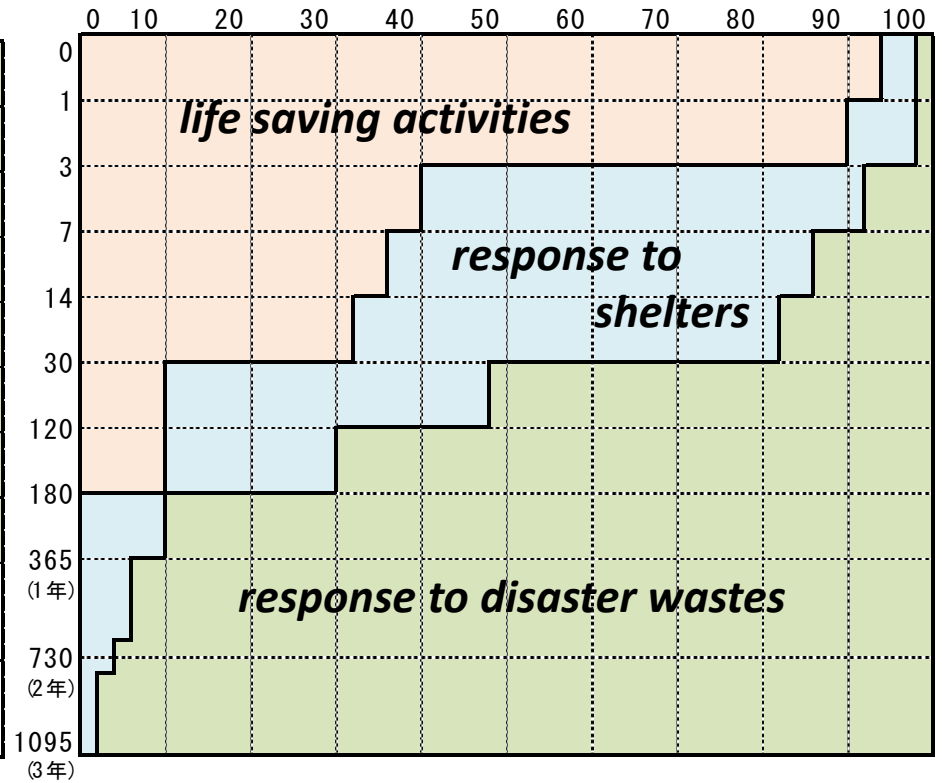
## Flooding

Work Load in the Office in Charge (%)

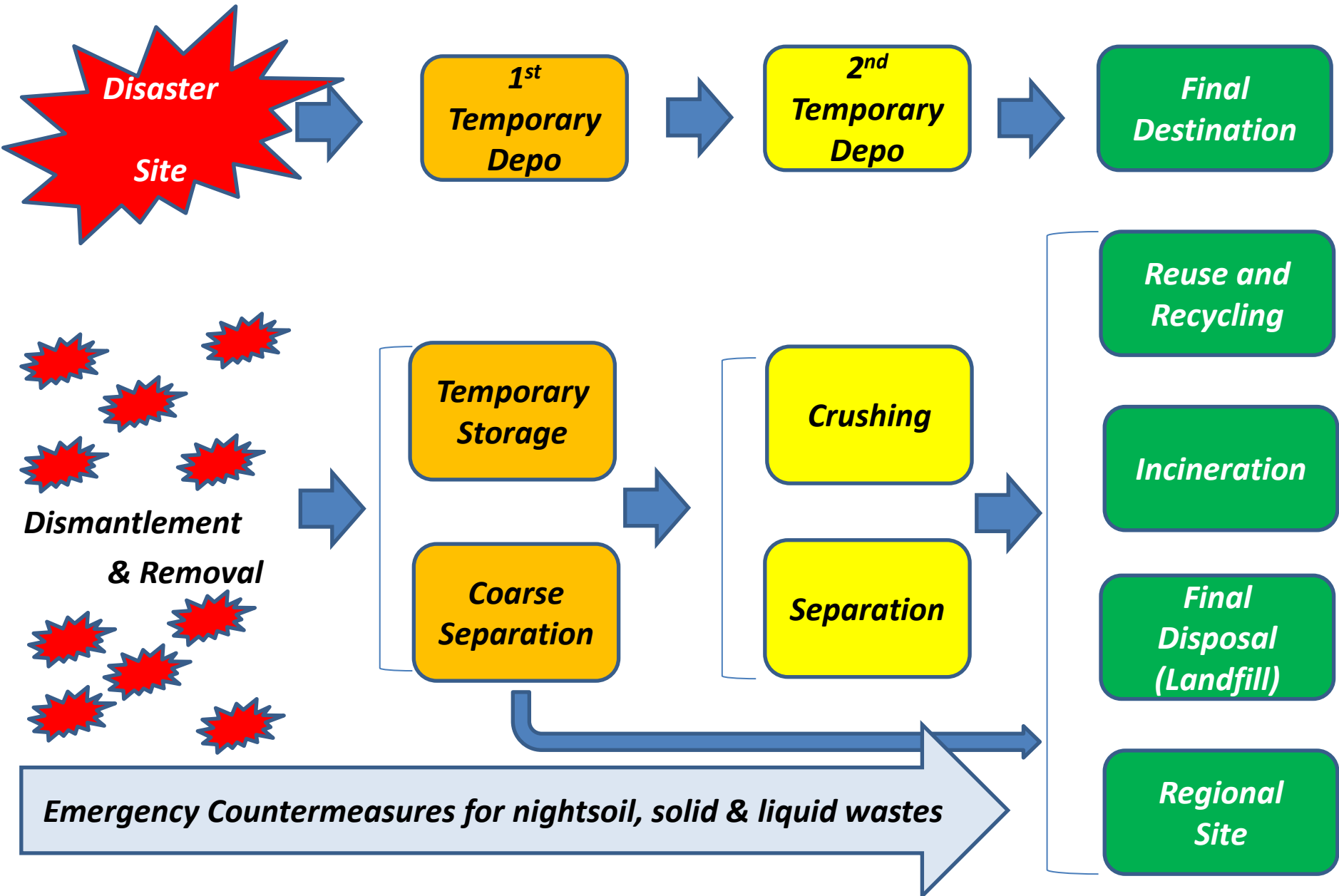


## Earthquake

Work Load in the Office in Charge (%)

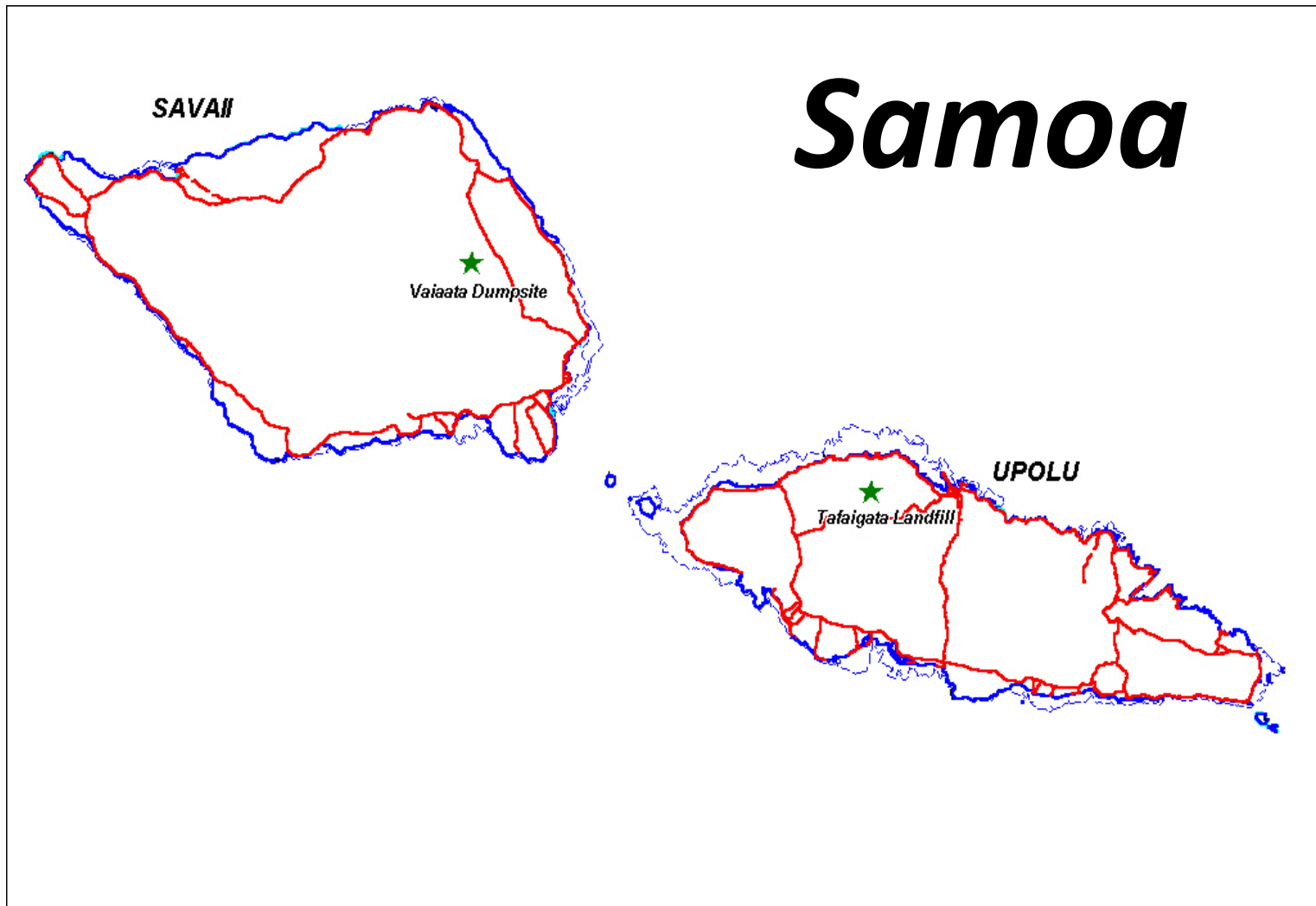


# Flow of Disaster Wastes





# *Sharing of Experiences among PICs*



*An earthquake hit Samoa on September 29, 2009.*

# ***Tsunami in Samoa***

***The earthquake in Samoa (September 29, 2009, M8.3, more than 200 deaths) caused tsunami that generated huge amount of waste of different types.***





# ***Application of 3Rs***

***Tsunami debris was separated into reusables, recyclables and waste to be disposed of.***



***A workshop was held in Febraury 2010  
with the aim of sharing experiences  
of post tsunami waste management  
among SPREP member countries.***





# *Sharing of a Good Practice in PICs*

## Improvement of the Labasa Town Dump To Better Cope With Climate Change Impacts

**Start Date : April 2014**

**Completion Date : July 2014**

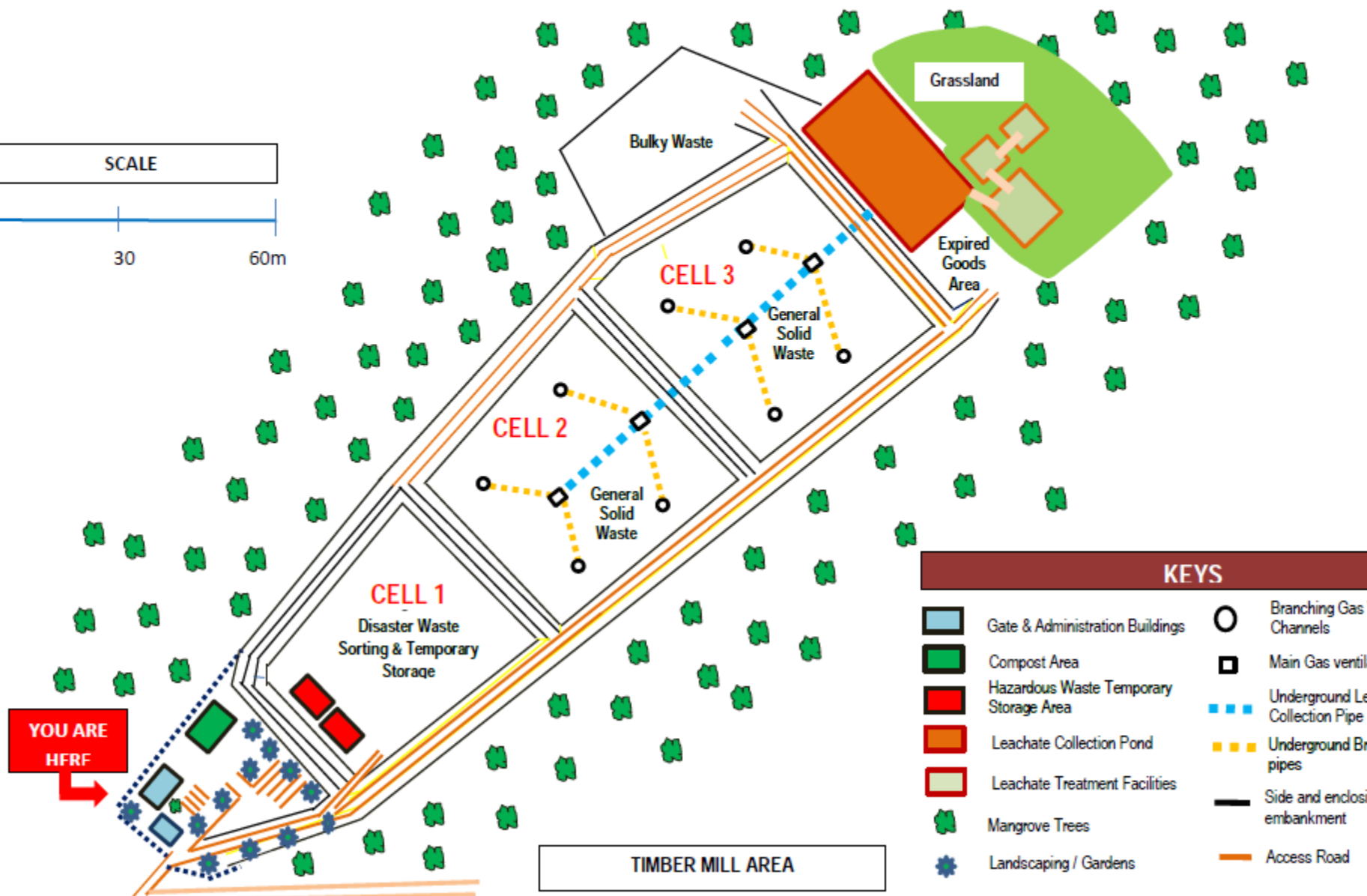
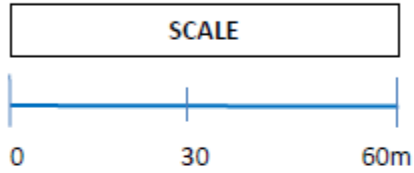
**For more Information Please Contact:  
Labasa Town Council  
Ph: 8811 066**



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme



# NAMARA WASTE LANDFILL LAYOUT PLAN, 2014



**YOU ARE  
HERE**

KEYS			
	Gate & Administration Buildings		Branching Gas Ventilation Channels
	Compost Area		Main Gas ventilation
	Hazardous Waste Temporary Storage Area		Underground Leachate Collection Pipe
	Leachate Collection Pond		Underground Branching pipes
	Leachate Treatment Facilities		Side and enclosing wall embankment
	Mangrove Trees		Access Road
	Landscaping / Gardens		





*Let's achieve the goal of  
"a Cleaner and Safer Pacific"  
through joint efforts !!!!*

**VINAKA VAKALEVU**