

# Australia's national remediation framework



**CRCCARE**

*A safer, cleaner  
environmental future*

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Global Innovation Chair and Director**

**14th ICCL-meeting, Lima, Perú**

**23-24 October 2019**

1 Cooperative Research Centre for Contamination Assessment and Remediation of Environment , Mawson Lakes, SA 5095

2 Global Centre for Environmental Remediation (GCER), University of Newcastle, NSW

# OUTLINE

- CRC CARE- an introduction
- National policy drivers and need for a harmonised framework on remediation
- What is the national remediation framework?
  - Purpose
  - 24 guidelines
  - Underlying principles (Flowchart)

CRC CARE is a partnership of industry, government and scientific organisations.

CRC CARE devises new ways to overcome and prevent contamination of soil, water & air.

Key nodes in Australia and China

# WHAT IS CRC CARE?

- Established in 2005
- \$550 M of cash and in-kind contributions over 15 years
- Strong end-user participation – 29 industry and government partners
- International partners & collaborators
- Supports 100 staff and students the UoN
- World-class facilities

**University of  
Queensland,  
QLD**

**Curtin University  
of Technology, WA**

**University of  
South Australia, SA**

**The University of  
Newcastle, NSW**

# CRCCARE- COOPERATIVE RESEARCH CENTRE CONTAMINATION ASSESSMENT AND REMEDIATION OF THE ENVIRONMENT

## Site owners/ industry



## Government



## Research providers

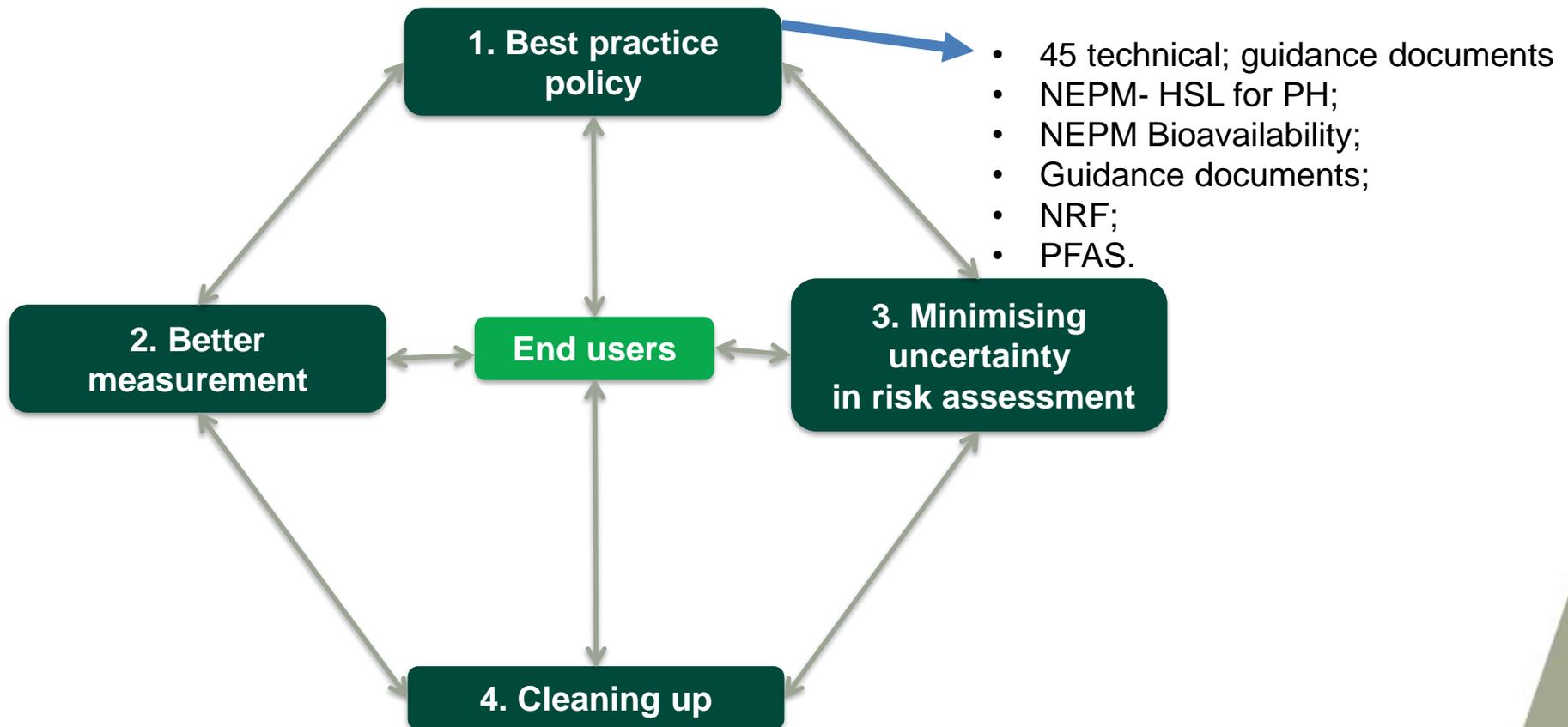


## Service providers



Goals include: remediation which is cost effective and sustainable

# CRC CARE'S RESEARCH AND UTILIZATION STRENGTH



# EDUCATION AND TRAINING

## Completed:

- 136 PhD students
- 18 honours students



## Currently:

- 60 PhD students

## Widespread industry training:

- Better standards of professionalism across the industry

## Recent training focus:

- CleanUp Conference
- National training roadshow for the assessment of site contamination

# CRC CARE- PURPOSE AND MISSION

***CRC CARE develops technologies and guidance that improve the way we prevent, assess and clean up contamination for healthy communities, economy and environment.***

## CAPACITY THAT DIFFERENTIATES CRC CARE FROM OTHER INSTITUTES

- **Global network:** connection with global researchers on policy front, science and engineering;
- **Largest contaminants research centre in the world:** Able to deliver hands on research and solutions for complex contamination problems across all project phases for conventional and emerging contaminants;
- **Global influence** on contaminants- capability to conduct research beyond Australia;
- **Capacity Building:** client specific and on a needs basis.

# DIFFERENTIATOR



# **NATIONAL REMEDIATION FRAMEWORK**

## EXISTING CONTAMINATED SITES LEGISLATION

- National Environment Protection Measure- established in 1999 and revised in 2013- focus is assessment;
- ANZEC (1992)- contaminated site management;
- States and Territories have their own legislation on site remediation

# NATIONAL FRAMEWORK FOR REMEDIATION AND MANAGEMENT OF CONTAMINATED SITES IN AUSTRALIA

- CRC CARE has developed Australia National Remediation Framework (NRF) to provide practical guidance to practitioners and regulators.

# DRIVERS FOR HARMONISATION

## Why harmonisation...?

- uniformity can be difficult to be achieved
- ‘harmonisation’
  - goal is to find commonalities
  - identify critical requirements that need to be retained
  - provide a common standard
- Completed with support and significant input from regulators and other end-users

# NATIONAL FRAMEWORK FOR REMEDIATION AND MANAGEMENT OF CONTAMINATED SITES IN AUSTRALIA

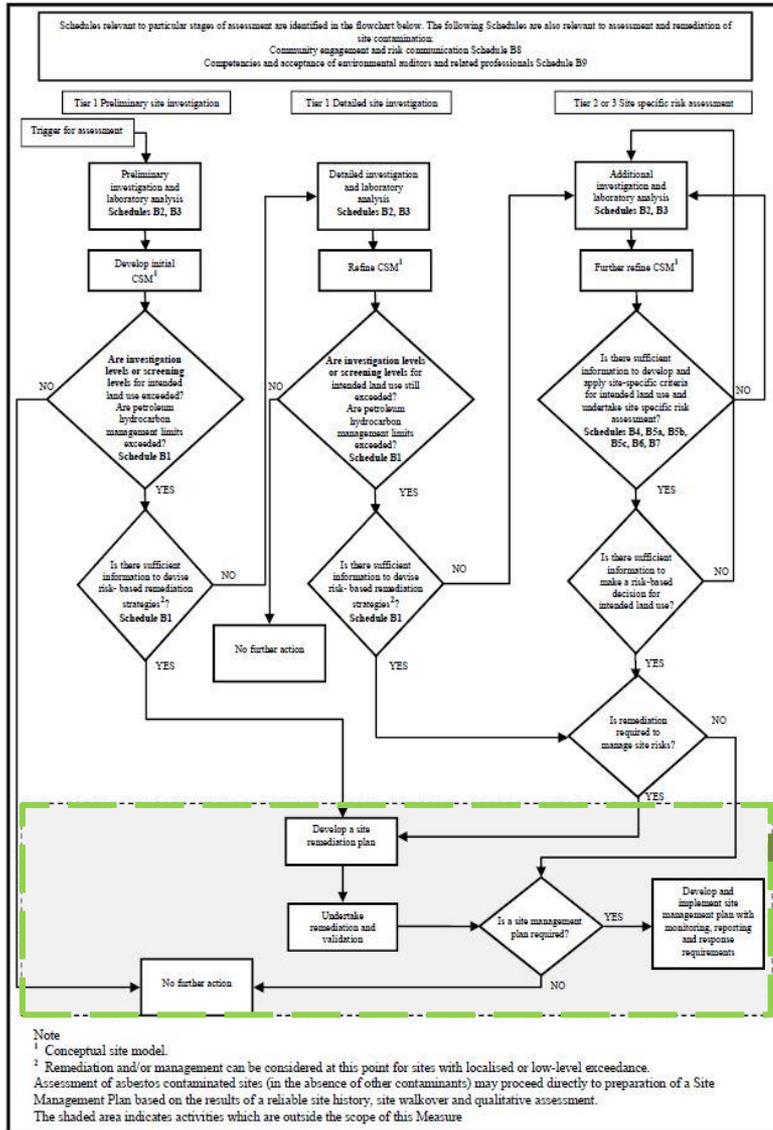
- The Framework:
  - complements the *National Environment Protection (Assessment of Site Contamination) Measure*
  - harmonises guidance and best practice in the remediation and management of contaminated sites in Australia
  - Is consistent with the harmonisation objectives of the former Council of Australian Government (COAG) Standing Council on Environment and Water

# NATIONAL FRAMEWORK FOR REMEDIATION AND MANAGEMENT OF CONTAMINATED SITES IN AUSTRALIA

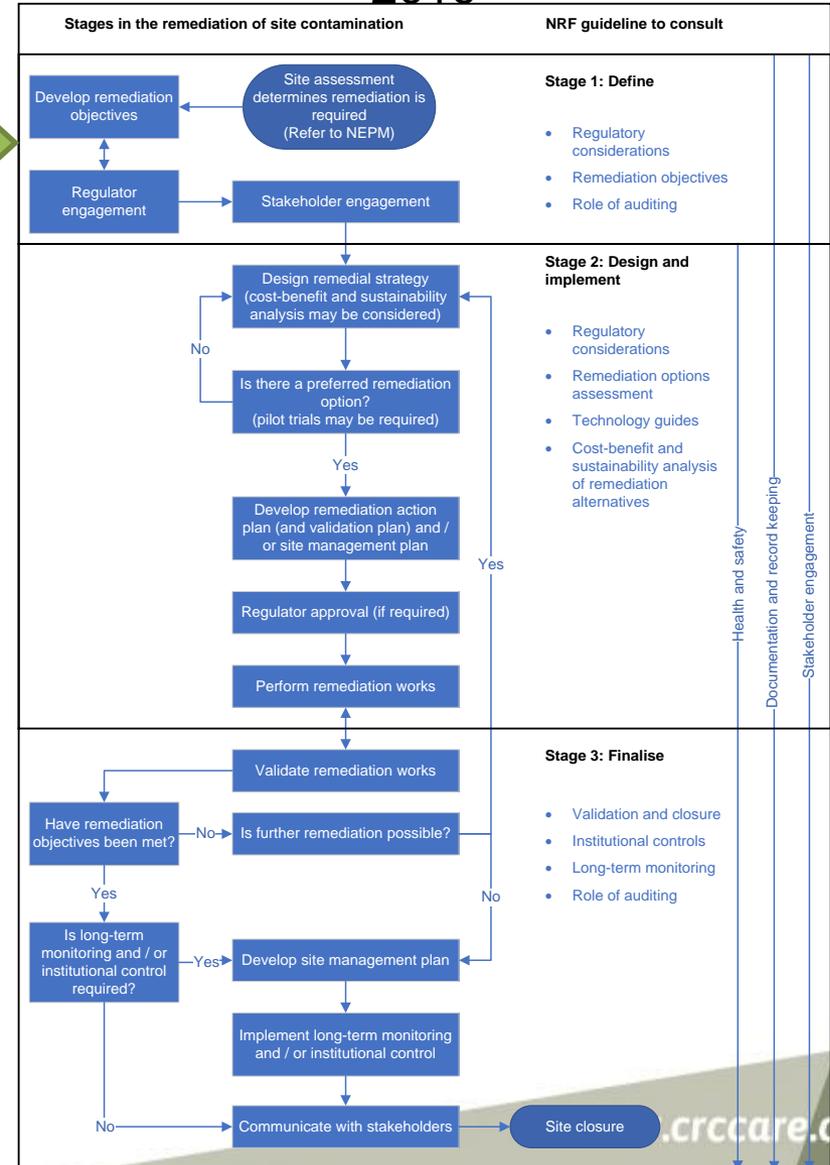
- The Framework :
  - Is not to be legally binding
  - Does not impinge on the policy and decision-making prerogatives of the states and territories
  - Adopts a modular approach so that it may be readily updated as circumstances require.

# MOVING FROM ASSESSMENT TO REMEDIATION

1999



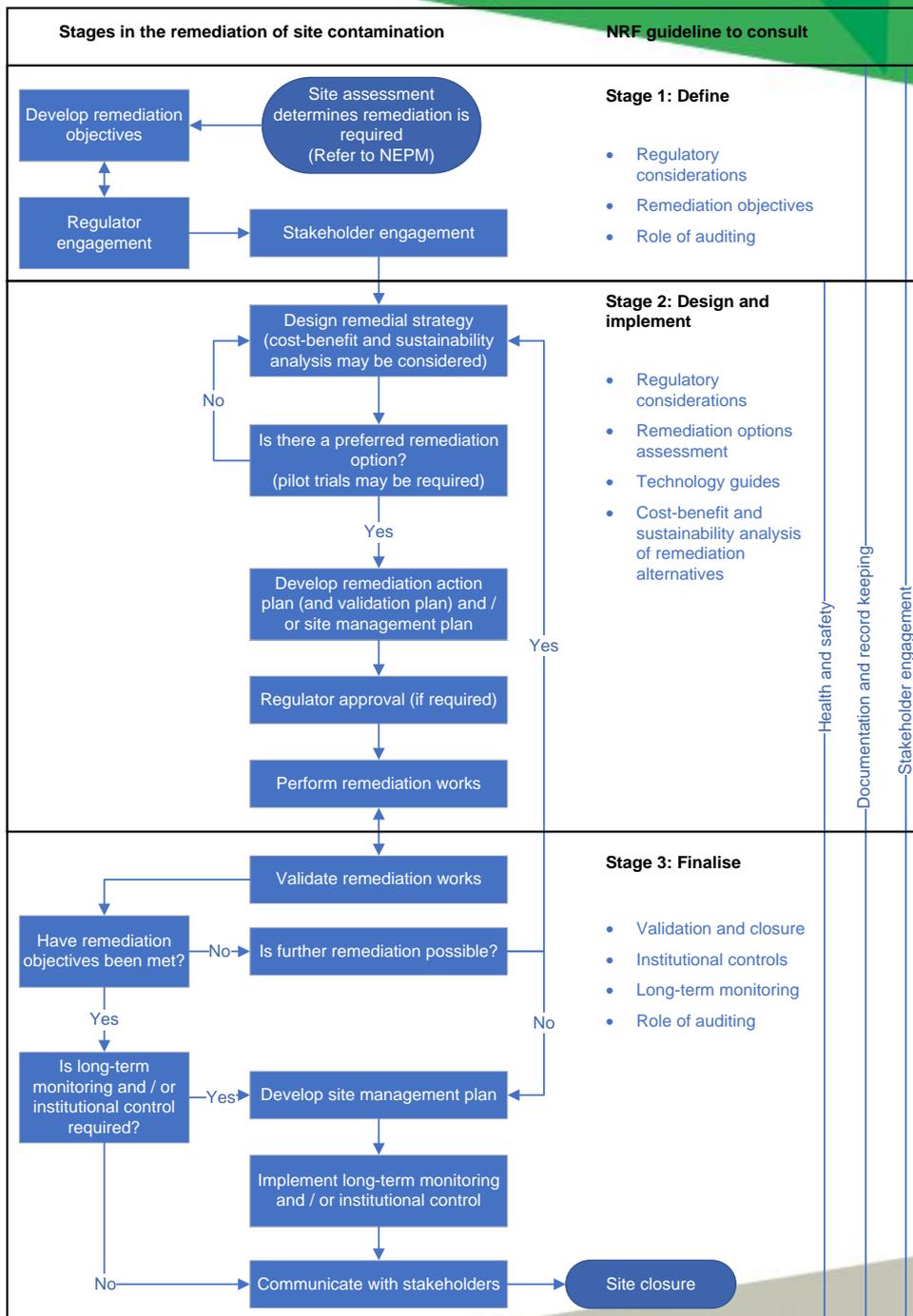
2019



# NATIONAL REMEDIATION FRAMEWORK SCHEMATIC

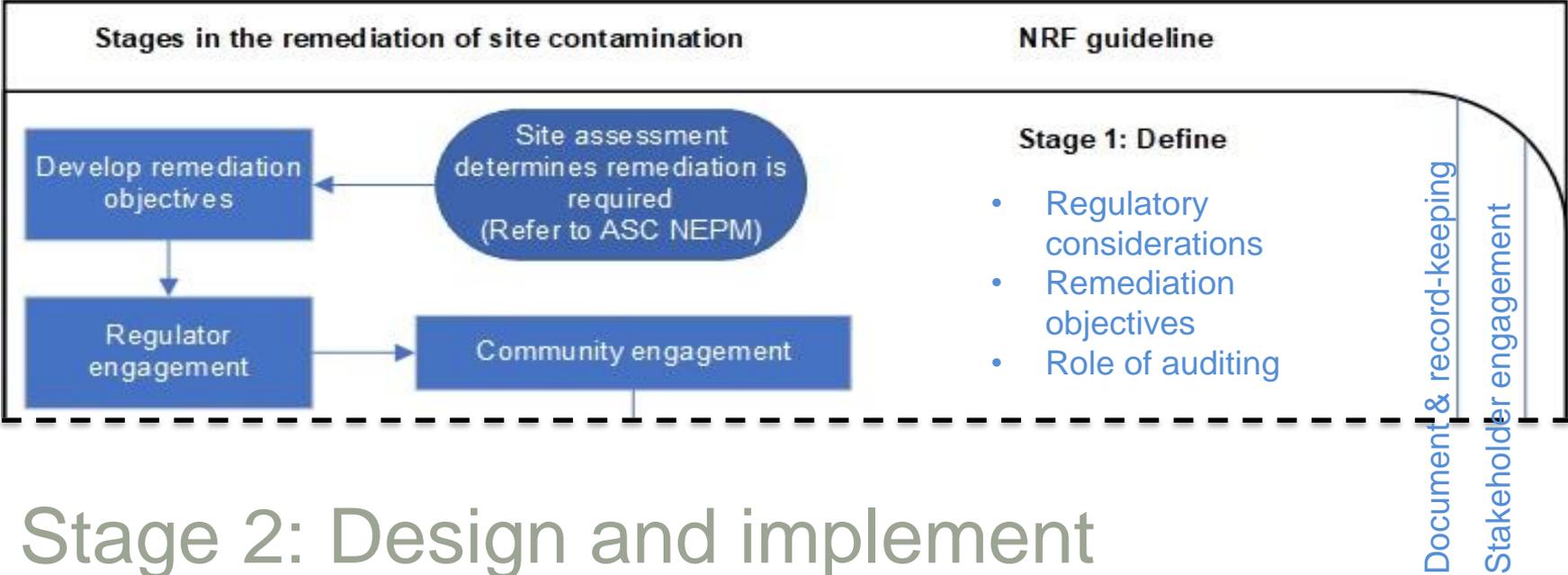
PHILOSOPHY	<b>CONTEXT</b>				
	Background	Jurisdictional arrangements	Legislative powers	Purpose of framework	Intended audience
	<b>PRINCIPLES</b>				
	Precautionary	Prevention		Risk management	
	Options hierarchy	Sustainability		National / international obligations	
	Polluter pays	Inter-generational equity		Waste minimisation	
PRACTICE	<b>GUIDANCE</b>				

# FLOWCHART & THE 24 GUIDELINES



		CONTEXT				
		Background	Jurisdictional arrangements	Legislative powers	Purpose of framework	Intended audience
PHILOSOPHY	<b>PRINCIPLES</b>					
	Precautionary	Prevention		Risk management		
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	Polluter pays	Inter-generational equity		Waste minimisation		
PRACTICE	<b>Remediation (action) plan Development</b>		<b>Remediation (action) plan Implementation</b>		<b>Post-remediation</b>	
	Regulatory considerations		Health and safety		Remediation validation and closure	
	Remediation objectives		Stakeholder engagement		Long-term monitoring	
	Remediation Options Assessment		Documentation and record-keeping		Auditing/third party review	
	Technology Guides (13)				Institutional controls	
Cost-benefit and sustainability analysis						

# Stage 1: Define



Stage 2: Design and implement

Stage 3: Finalise

# Stage 1: Define

## Establishing remediation objectives

Remediation Objectives provide a clear indication of what remediation needs to achieve:

- in order to address unacceptable risks to human health and the environment from contamination
- for the remediation to be considered *complete*

## Objectives

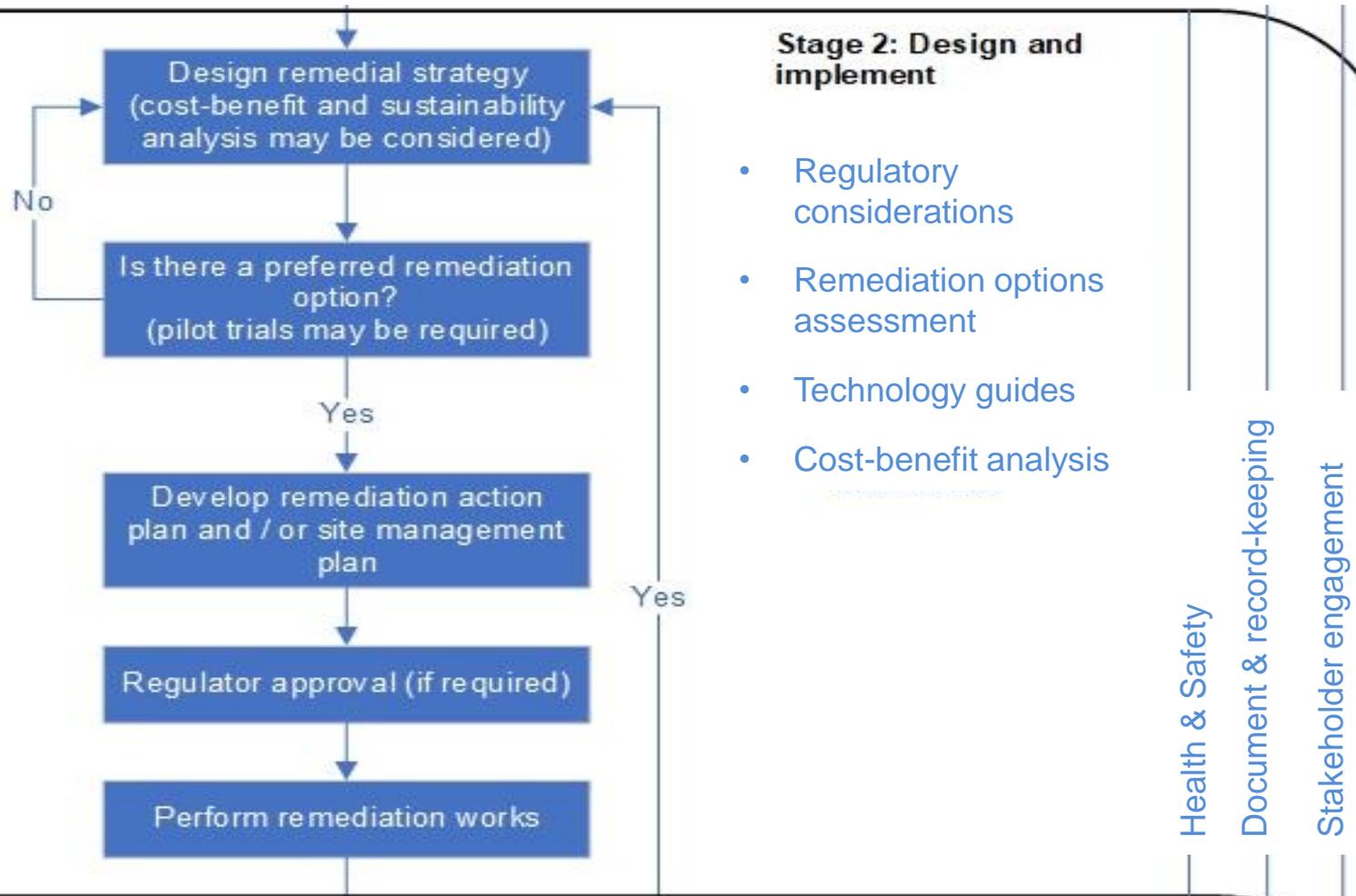
- usually stated in qualitative terms
- on-site and off-site issues
- supported by measurable remediation end-points
- Important to refine **conceptual site model** (reduces uncertainty)
- Iterative process, for complex sites

When objectives have been achieved

- regulators may agree to site closure (when no further active remediation is required)

# Stage 1: Define

## Stage 2: Design and implement

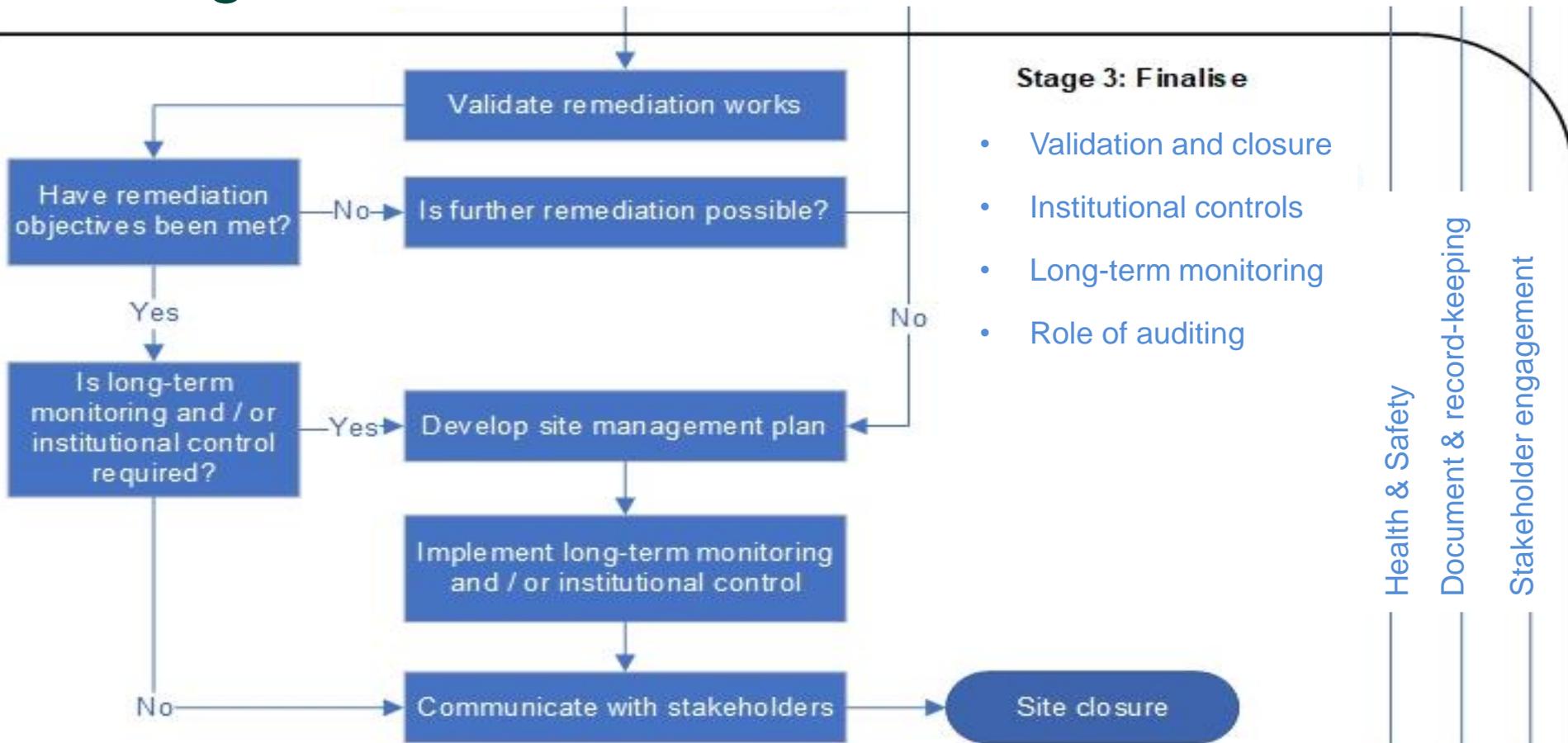


## Stage 3: Finalise...

# Stage 1: Define

# Stage 2: Design and implement

# Stage 3: Finalise



# NATIONAL REMEDIATION FRAMEWORK

## TIMETABLE FOR CONSULTATION AND FINALISATION

### Final consultation stage

- complete package uploaded to CRC CARE website **Nov 2018**
- consultation period on complete package – start **Nov 2018**
- National roadshow – all capital cities **Feb 2019**
- **Submissions by** **31 March 2019**
- consideration of submissions/incorporation of weblinks **April-July 2019**
- consideration by NRF Steering Group **August 2019**
- consideration by Heads of EPAs **October 2019**

# NATIONAL REMEDIATION FRAMEWORK

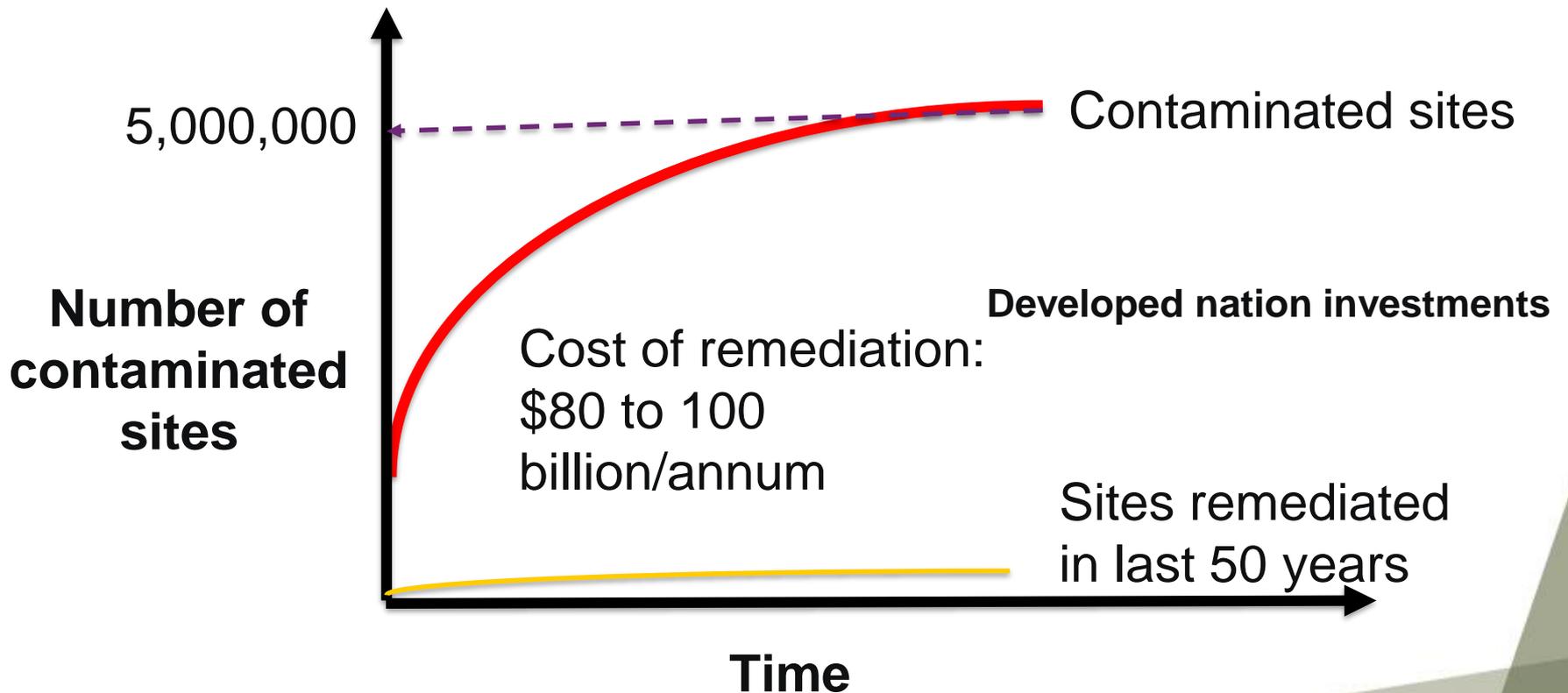
## IMPLICATIONS AND BENEFITS

### The National Remediation Framework will

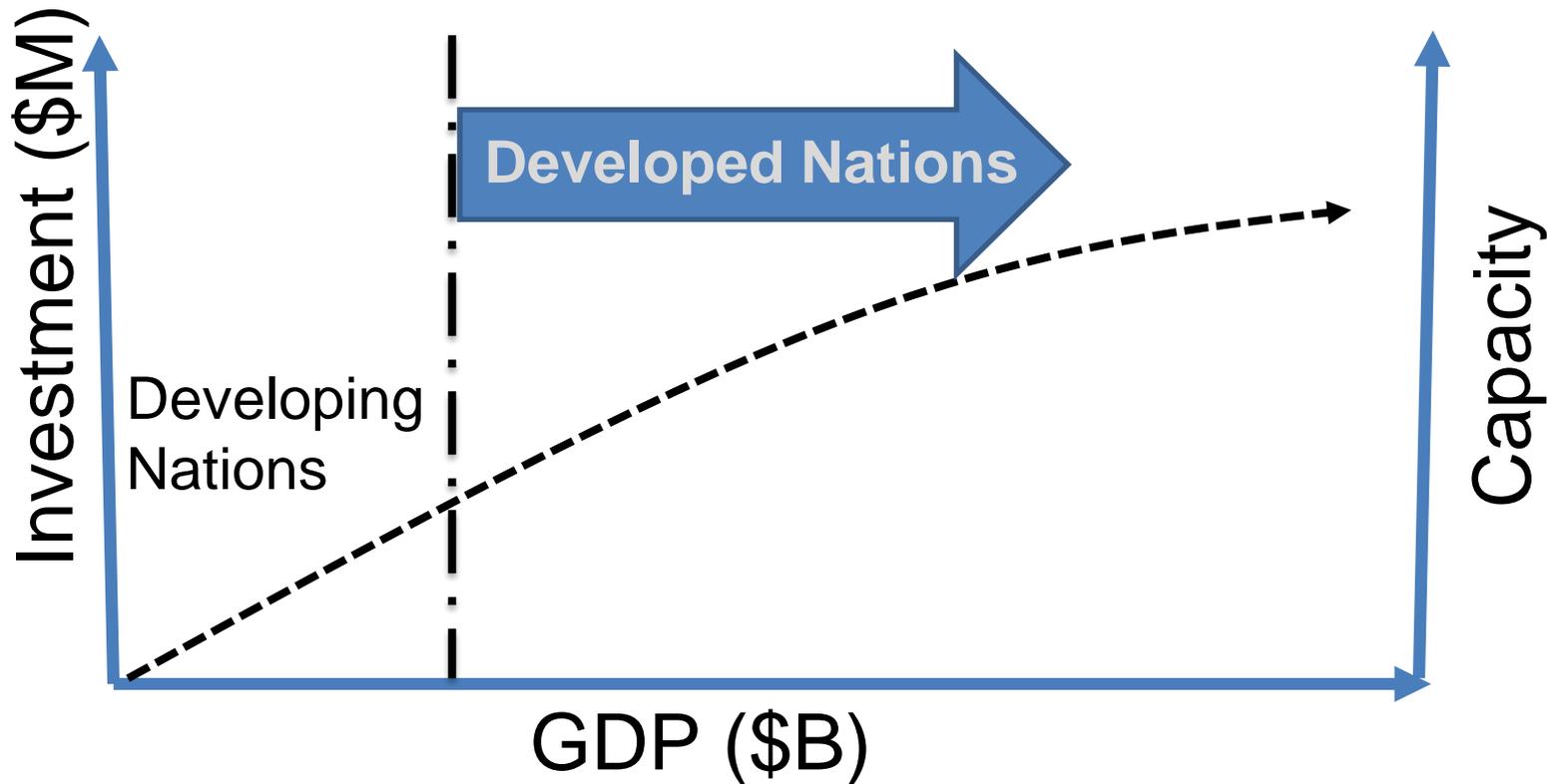
- provide a **structure** for thinking through remedial strategies
- **systematise practices** currently being applied to many sites
- provide more **rigorous approach** for considering issues
- reduce risk of adoption of poor strategic options
- provide a **sustainable approach** to remediation and management
- provide **seamless linkages with the NEPM** and state legislation

**The NRF (ie remediation) and the NEPM (ie assessment) together** will provide comprehensive guidance for assessment, remediation and management of contaminated sites in Australia

# Global- contaminated sites and pace of remediation



# CLEANUP IS NON EXISTENT IN MANY DEVELOPING COUNTRIES: LACK OF RESOURCES

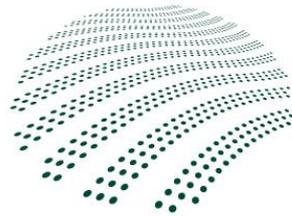


To remediate all the contaminated sites is humanity's next great challenge

## NEED INITIATIVE: SCALE IS GLOBAL

- The Global Contamination Assessment and Remediation Alliance (globalCARE™)
- *Minimise the exposure of humans and the Earth's biosphere to anthropogenic chemical contamination from all sources*

# Thank you



**CRCCARE**

*A safer, cleaner  
environmental future*

**For more information, please feel free to contact!**

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