How to Track the Progress of the NDC
—Approach of Multi-Layer PDCA Cycles—

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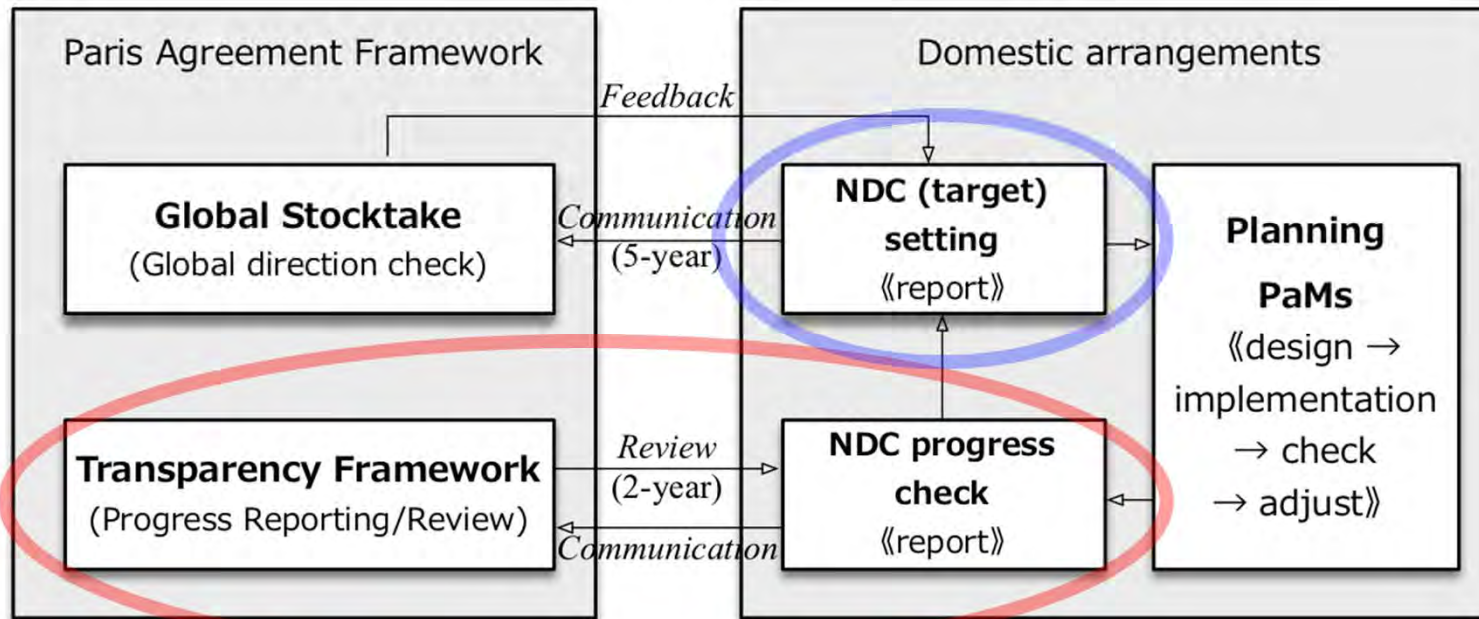松尾 直樹

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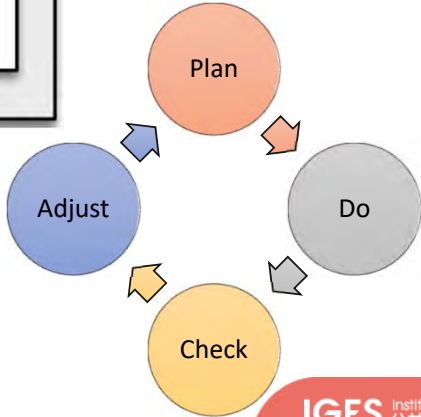https://pub.iges.or.jp/staff/matsuo-naoki

Operationalizing NDC-based Paris Agreement

Paris Agreement introduces int'l PDCA-like cycles for target setting and progress reporting. In addition, it is needed to prepare domestic PDCA-cycles for evolving "real actions".

パリ協定は,目標設定と進捗報告に関する国際的PDCA様サイクルを準備している.
それに加え,アクションを実体化・進化させるには,国内アクションのPDCAサイクルが必要.

PDCA-cycle of targets/ambitions (global)
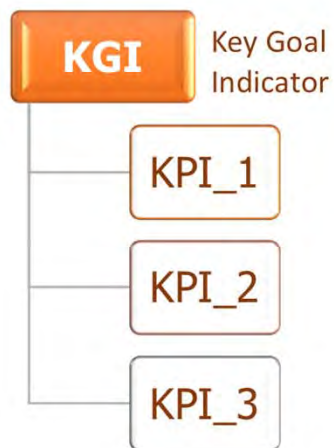+
PDCA-cycle of actions (national)

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"Tracking the Progress" under the Paris Agreement

NDC target is set on an indicator (e.g., GHG intensity against GDP). Most straightforward way to assess the progress status is to check whether the latest status is over or below the Target Trajectory linearly interpolated between base and target points.

NDC目標は, 何らかの指標（例: 対GDPのGHG排出単位）の形で設定される. 進捗を評価する最もストレートな方法は, 直近の状況が, 基準と目標ポイントを結ぶ直線の上にあるか下にあるかで評価する方法である.

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Beyond just "tracking the progress"

PDCA-cycle for each action

Indicators

KGI — Key Goal Indicator

KPI_1

KPI_2

KPI_3

$GHG = f(KPIs)$

1. Set/Improve Goals/Targets w/ Action Plan
· Target setting and design of action plan (for whole and for elements/KPIs)
· Course correction for the second round and after
· Organization of management systems

2. Implement Action Plan w/ Monitoring
· Implementation of action plan
· Monitoring of implementation

including GHG emission related parameters

· Quantification of performance based on monitoring results

(KPI: Key Performance Indicator)

3. Compile, Evaluate and Report Performance

4. Analyze Performance & Assess Options
· Performance assessment /analysis (KPIs)
· Consideration of options for improvement

One of the most effective approach—and common for most actions—is to introduce PDCA-cyclic evolutionally processes. Quantification of the progress is measured and assessed for KGI and KPIs. GHG MRV should be embedded in the cycle.

もっとも有効なアプローチでほとんどのタイプのアクションに有効なのは, サイクリックに改善を目指すPDCAサイクルの導入である. 進捗の定量的な測定と評価は, KGI と KPIs で行うことになる. GHG MRVもそれに埋め込むことが有効である.

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Example: SHS (Solar Home System) Promotion Program

Objective	Promote as many SHSs as possible in off-grid areas
KGI	Number of SHSs "used" or "sold and used" in a given year

KPIs	(annual trends are analyzed)	
• Number of SHSs "sold" in the year (by capacity)	• Profitability of the distributors
• Price range of the SHSs by capacity	• Portion of loan users and the default rate
• Regional distribution of the sold SHS	• Income distribution of the users of sold SHS
• Prioritized purposes of the SHS for the users	• Lifetime of the SHSs, …

Example: ETS (Emissions Trading Scheme)

Objective	Complying with the CAP of emissions
KGI	Overall real emissions in the covered sectors (each year and total)

KPIs	(annual trends are analyzed)	
• Trends of price of the emission allowance	• What kind of emission reduction options are materialized?
• Compliance status of companies/facilities	• Which sectors are dominant players and why?
• Liquidity of the market (several indices)	• Gap between modeled results (and why?)
• What portion of allowances are sold/bought?	• When the allowances are sold/bought? …

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Example:　LED Room Light promotion campaign program

Objective	Shifting from incandescent lamps/fluorescent lamps to LEDs
KGI	Number of LED Room Lights sold in the year (or portion of LED lights)

KPIs	(annual trends are analyzed)	
• Category/portion of LED Room Lights sold	• Price by type/wattage of LED	
• When the LED Room Lights are used?	• Which measure/incentive mostly motivated (and why)?	
• Lifetime of the LEDs in the market	• Estimated effect of lowering power-peak	
• Which category of customers bought them?	• Several benefits gained by stakeholders, …	

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Example: Dedicated Bus Lane Introduction

Objective	Smooth transportation of buses incentivizes people to shift from car to bus
KGI	Number of bus passengers for the route of the dedicated lane in a given year

KPIs	(annual trends are analyzed)

- Number of passengers by route and by time
- Distribution of traveling routes by time
- Number of passengers by bus
- Compliance status of the lane "exclusiveness"

- Traveling time for the dedicated line by time
- Traveling time for cars outside of the lane
- Congestion of the roads of dedicated bus lane
- Comparison between "before" state, …

Example: Power Supply Action Plan

Objective	Stable supply of electricity
KGI	Load factor (?)

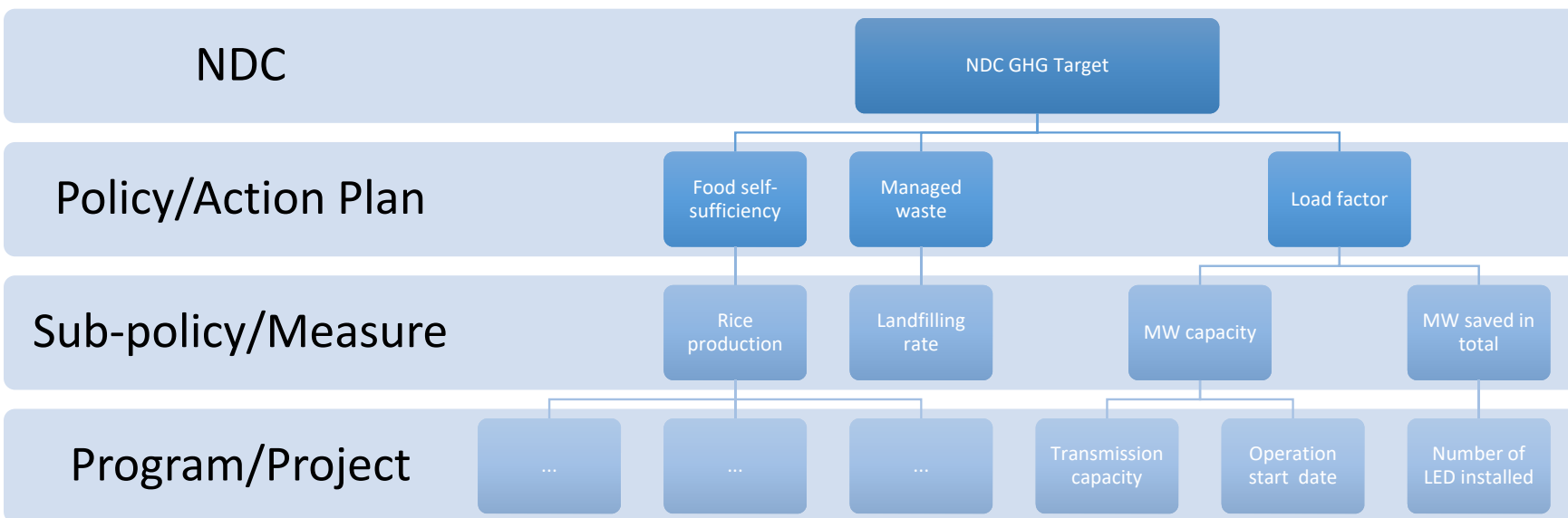| KPIs	(annual trends are analyzed)	
• Maximum/average load (yearly to daily)	• Operating rates by power plant type	
• Capacity-mix by power plant type	• Financing status of the power company	
• Electricity generated by power plants	• Delay of power development plan	
• Frequency stability	• Electricity tariff by type of user, ...	

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Multi-Layer PDCA-Cycles (Image)

Example of the Layer Structure of KGIs/KPIs

NDC
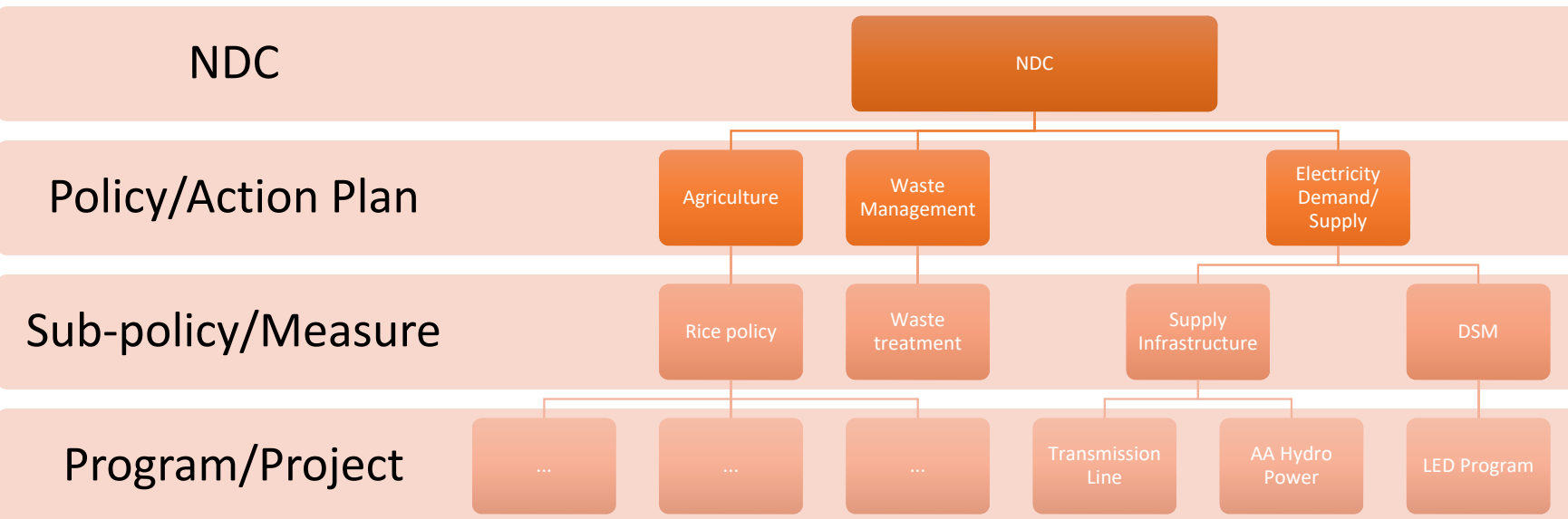
Policy/Action Plan

Sub-policy/Measure

Program/Project

NDC GHG Target

Food self-sufficiency | Managed waste | Load factor

Rice production | Landfilling rate | MW capacity | MW saved in total

… | … | … | Transmission capacity | Operation start date | Number of LED installed

From the aspects of KGI and KPI, the KGI of an action should be one of the KPIs of the action in the upper level in a multi-layered PDCA cycle structure.

KGI, KPI の観点からは, あるレベルのアクションの KGI は, 多層PDCAサイクル構造の中で, その上位レベルのアクションの KPI のひとつとなる.

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Description Template of an GHG Mitigation Action

Category	Elements	Sub-elements
General information	Title	Subtitle
	Description	
	Ministry	Executing Agency, Supports
	Time frame	Status / n-th year from start
	Level of the Action	Higher level Action
	Type of instruments	More specifications
	Primary objective	Secondary objective/co-benefits
	Target sector	Target sub-sector
	Target actions	Target technologies
	Costs/Benefits	Administrative cost
	Funding source	Support from abroad

Tacking the Progress of an Action [Summary]

Category	Elements	Sub-elements
Latest year information	Title	Subtitle
	Description	
	Ministry	Executing Agency, Supports
	Time frame	Status / n-th year from start
	Primary objective	Secondary objective/co-benefits
	KGI for Target	
	Target Level	Other info (e.g., base year)
	Status	KGI performance status (on/off track)
	Assessment	Reasons for performance
	Adjustment	Measures for improvement
	Prospect	

PDCA Cycle Elements for KGI or KPI (KGI-specific items: "*")

Category	Elements	
Indicator (KGI or KPI)	Name	
	Description	
Plan	Target Level of the KGI or KPI	
	Time frame(s)	
	Formula of the KGI or KPI (using monitoring parameters)	
	Action plan description	
	Targeted Actor(s)*	
	Stakeholders (execution-side)	Upper agency*
		Supervisory body*
		Execution body (w/ monitoring/reporting)
	Frequency of PDCA cycle	
	Frequency of sub-adjustment cycle (if any)	
	Monitoring parameters and frequecncies	
	Reporting frequency of the KGI or KPI	
	Trends and progress status against target	
	Upgrades from previous cycle	
	Key issues and reasons	
	Formula for GHG emissions or reductions*	
Do	KPIs performance status (on/off track)	
	Other important information	
Check	KGI performance status (on/off track)*	
	Key findings in the report	
Act (Adjust)	Relative importance of KPIs to meet KGI	
	Assessment of the KGI or KPI performance	
	Several reasons (incl. KPIs)	
	Improvement measure options	

Key Messages

Int'l reporting under PA is a good chance to introduce domestic framework

Inter-ministerial coordination/collaboration should be driven/enhanced

PDCA-cycle for each action is the key to improve the performance

Preparing multi-layer type PDCA-cycles for integrated policy actions

KGI of an action is a KPI of the upper level PDCA-cycle

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ご清聴ありがとうございました。

Thank you for your attention.

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