



**NRF**

**NATIONAL  
REMEDICATION  
FRAMEWORK**



**CRC CARE**

*A safer, cleaner  
environmental future*

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**RemTech EU, 21 September 2020**

COOPERATIVE RESEARCH CENTRE FOR CONTAMINATION  
ASSESSMENT AND REMEDIATION OF THE ENVIRONMENT

[www.crccare.com](http://www.crccare.com)

# OUTLINE

- National policy drivers
  - From assessment to remediation regimes
- National Remediation Framework
  - Available! [www.remediationframework.com.au](http://www.remediationframework.com.au)
  - Overview of the framework



# REMEDICATION DRIVERS : SUSTAINABLE DEVELOPMENT

## Urban renewal/urbanisation

- legacy sites - petroleum / manufacturing / landfill / railways
- population pressures
- infill development
- 60-80% of contaminated sites

## Community awareness

- increasing **accountability** for industry and regulators
- higher **operating standards**

## Improved **efficiency and effectiveness**

- economic, social and environmental benefits



# POLICY DRIVERS FOR HARMONISATION: THE NATIONAL REMEDIATION FRAMEWORK

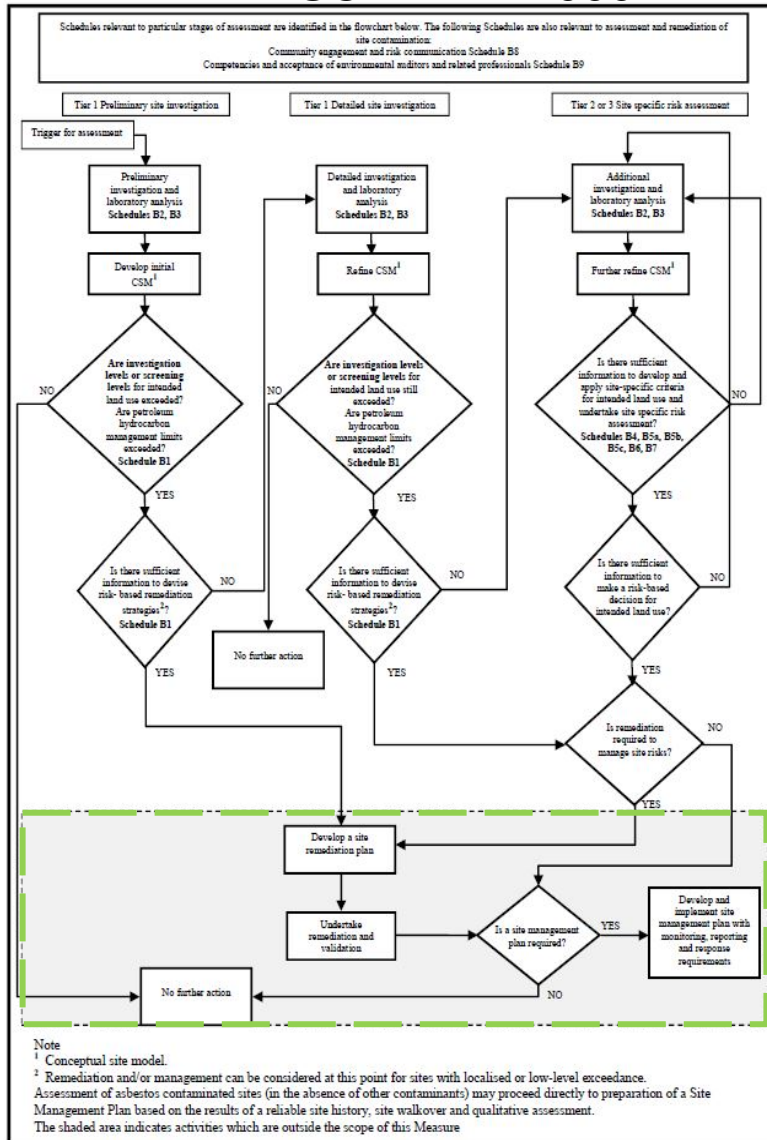
## Why harmonise...?

- uniformity can be difficult to be achieve
- ‘harmonisation’
  - goal is to find commonalities
  - identify critical requirements that need to be retained
  - provide a common standard



# MOVING FROM ASSESSMENT TO REMEDIATION

## ASC NEPM 1999



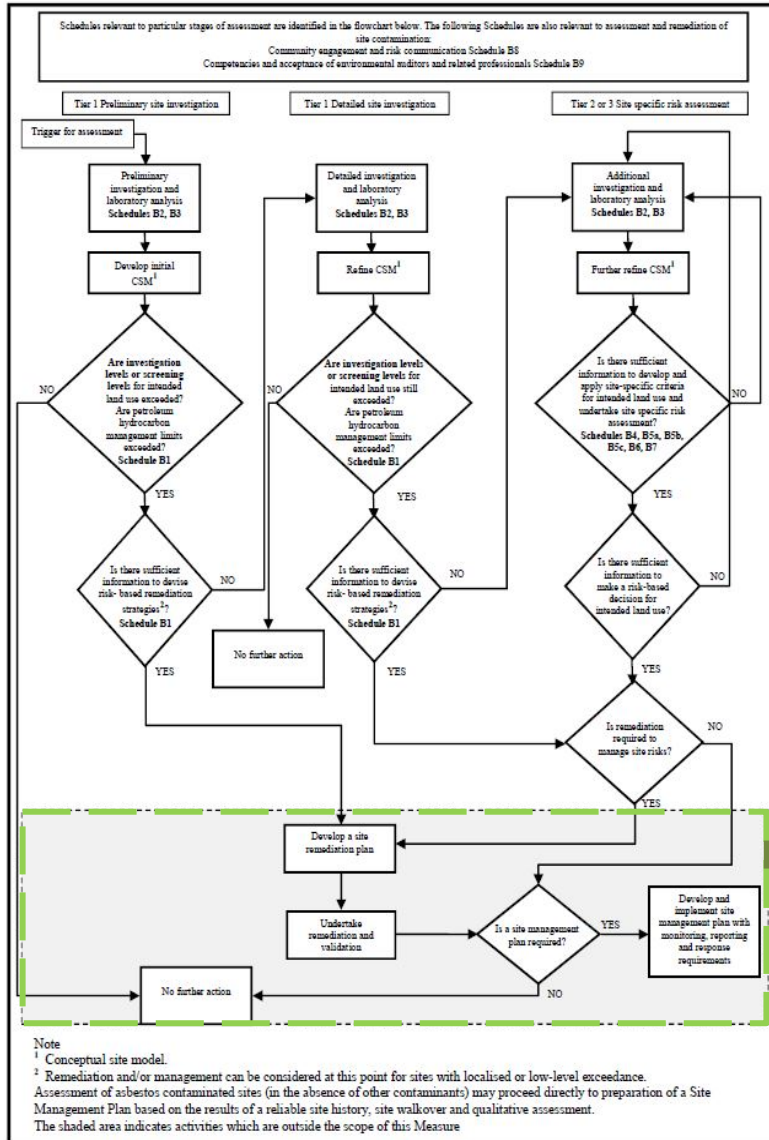
– Tiered risk-based assessment process

– More detailed assessment is required based on information needed to minimise uncertainties and understand the risk in order to determine if remediation and / or management of the site is required.

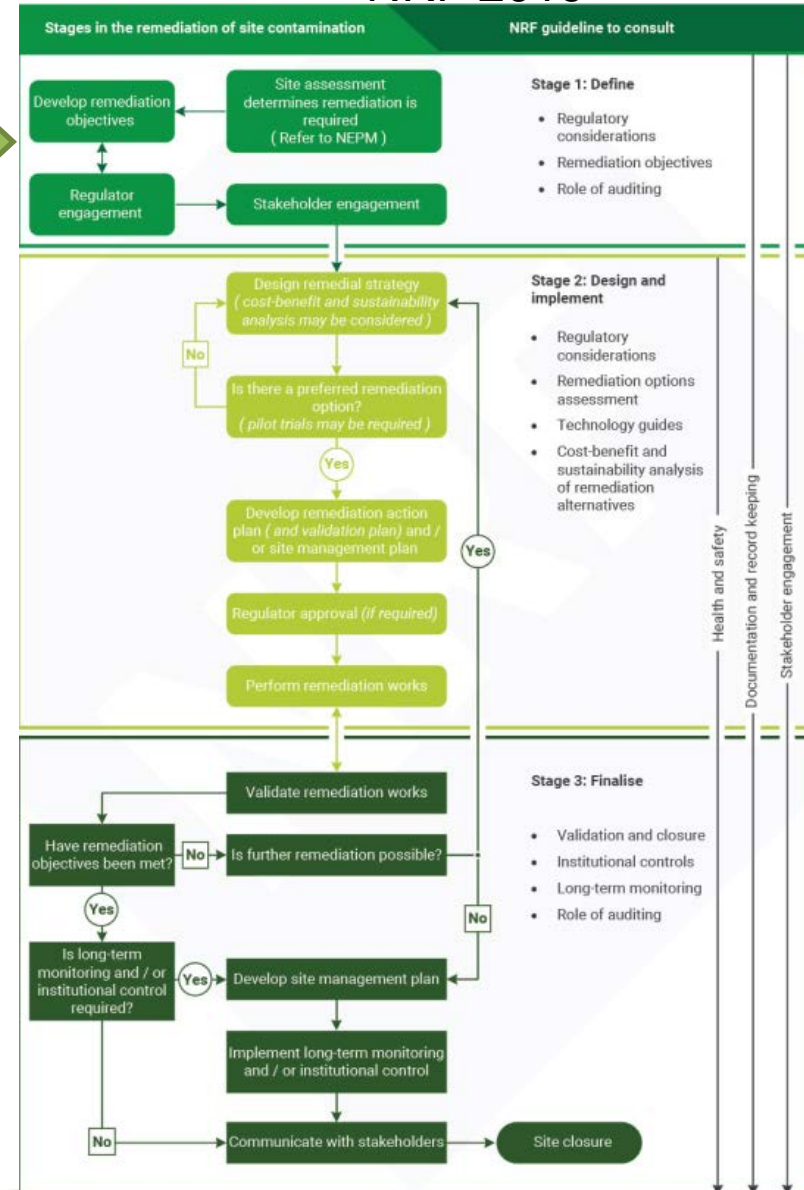
– Lists human and ecological screening levels, and allows for the development of site-specific risk criteria

# MOVING FROM ASSESSMENT TO REMEDIATION

## ASC NEPM 1999



## NRF 2019



# NATIONAL REMEDIATION FRAMEWORK

## Purpose

- **a nationally consistent approach** to contaminated site remediation and management
- **with the NEPM a complete set of national guidance** for assessment, remediation and management of contaminated sites

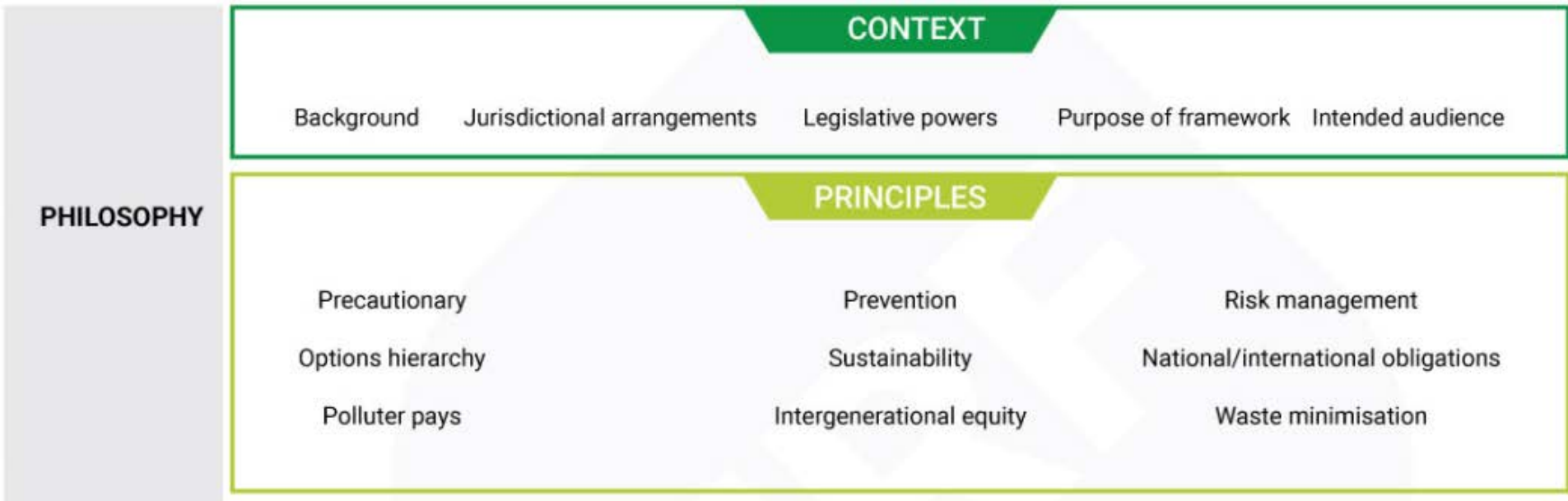
## Expected outcomes – facilitation of

- **protection of human health** and the **environment**
- **effective and efficient remediation**
- **net community benefit**

## Audience

- practitioners and regulators

# NATIONAL REMEDIATION FRAMEWORK SCHEMATIC





# NATIONAL REMEDIATION FRAMEWORK

## PRINCIPLES

### Precautionary

- a careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment
- an assessment of the risk-weighted consequences of various options

### Prevention

- avoid future contamination

### Risk based

- human health and/or environmental risks commensurate with site use
- underpins environmental management

### Options hierarchy

- treatment on-site, then off-site
- containment on-site, then off-site (landfill)

### Sustainability:

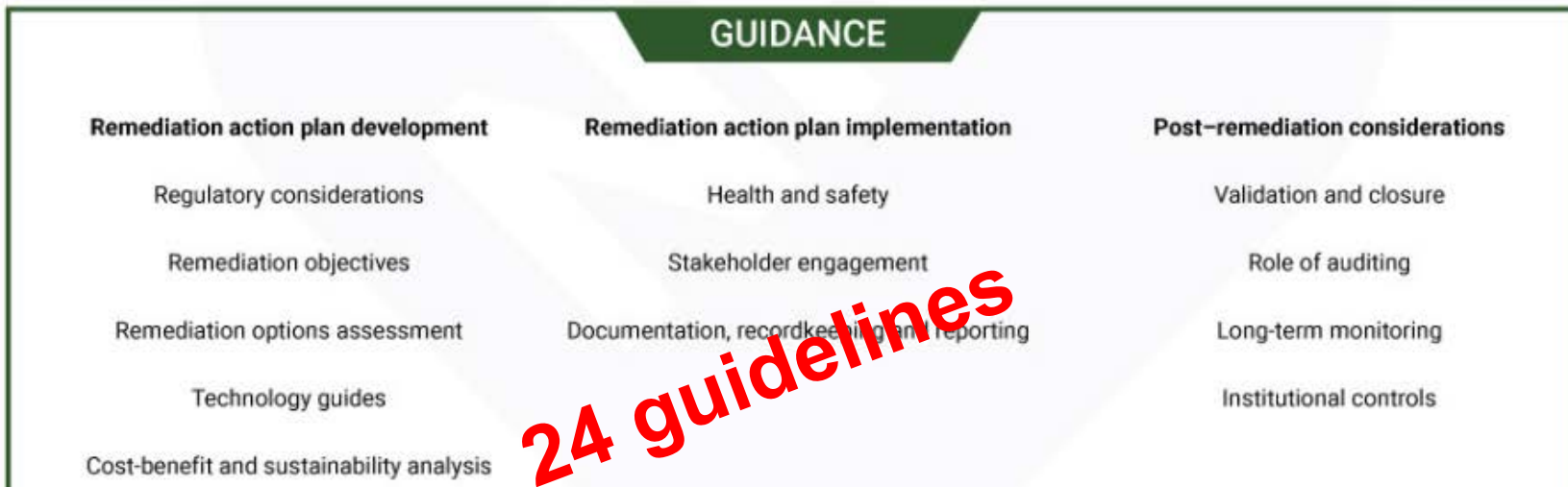
“... an integrated assessment of the environmental, economic, and social impacts of remedial activities, which meets the needs of the present without compromising the ability of future generations to meet their own needs”

# NATIONAL REMEDIATION FRAMEWORK SCHEMATIC

PHILOSOPHY



PRACTICE

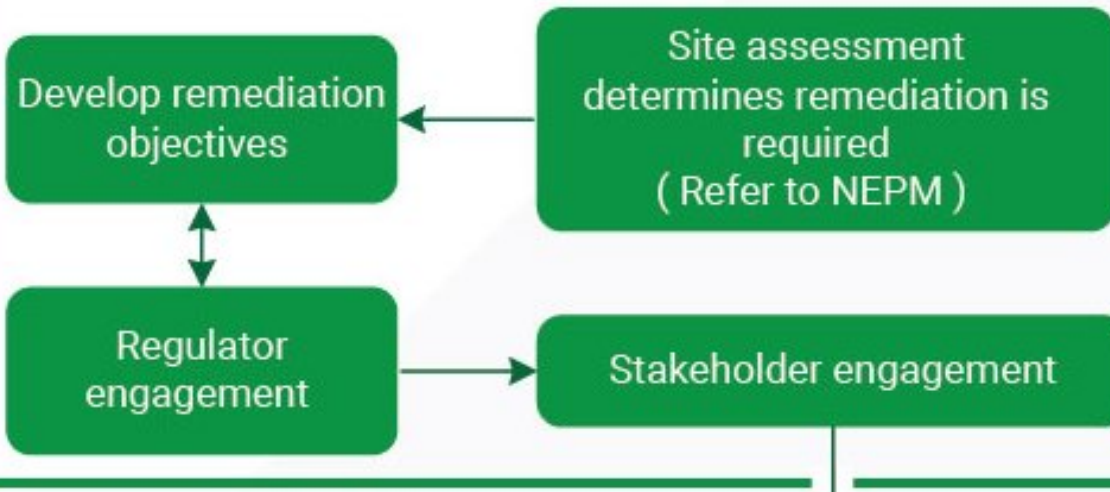


24 guidelines

# Stage 1: Define

## Stages in the remediation of site contamination

## NRF guideline to consult



### Stage 1: Define

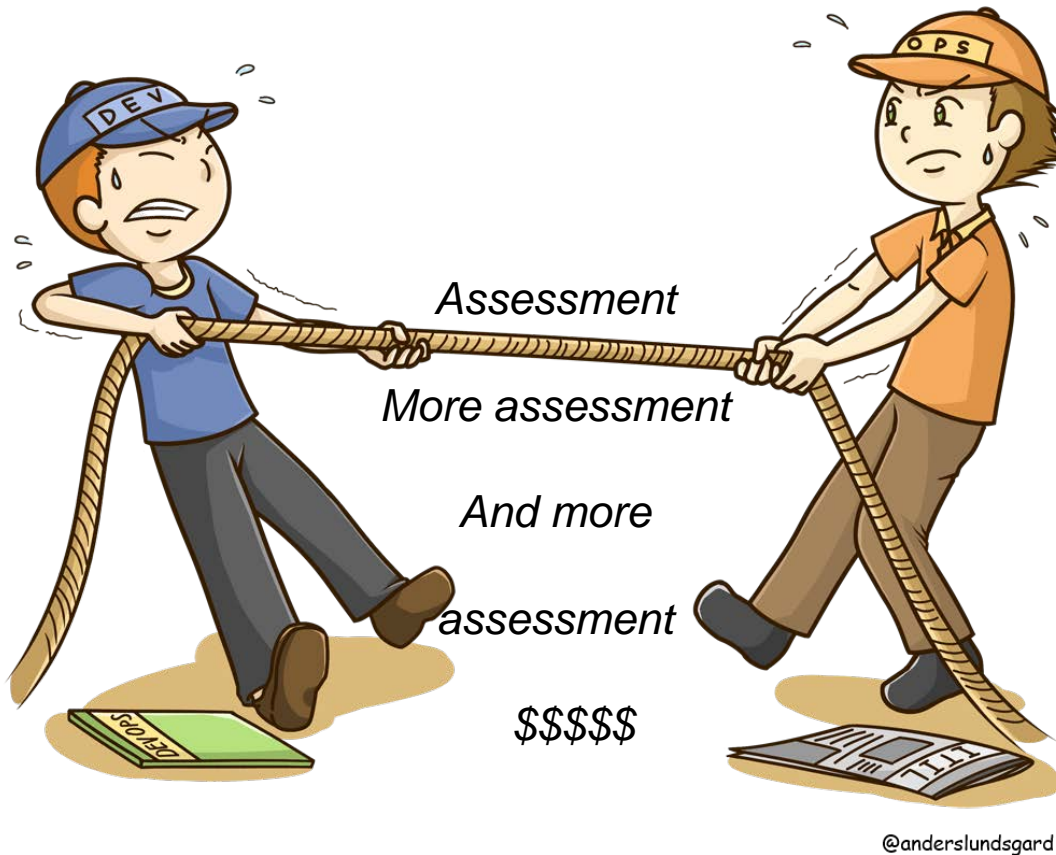
- Regulatory considerations
- Remediation objectives
- Role of auditing

Stage 2: Design and implement

Stage 3: Finalise

# Stage 1: Define

## Importance of remediation objectives...



Conservatism!

- Issue:
- over-remediation
  - unsustainable

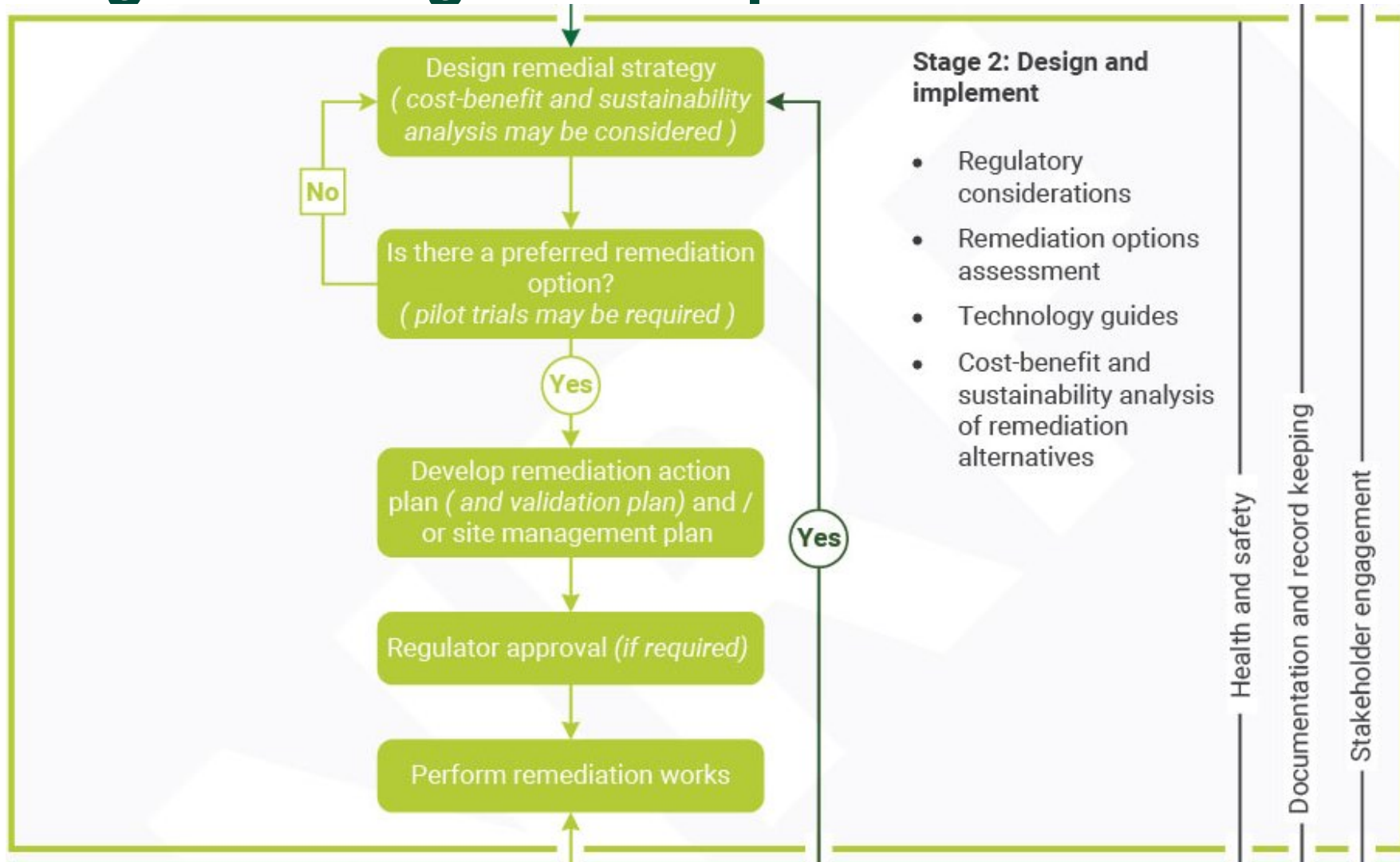
Certainty!

Eg numeric screening levels, modelling cont. fate and transport

@anderslundsgard

# Stage 1: Define

## Stage 2: Design and implement

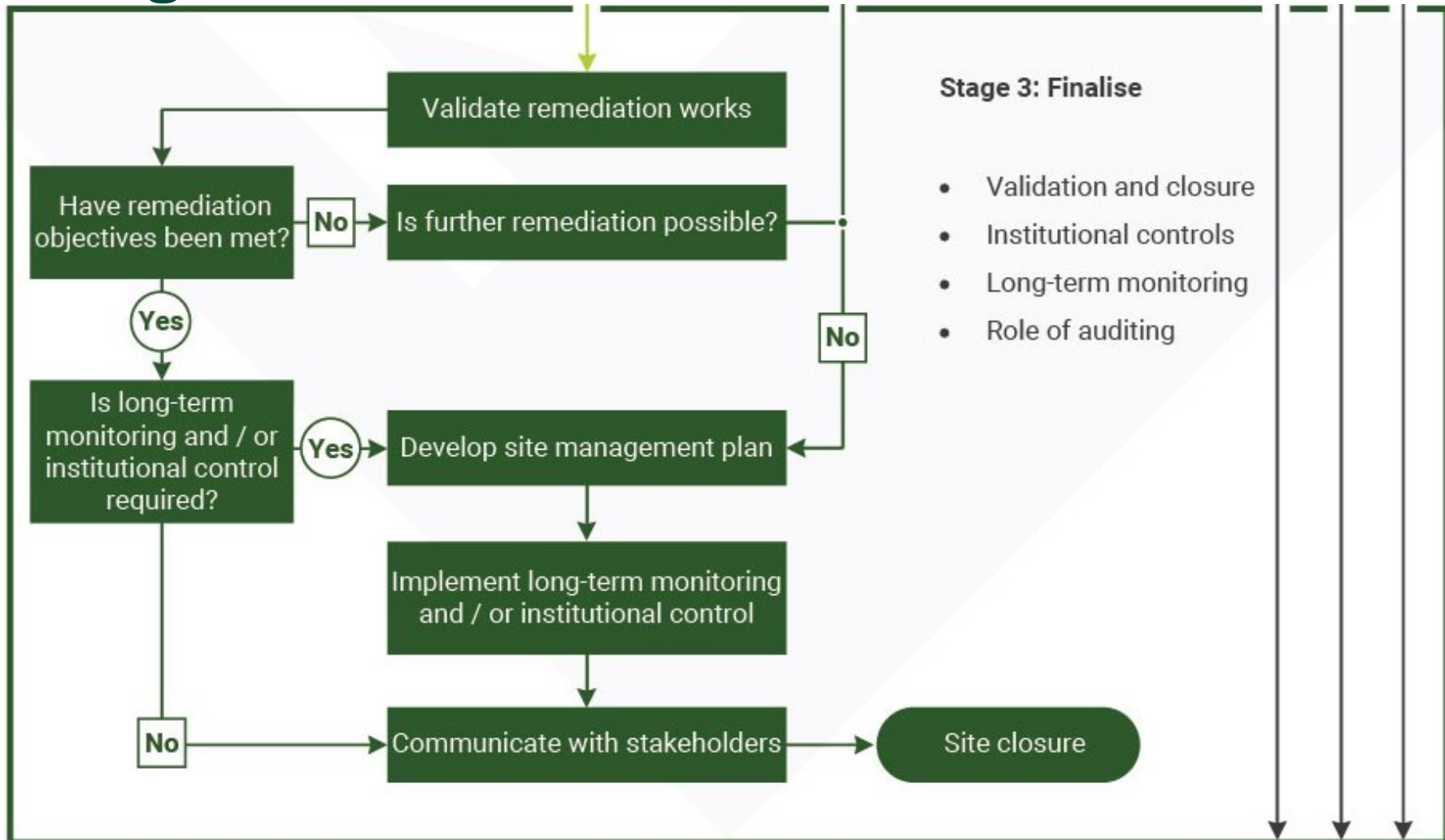


## Stage 3: Finalise...

# Stage 1: Define

# Stage 2: Design and implement

# Stage 3: Finalise



# NATIONAL REMEDIATION FRAMEWORK DEVELOPMENT

## Guidance

- **practical outcomes based** – “how to ..., when to...”
- **modular/flexible** - individual elements may be updated over time

## Construction

- builds on current guidance and practice

## Publication format

- web-based
- [www.remediationframework.com.au](http://www.remediationframework.com.au)

# National Remediation Framework homepage



## NATIONAL REMEDIATION FRAMEWORK OVERVIEW

Australia has long been at the forefront of actively pursuing protection of the environment. The National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) has for decades provided a comprehensive and rigorous process for assessing contamination in order to determine whether a site can be regarded as contaminated.

A nationally consistent approach to remediation of contaminated sites has been a priority for Australian environmental regulatory bodies and the industry sector that clean up sites across multiple jurisdictions.

The NRF was developed to complement the ASC NEPM, and together they provide comprehensive guidance for the assessment of site contamination and for the remediation and management of sites that are deemed to be contaminated. In November 2019, it was endorsed as best practice by all jurisdictions through the Heads of EPA (HEPA) forum.

The National Remediation Framework (NRF) wholehearted support in Australia and has also attracted strong international interest.

Remediation projects can often be quite dissimilar, each with their own specific issues. The NRF is unique in its valuable guidance for planning and implementing a wide range of remediation approaches through all stages of the process, regardless of the particular characteristics of any individual site.

The NRF will be of great benefit to practitioners involved in cleaning up and managing contaminated sites, as well as to regulators. Importantly, it has the support of all stakeholders, having been developed in cooperation with contaminated site practitioners, owners of contaminated sites and regulators.

Into the future, it is intended that the NRF will be updated regularly to ensure both technical and regulatory currency.

**Professor Ravi Naidu,**  
Managing Director and CEO, CRC CARE

## MENU

National Remediation Framework

- What is the NRF?
- Schematic
- Flowchart
- Download Guidelines
- News & Updates
- NRF toolbox
- Useful websites

## NEWS + UPDATES

**21**  
MAY **NRF website launched**  
[Read More](#)

**18**  
MAY **NRF Launch date announced!**  
[Read More](#)



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# NATIONAL REMEDIATION FRAMEWORK

## TO SUMMARISE

### The NRF

- provides a **structure** for thinking through remedial strategies
- provides more **rigorous approach** for considering issues
- **systematises practices** being applied to sites
- provides a **sustainable approach** to remediation and management
- provides **seamless linkages with the NEPM**

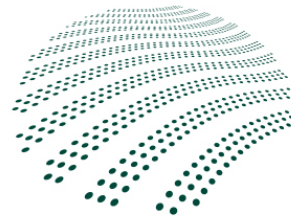
**The NRF and the NEPM together** will provide comprehensive guidance for assessment, remediation and management of contaminated sites in Australia

Heads of EPA endorsement: November 2019

“The NRF is a significant body of work and I congratulate CRCCARE on this considerable achievement to finalise 24 guidelines ...after extensive consultation”

- Cheryl Batagol, Chair HEPA, Nov 2019

# Thank you



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

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