



IAEA

International Atomic Energy Agency
Atoms for Peace and Development

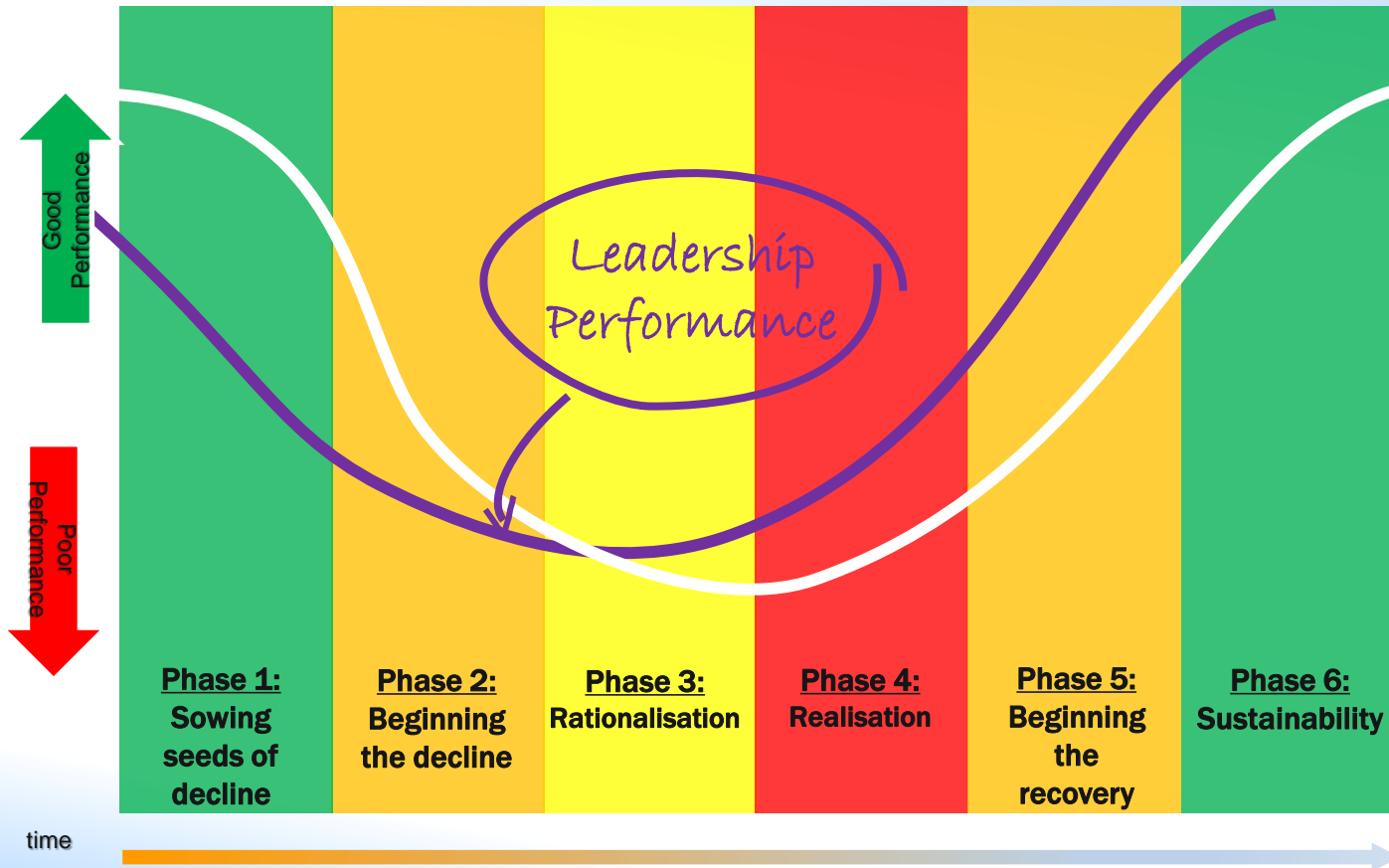
CYCLES IN PLANT PERFORMANCE

**Regional Workshop on the development and
implementation of effective IMS based on GSR Part 2**

**Jakarta, Indonesia
31 July-04 August 2023**

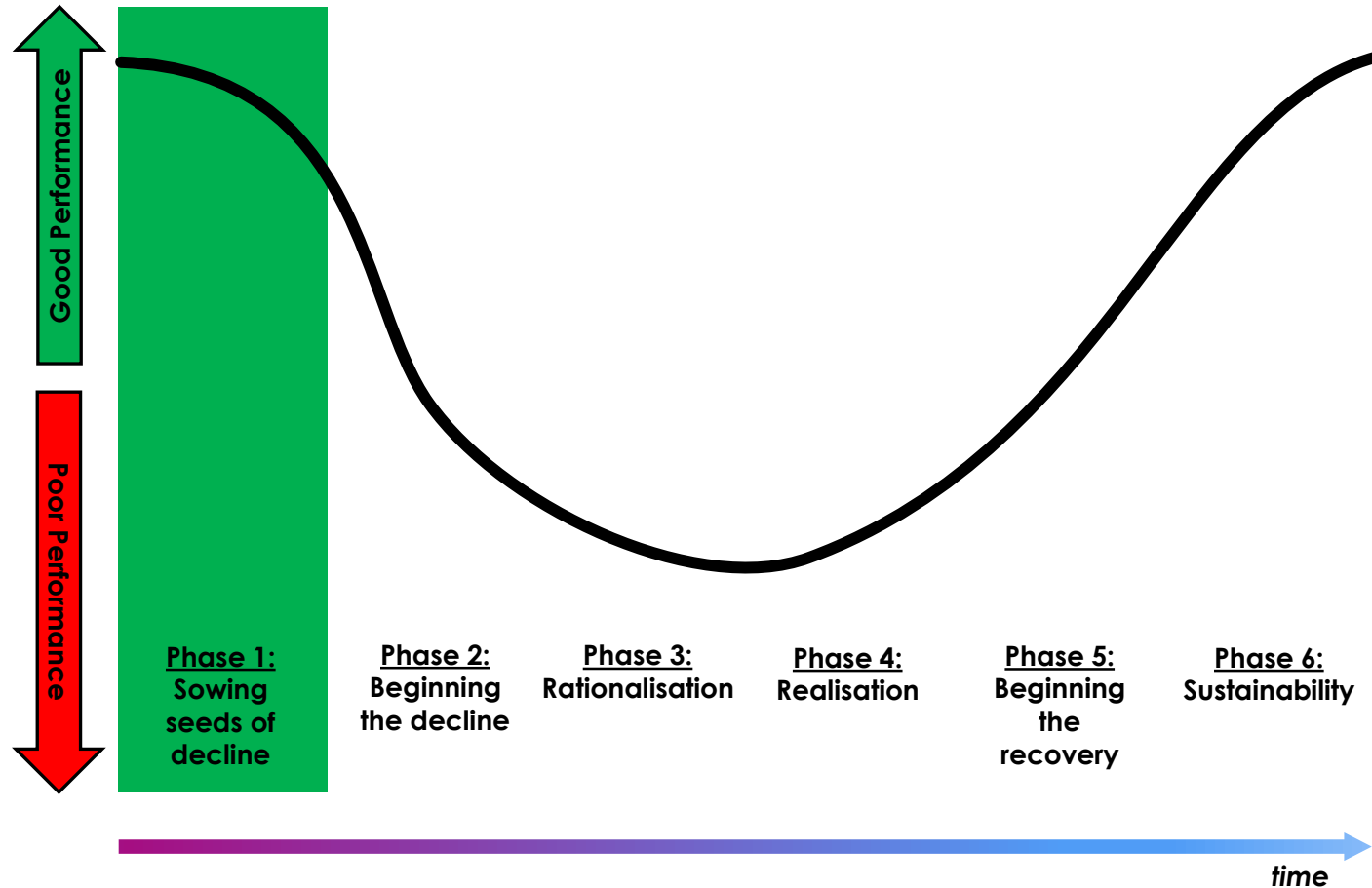
Regulatory Activities Section
Division of Nuclear Installation Safety (NSNI)
International Atomic Energy Agency (IAEA)
Department of Nuclear Safety & Security

WANO/INPO The Cycle of Plant Performance



Leadership and plant performance have a strong coupling (delay in decline typically 2-3 years)

THE CYCLE OF PLANT PERFORMANCE



PHASE 1: SOWING SEEDS OF DECLINE

THE PLANT, THE PROCESSES:

Performance targets being met, except for a few

Plant has a good reputation

Don't 'mess with things' mind-set prevails

Turnover and attrition occurs in key technical roles, impact not recognised

Investment in plant reduced

Low-level events are tolerated, risk is not recognized

PHASE 1: SOWING SEEDS OF DECLINE

LEADERS

Leaders rarely in the field

Leadership changes are reactive, not well considered or coordinated, leaders do not stay in role for long; turnover in key positions and impact is not evident

Setting less challenging targets, complacency sets in

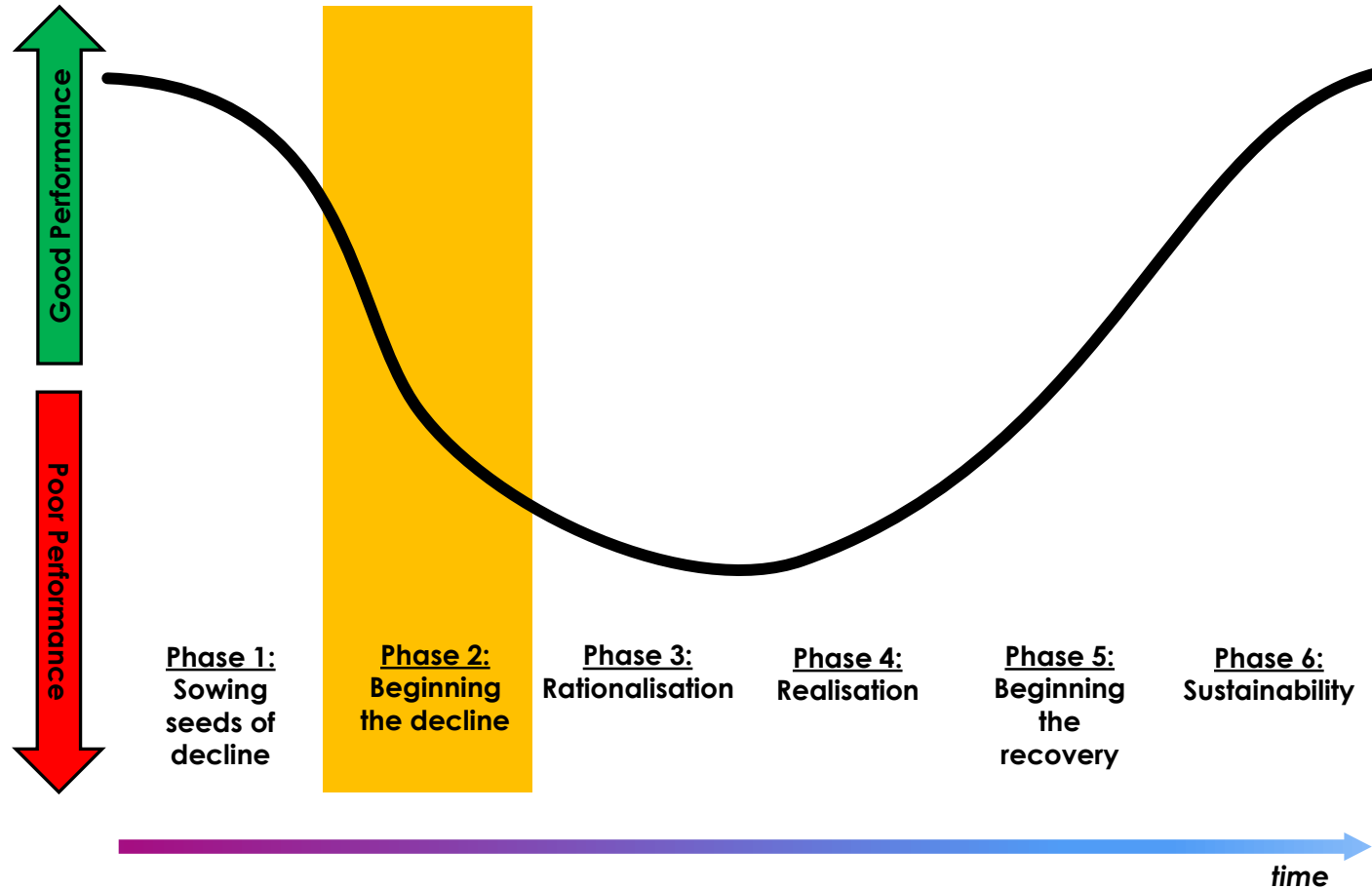
Covertly arrogant, living on past successes

Review meetings become routine with little accountability, less challenges

Low level events tolerated, fly below managements radar screen, risk is not recognised

Isolationism, reduced benchmarking

THE CYCLE OF PLANT PERFORMANCE



PHASE 2: BEGINNING OF DECLINE

THE PLANT, THE PROCESSES:

Plant still running well

Emergent issues are challenging, disrupting routines

Indicators may be high, but performance is declining

Oversight weakens

Engineering is working on different priorities to operations

Training is not focused on performance

PHASE 2: THE BEGINNING OF DECLINE LEADERS

Management team loses discipline, starts to sense something is wrong

Little interaction between station senior management, corporate executives and board members

Not involving employees or listening to them

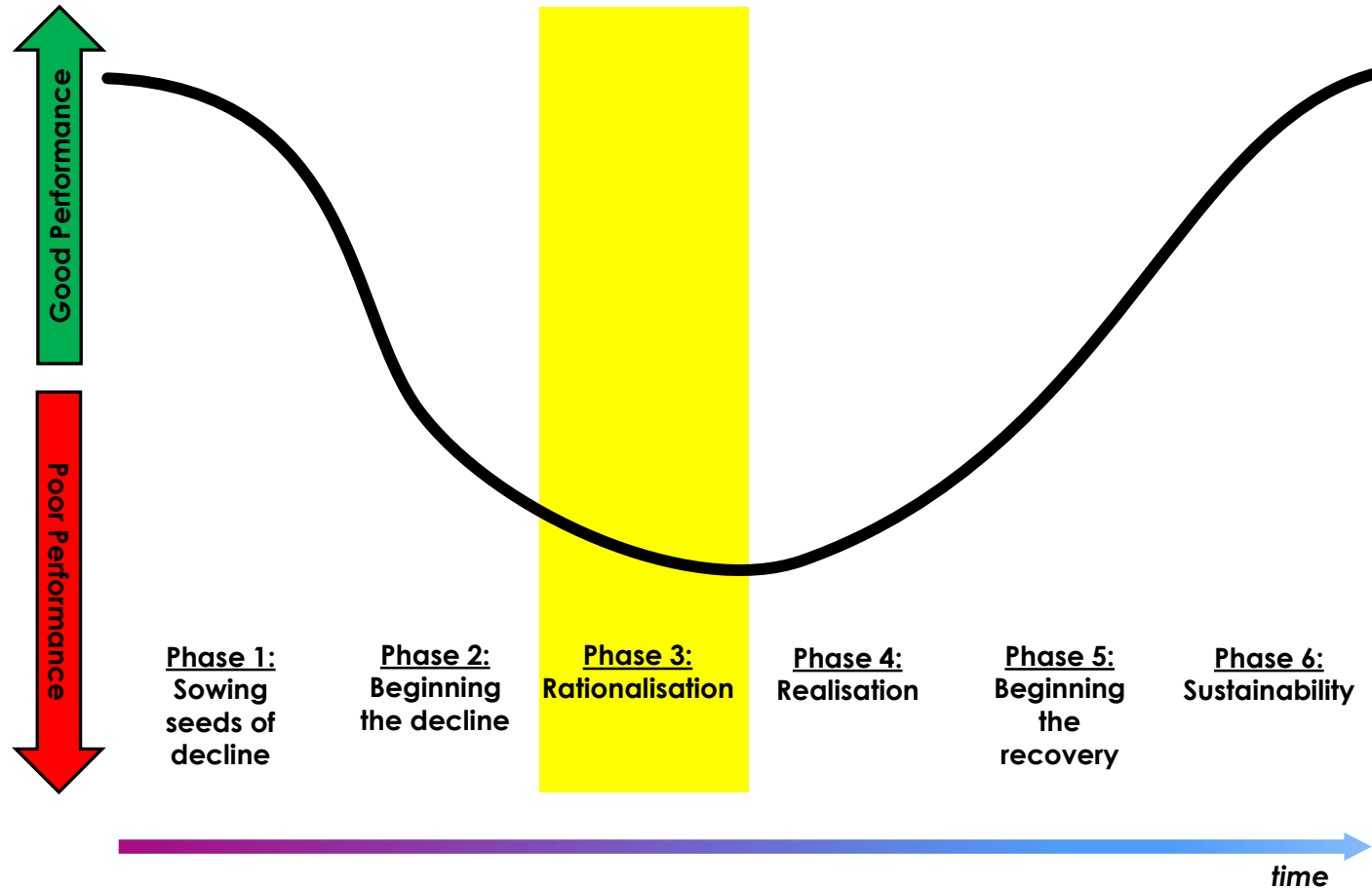
Energy for organisational learning (CAP) is diminished

Leaders are not visible to staff

Tolerate backlogs of maintenance, testing, corrective actions, modifications,...

Do not understand or question slipping indicators

THE CYCLE OF PLANT PERFORMANCE



PHASE 3: RATIONALIZATION

THE PLANT, THE PROCESSES:

Performance decline evident to outsiders, but not the station

Important equipment issues linger and repairs are often postponed

Events occur but are not thoroughly investigated

Turnover and attrition occurs in key technical roles, impacting work

Work management and equipment reliability processes not effective, operations resort to workarounds or fix it now teams

Short-term direction to find problems saturates CAP, WM

PHASE 3: RATIONALISATION LEADERS

Leaders confused, working extraordinary hours, but achieve few results

Overemphasise production pressure, not sensitive to unintended message when making operational decisions

Leaders defensive; rationalising performance in light of past successes- seen as 'bad luck'

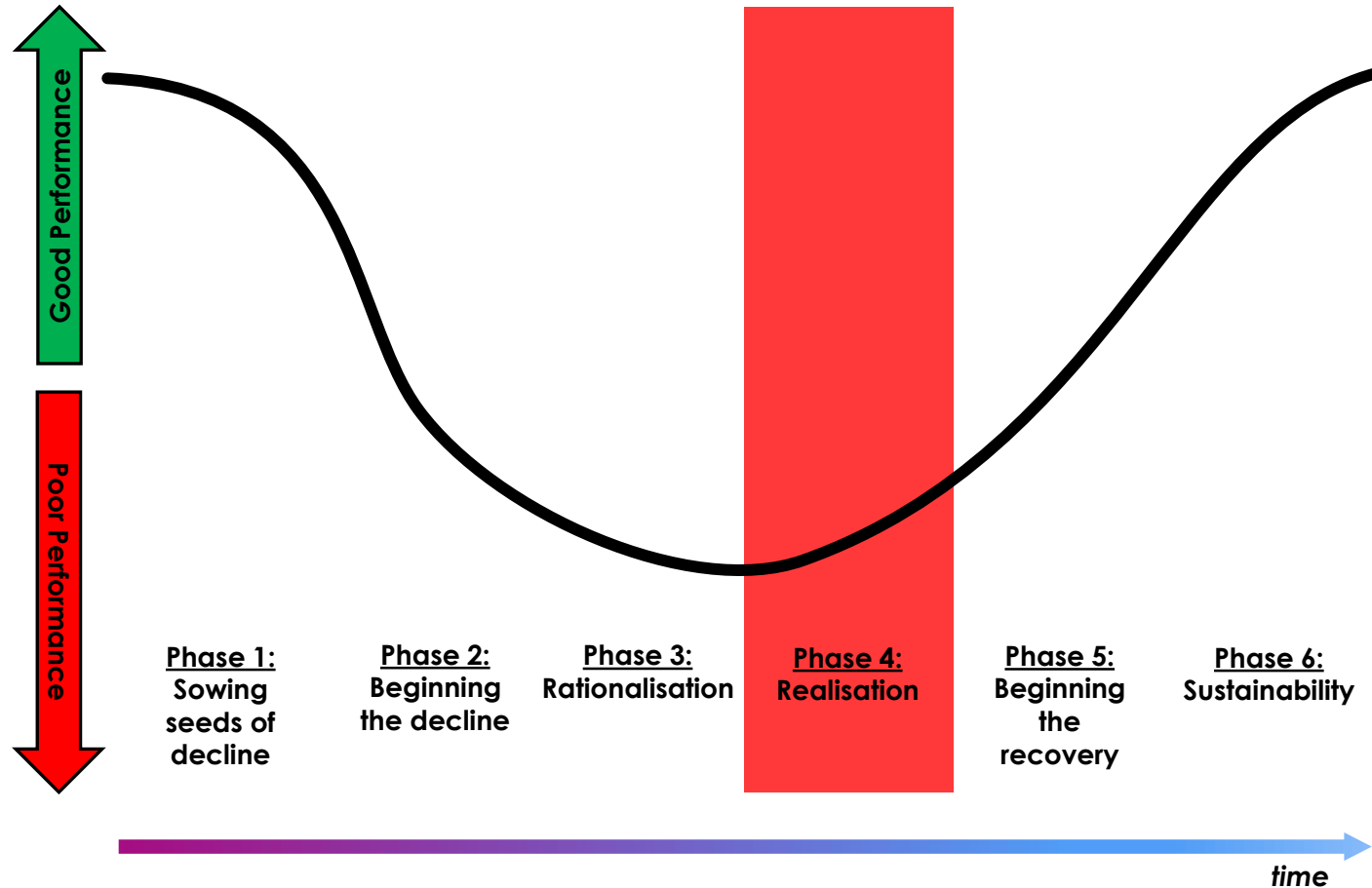
Leaders feel personally threatened and 'hunker' down

Teamwork erodes, managers look out for their team only, organisation not aligned

Process deviation tolerated, shortcuts allowed, normalisation and drift

Nuclear safety is discussed but not emphasised

THE CYCLE OF PLANT PERFORMANCE



PHASE 4: REALISATION

THE PLANT, THE PROCESSES:

Significant events occur, rework is high

Outage performance declines

Safety culture has declined

Organisation is overwhelmed without a prioritization scheme

Site responds to multiple direction from WANO/Regulator, internal oversight

Site morale declines, many do not see hope for improvement

Efficiency of process erodes due to influx of new people and contractors

PHASE 4: REALISATION LEADERS

No clear strategy, reactively responding to events and outage overruns

Management loses confidence in themselves, workers lose confidence in managers

Leaders stay in their offices, work long hours

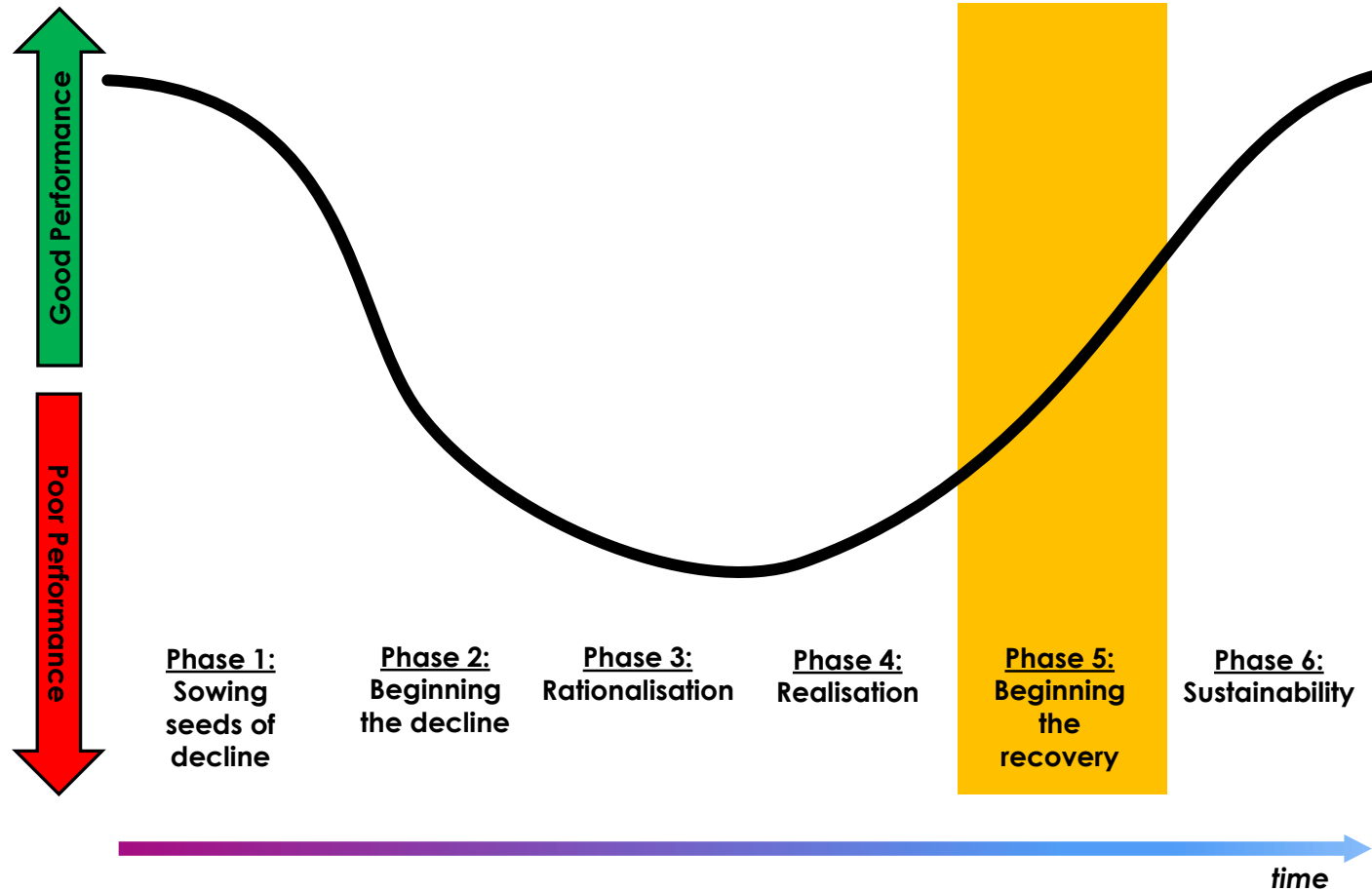
Blaming each other- some start to leave

Selected forced changes to management start to occur

Realisation, we have to turn this around, ask for help

Recovery strategy developed

THE CYCLE OF PLANT PERFORMANCE



PHASE 5: BEGINNING OF RECOVERY

THE PLANT, THE PROCESSES:

Plant performance not reliable due to multiple shutdowns

Outages routinely overrun

Significant regulatory pressure, improvement notices

Plant start to align around an improved CAP process

Training reintroduced to start looking at performance issues

Comprehensive picture of performance developed

PHASE 5: BEGINNING THE RECOVERY LEADERS

Critical mass of leaders on board & aligned to priorities and standards

Operations leadership (and focus) restored

Comprehensive picture of performance developed and shared

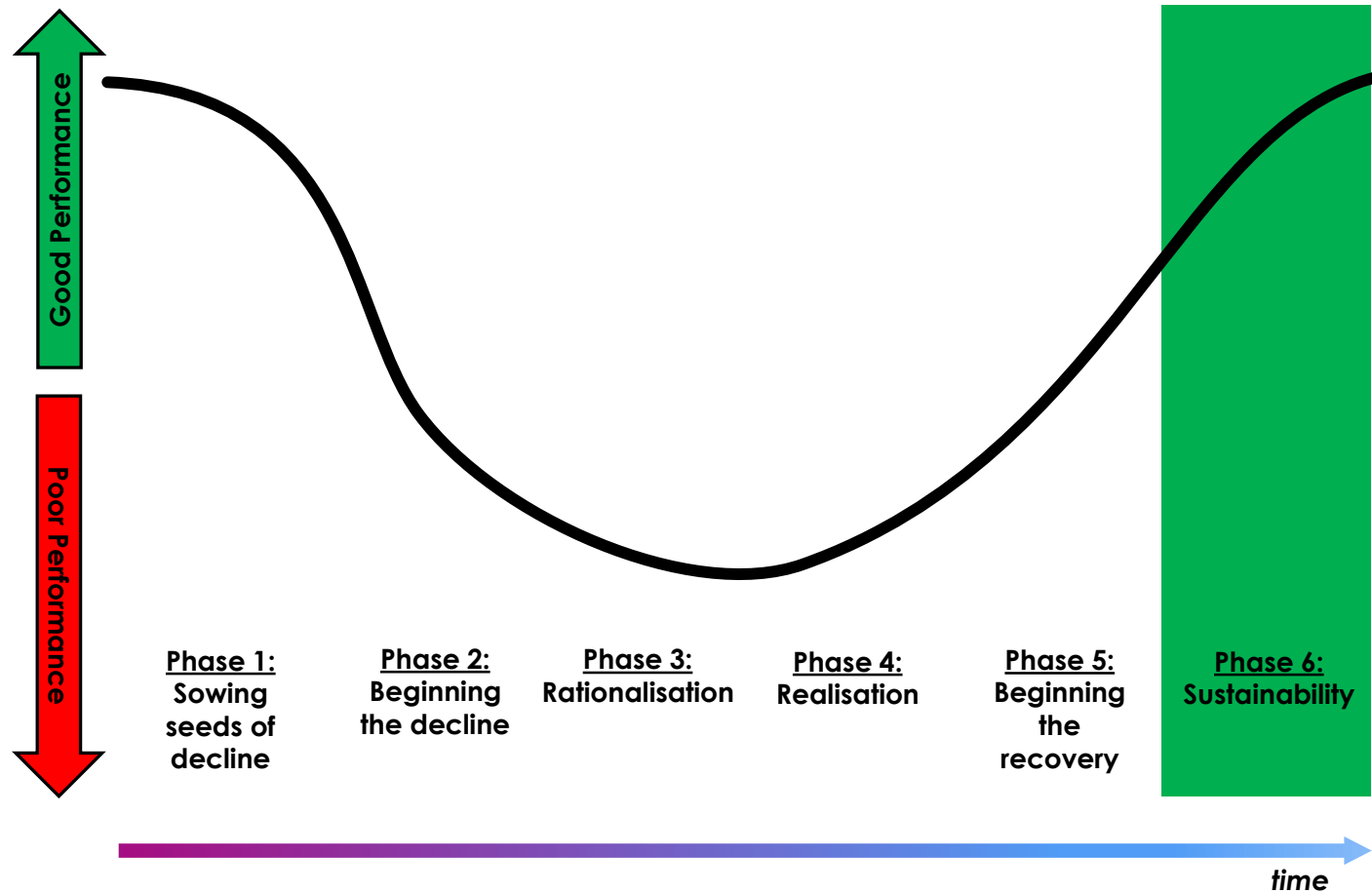
Leaders have recognised that they need to start managing their own behaviours

Develop an integrated improvement process, communication and buy in

Out in the field, setting standards for operational performance

Actively supporting the CAP process

THE CYCLE OF PLANT PERFORMANCE



PHASE 6: SUSTAINABILITY

THE PLANT, THE PROCESSES:

Problems start to decline

Actively finding and fixing problems

Training programmes are starting to shape individual and team performance

A strong corrective action (CAP) process has been developed

Operating experience and benchmarking is valued and used to improve performance

Metrics reviewed against best industry performance and actioned

PHASE 6: SUSTAINABILITY LEADERS

Are regularly seen in the field: looking for things going well and coaching when not

Leaders continually challenge workers to bring problem to leaders attention

Management team reinforces the CAP process, actively involved in review boards

Two way communication and sharing information is the norm

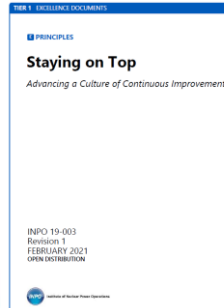
Benchmark others and strive for improvement

Oversight is valued by management team

Employees at all levels are open and expect feedback

INPO 2019-03- Staying on Top

Advancing a Culture of Continuous Improvement



Setting Long-Term Direction: Committing to deeply embedding a culture of continuous improvement for the long term

Leadership and Talent Development: Building and maintaining strong incumbent leadership throughout the organization, together with a strong, homegrown bench strength

Excellence Standards: Adhering to the highest possible standards of performance

Continuous Learning: Combining all possible sources and methods of advancing individual and institutional learning for the long term

Self-Awareness and Self-Correction: Being able to find and fix one's own problems

The Values of a Continuous Improvement Culture achieve sustainable results and enable continuous performance improvement



Thank you 😊

i.kubanova@iaea.org