

Regional and National Training on PDG 2023
April to June 2023



Preliminary Design Guidance 2023



Basin Development Strategy 2016-2020 and PDG Update

- **11 large hydropower schemes** are proposed for the mainstream Mekong in Cambodia, Lao PDR and Thailand
- These projects would be accompanied by **impacts** and **development risks** in MRC Member Countries
- The Preliminary Design Guidance (PDG 2009) provides a reference framework for MRC technical reviews of mainstream dams under the prior consultation (PNPCA) process among Member Countries
- **The process to update the PDG 2009 ->> 2022 was a key deliverable under Basin Development Strategy 2016-2020**



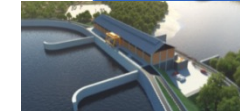
Pakbeng HPP



Xayaburi HPP



Don Sahong HPP



MRC Sustainable Hydropower Development Strategy (SHDS)

- ❖ SHDS also key deliverable of MRC BDS and SP 2016-2020 (Outcome 2)
- ❖ Need to move basin development toward more optimal and sustainable outcomes that can address long-term needs
- ❖ Take into account opportunities to **enhance benefits beyond national borders** and **minimize adverse transboundary impacts**
- ❖ Support water, food and energy security
- ❖ Key deliverable of SHDS is the dissemination and implementation of PDG 2023



Mekong Basin Development Strategy 2021-2030

- Promotes the concentration of hydropower development in storage-backed cascades to:
 - a) increase dry season flows and power generation,
 - b) provide reliable flows to downstream run-of-river hydropower facilities and improve their performance,
 - c) reduce downstream flood and drought risks and enhance dry season navigation, and
 - d) create opportunities to forego hydropower development in still undeveloped watersheds with high ecological value.
- The **implementation** of the updated PDG 2023 is a key deliverable under the MRC's BDP 2020-2030 to ensure these developments **enhance benefits beyond national borders** and **minimize adverse transboundary impacts**.

Process to develop the PDG2023

2017

CN agreed at the 24th MRC Council meeting

2018 - 2019

On board of expert team

A round of national meetings

Additional meetings for Cambodia & Lao PDR

2 rounds of regional meetings

2 rounds of meetings with DEVELOPERs

3-week online platform for public comments

One Regional MRC Stakeholder Forum

2020

Progress and updated PDG presented to JC for guidance and endorsement in 2018, 2019, 2020

Cambodia, Thailand and Viet Nam approved PDG at the 27th Council meeting in Nov 2020

Lao PDR needed more time for reviewing

2021

Several technical meetings with Lao PDR

PDG 2021 ver. 3.1 submitted to JC for consideration at the 28th Council meeting

Lao PDR requested further discussion

JC requested MRCS to continue working with Lao PDR aiming to have the document approved by the JC either at its 53rd or 54th meeting

2022

Multiple meetings with Lao PDR from March to June

PDG 2022 Ver. 3.2 sent to Lao PDR on 17 Jun and all MCs on 19 Aug.

Regional Working SESSION on 05 Sep to consider no-objection to submit to JC for consideration at its 54th meeting (Sep/Oct)

Process: Extensive discussions -stakeholders including developers



MEETING THE NEEDS

KEEPING THE BALANCE

International / Local Good Practice as a **Resource/Input**



WORLD BANK



November 2010



Unofficial Translation



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY
PROSPERITY

National Assembly No 19/NA

Vientiane Capital 9 May 2017

LAW ON ELECTRICITY (Amended)

KINGDOM OF CAMBODIA
NATION RELIGION KING

ELECTRIC POWER TECHNICAL STANDARDS OF THE KINGDOM OF CAMBODIA.

- (1)- GENERAL REQUIREMENTS OF ELECTRIC POWER TECHNICAL STANDARD OF THE KINGDOM OF CAMBODIA.
- (2)- SPECIFIC REQUIREMENTS OF ELECTRIC POWER TECHNICAL STANDARD OF THE KINGDOM OF CAMBODIA.
- (3)- EXPLANATION SHEET FOR ELECTRIC POWER TECHNICAL STANDARD.
- (4)- GLOSSARY FOR ELECTRIC POWER TECHNICAL STANDARD.

PDG draws on many MRC, international and regional research and good practice guidelines

Mekong Agreement -Guiding Principles
supported by Strategic Planning and **Preliminary
Design Guidelines**



MRC **Mitigation Guidelines**
Approach- using Impact Mitigation hierarchy- at all
stages of project life cycle



MRC Mitigation **Manual of Good Practice**
theory and examples – regional and global,
engineering responses



MRC Mitigation **Knowledge Base**
Library of relevant research and practice





PDG2023 Section 1

About This Guidance



PDG Key Points

1. **In line with MA95** PDG is about cooperation to achieve mutual benefits
2. PDG follows **IWRM** principles
3. Note flexibility and “**performance standards**” – where alternative solutions or targets are proposed must be justified.
4. Based on **regional research + MRC studies + international**
5. Looking for a **common design and mitigation effectiveness** – across all MS dams
6. **Joint operations** to be described and elaborated – for all aspects including generation and mitigation (e.g. sediment flushing)
7. **Completeness of submitted PNPCA documentation** to assist MC review – Stage 1 of PNPCA Show compliance with PDG. Enough design work completed early to show compliance.

Purpose and Objectives

- a **common design and operational approach** - mitigate commonly understood risks;
- **designs for mitigation early as possible** in the project cycle;
- **flexibility** in solution, performance standards, and recommendations;
- **joint operations of** within a mainstream hydropower cascade



Emphasises Joint Operations

Cascade Joint Operating Rules

**Project-Specific
Operating Rules**

**Project-Specific
Operating Rules**

**Project-Specific
Operating Rules**

EXAMPLE FOCAL AREAS FOR OPERATING RULES:

- Impoundment operations
- Power Station operations
- Flood operations
- Drought operations
- Navigation lock operations
- Fish passage operations
- Sediment flushing operations
- Gate operations

6-7 Mitigation Hierarchy

- **Avoid** refers to implementing a measure to ensure that any harmful effects **do not occur** (e.g. by careful planning, siting and design of a project);
- **Minimize** refers to implementing a measure that, would **reduce harmful effects, or the risk** of harmful effects, **considerably**; and
- **Mitigate (offset/compensate)** refers to implementing a measure that would **reduce the impact of any residual harmful effects** on other users of the Mekong River System, including those in the other Member States.

Performance Standards not prescriptive designs

- Meet standards and/or targets – as far as reasonably practical
- Alternative approach warranted – if can be justified.
- Where PDG states “should” = minimum standards
- versus where PDG states “may” = additional measures to minimize risks
- Note references to international or regional standards = “good industry practice” not gold plated.

Section 1.2 Uses and Users

- 10: Explains intended use within the **PNPCA process**
- 11: Discusses the **various users** of this Guidance
- 12: Explains relation to **national standards and TbEIA Guidelines** – PDG is for transboundary or where national standards do not cover risk – more stringent standard applies
- 13: Explains this does not replace Environmental and Social Impact Assessment (**ESIA**) **guidelines** issued by the Member Country
- 14: Suggests that users could form **checklists** from this guidance



Uses of the PDG (Clause 10)

Support PNPCA Article 5.2.1

- Consistent approach to information submitted
- Demonstrate “best efforts” to avoid, minimize mitigate
- Consistent performance between projects
- Inform improvements to existing dams
- Does not limit **notified MC** rights – but consistent application may limit **host MC** responsibility for damage if followed
- Demonstrate “duty of conduct” (MA95 Articles 7 and 8)
- Frame requests for additional information.

Who will use the PDG? Why?

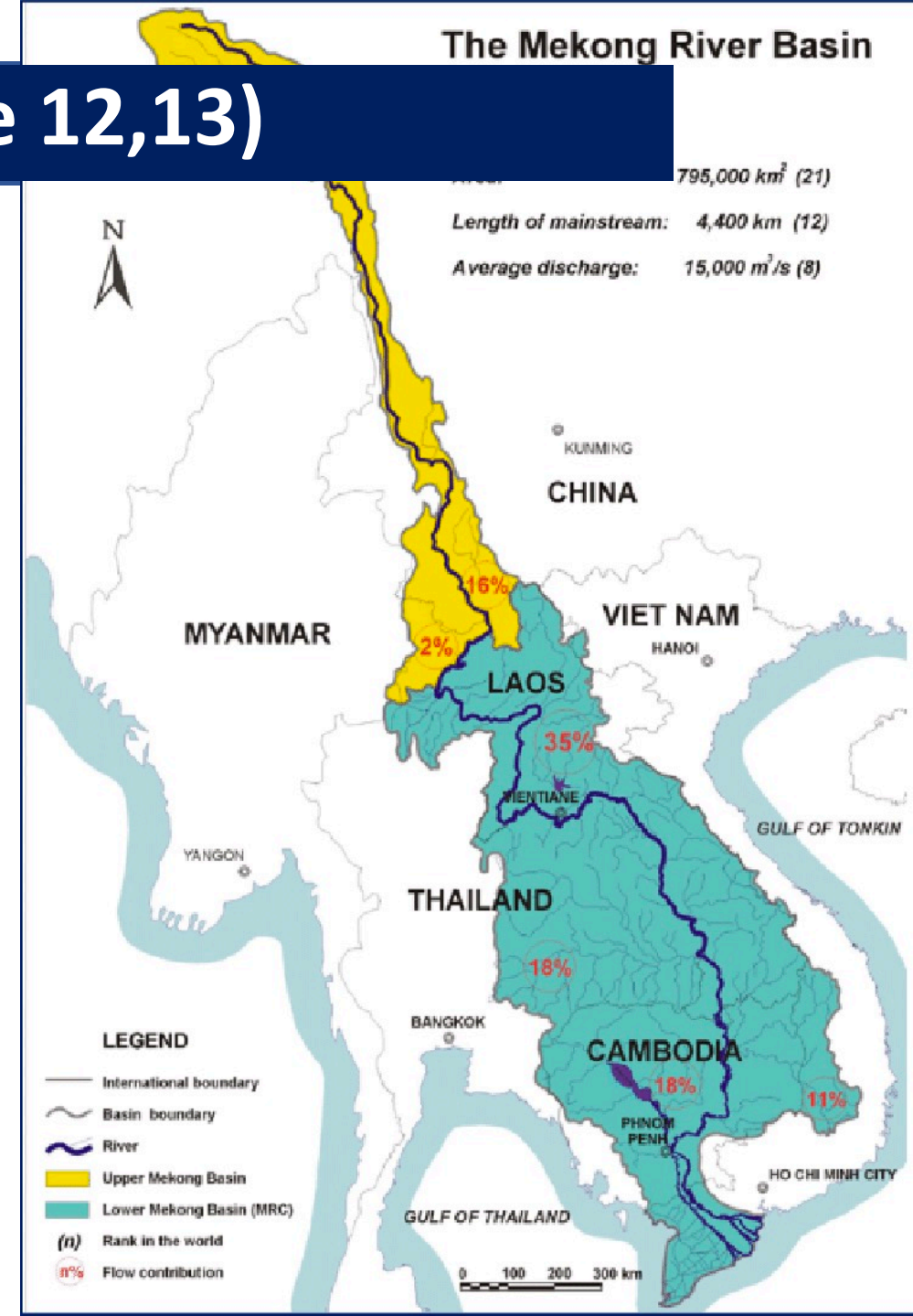
Member countries, developers interested stakeholders

- Inform expectations of project performance
- Framework for dialogue
- Basis for agreement on joint operating rules
- Use by developers in all stages of the project
- Reference for interested stakeholders

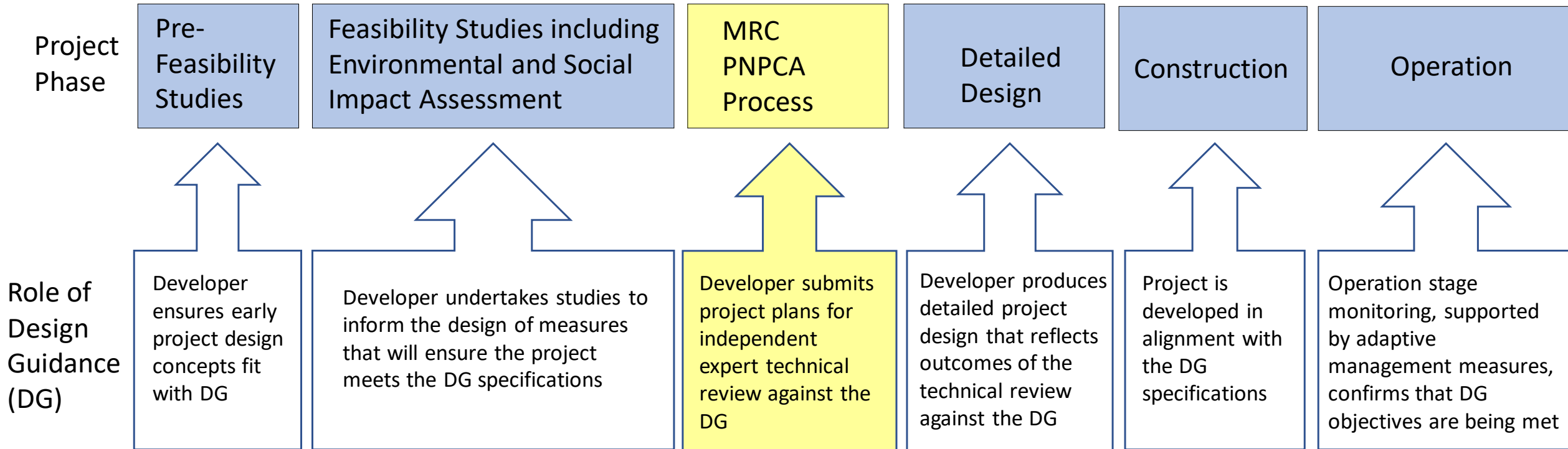


National Guidelines and laws (Clause 12,13)

- Developer should follow national guidelines if equal or more stringent
- Use the PDG:
 - Impact is basin wide, transboundary, national standard not adequate protection.
 - PDG can be embedded in national standards
- PDG does not replace national ESIA requirements – focus on basin wide concerns



1.3 Timing of Use - PDG is for complete project life cycle



1.4 Scope

- 17-18: Explains that guidance is tailored to the Mekong **mainstream** hydropower projects, and **not storage** or irrigation dams – but some standards apply to all.
- 19: Explains the **eight topics** included in the guidance
- 20: Guidance covers both **short- and long-distance impacts**.
Modelling and other assessments should be used to inform how far downstream or upstream impacts may be relevant.
21. Design and planning have impact on construction and operation



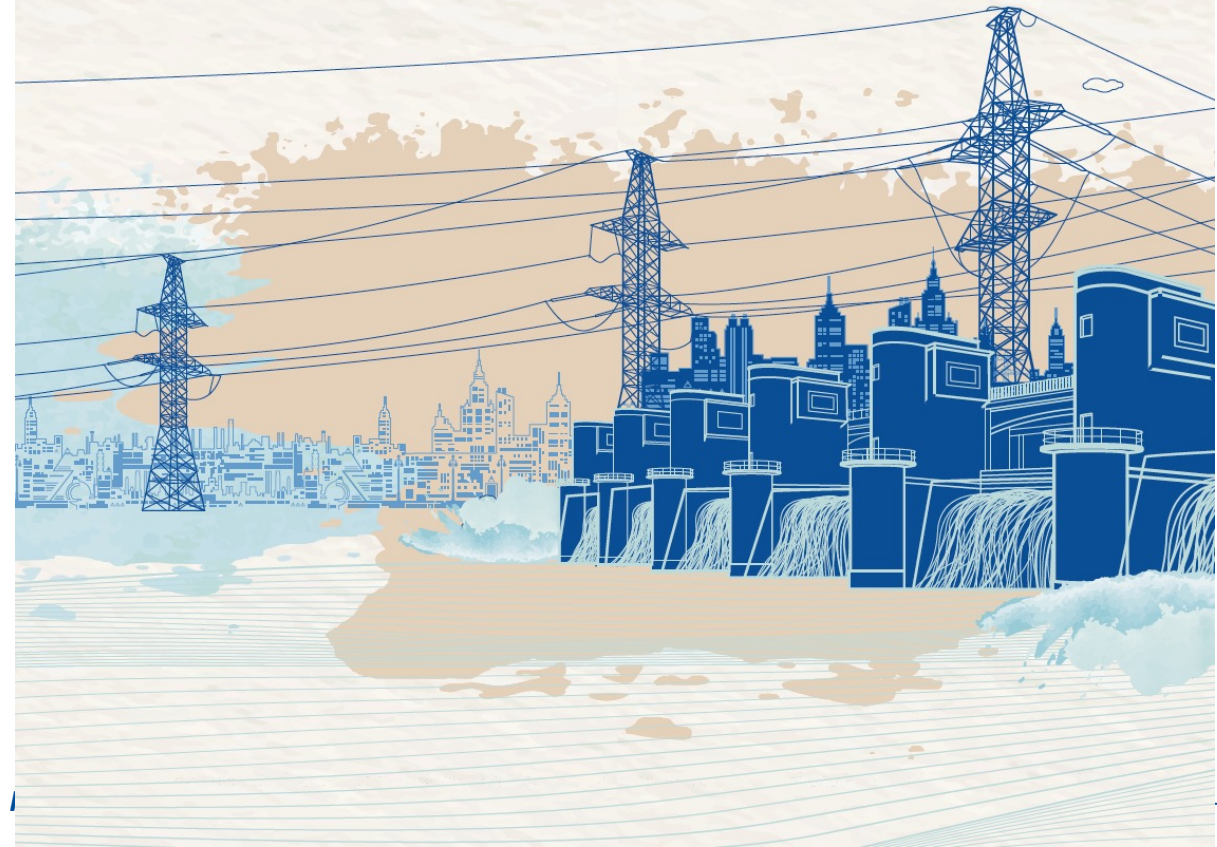
1.4 Scope

Eight Topics:

- 2. Hydrology and Hydraulics - **NEW**
 - 3. Sediment Transport and Geomorphology
 - 4. Water Quality
 - 5. Aquatic Ecology
 - 6. Fish and Fisheries
 - 7. Dam Safety
 - 8. Navigation
 - 9. Riparian Communities and River-Based Livelihoods - **NEW**
- } **SPLIT**



Preliminary Design Guidance for Proposed Mainstream Dams in the Lower Mekong River Basin



1.5 Structure – focus on risks and how to mitigate

Common sub-structure for topic guidance:

- Objectives
- **Risks**
- Pre-Project Monitoring and Analyses
- Specific Design and Operational Guidance
(Mitigation Options)
- Project Monitoring and Adaptive Management



Section 1.5 Structure of the Document – **monitoring and adaptive management**

- 23: Explains what “**pre-project monitoring and assessments**” is intended to address
- 24: Explains what “**analyses**” are appropriate – models etc
- 26: Considers “**project monitoring**” – through detailed design, construction and operation
- 27: Addresses considerations importance of **adaptive management**
- 29: Explains how **cascade management** should be addressed



Pre-Project Monitoring (Clause 23)

- Quality, justify designs and mitigation
- Covers risks – adequate network parameters, locations
- Allow test efficacy of mitigation/impacts
- Supplement/overlap national and MRC networks
- Sufficient duration
- Align to MRC protocols
- Information sharing



Analysis and residual impacts (Clause 24, 25)

Predict risks, impacts magnitude, consequences, adequacy of mitigation

- Appropriate level of detail
- Describe detailed design model or analysis
- May use MRC decision support framework for transboundary risk assessment

Predict and document residual risks and consequences on river based livelihoods (Section 9)



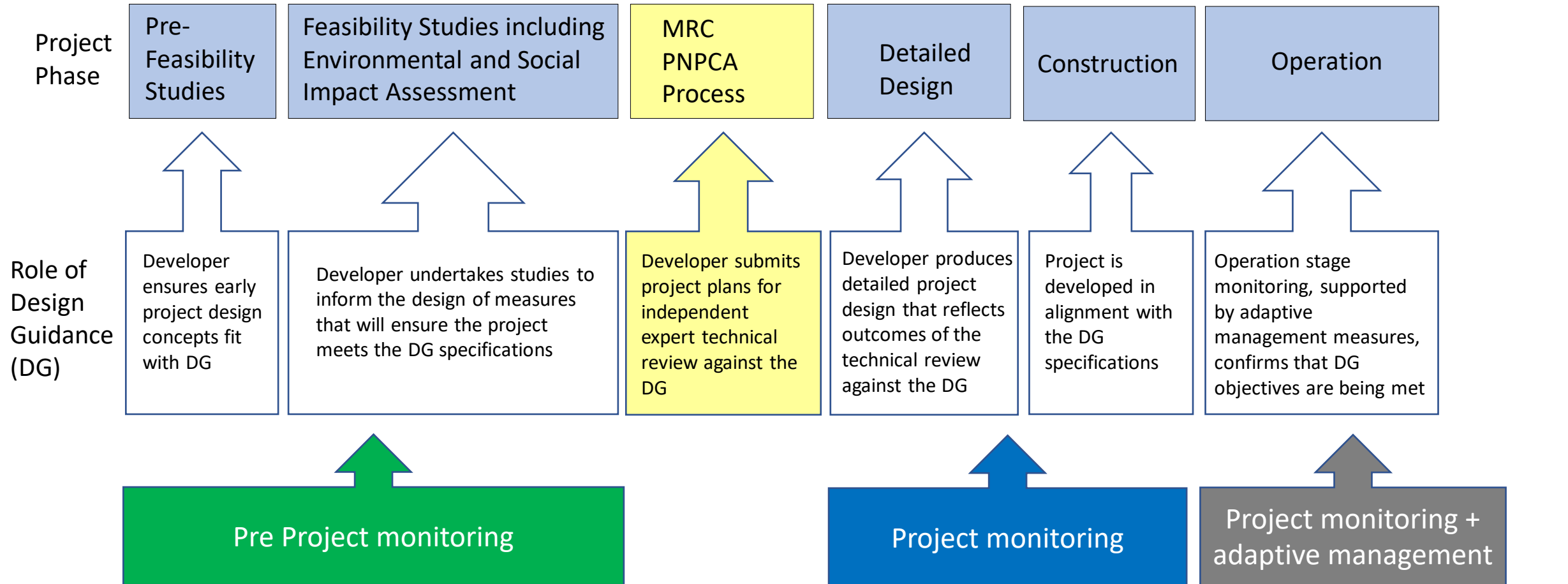
Project Monitoring and Adaptive management (Clause 26/27)

Monitoring plan at PNPCA

- Type of data, analysis, indicators to be tracked
- Test efficacy of mitigation, check trends
- Multiple purposes
- MRC process
- Data sharing
- **Adaptive management** based on post project monitoring.
 - Design to include options for adaptation
 - Based on consistent indicators
 - Modify operation rules if needed to meet targets



Monitoring in the project life cycle



Section 1.6 General Requirements

- 30-31: Lists some information **requirements for PNPCA information** that do not appear under specific topics
- 32: Recommends that a **checklist** is submitted with PNPCA documentation to show where different clauses in the guidance are addressed

Section 1.7 Updates to this Guidance

- 33: Mentions considerations regarding **future updates** to this Guidance



PNPCA requirements clearer (Clause 30/31)

Documentation provided should **allow notified MC to evaluate that**:

- “every effort” to alignment with PDG
- Document evidence to propose justify alternative solutions
- Provide Joint operating rules, drawings, maps details to allow assessment
- List which analysis, design, operating rules to be done after PNPCA.



In Summary - - PDG Key Points

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Thank you

