



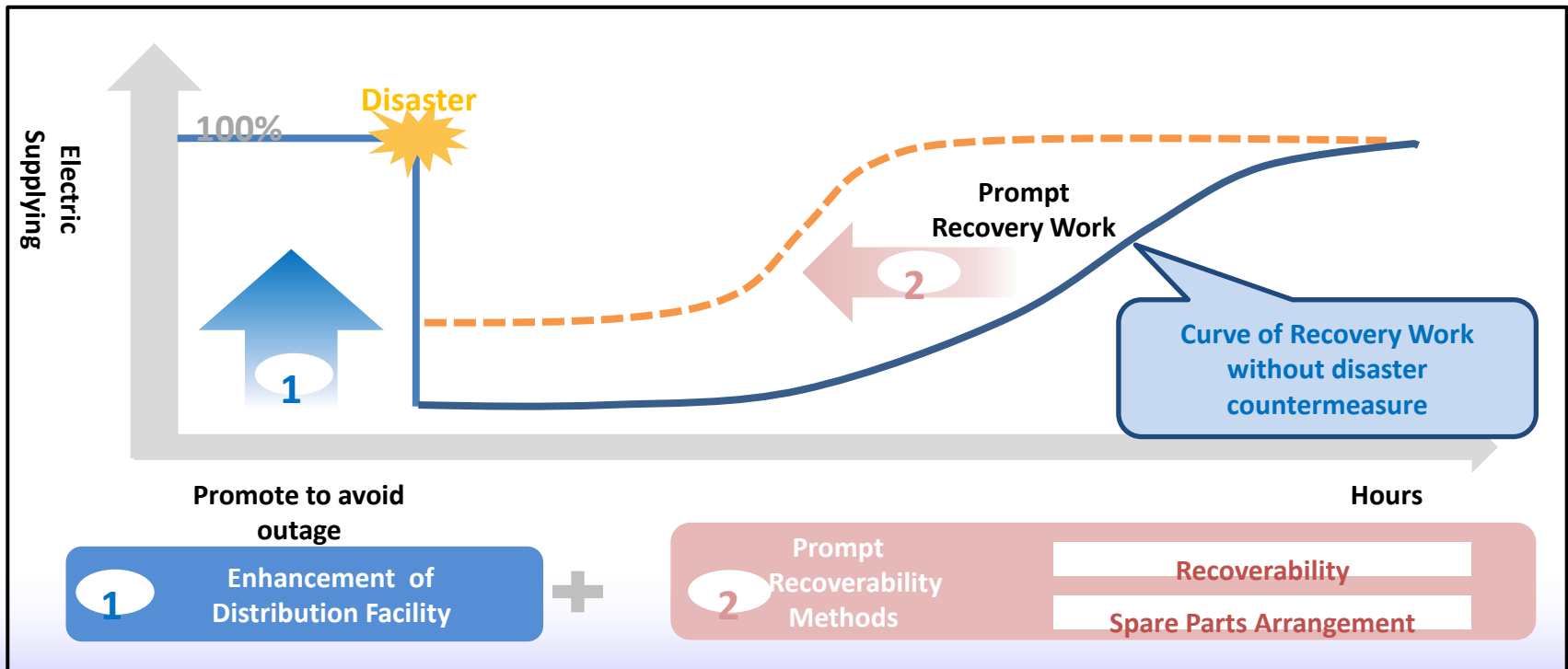
Data Collection Survey on the Incentive Mechanism for Improving Disaster Resiliency of Electric Power Distribution Network

December 2015



Objectives of the Project

1. Collect information on power distribution network and analyze the issues
2. Introduce the financial incentive scheme and experiences in Japan to enhance disaster resilience, in which ex-ante countermeasures are emphasized
3. Examine how a similar scheme could be introduced in the Philippines
4. Propose preliminary plan to implement a new financial incentive scheme in NEA
5. Discuss the possibility of introducing such financial incentive scheme to financial institutions in the Philippines



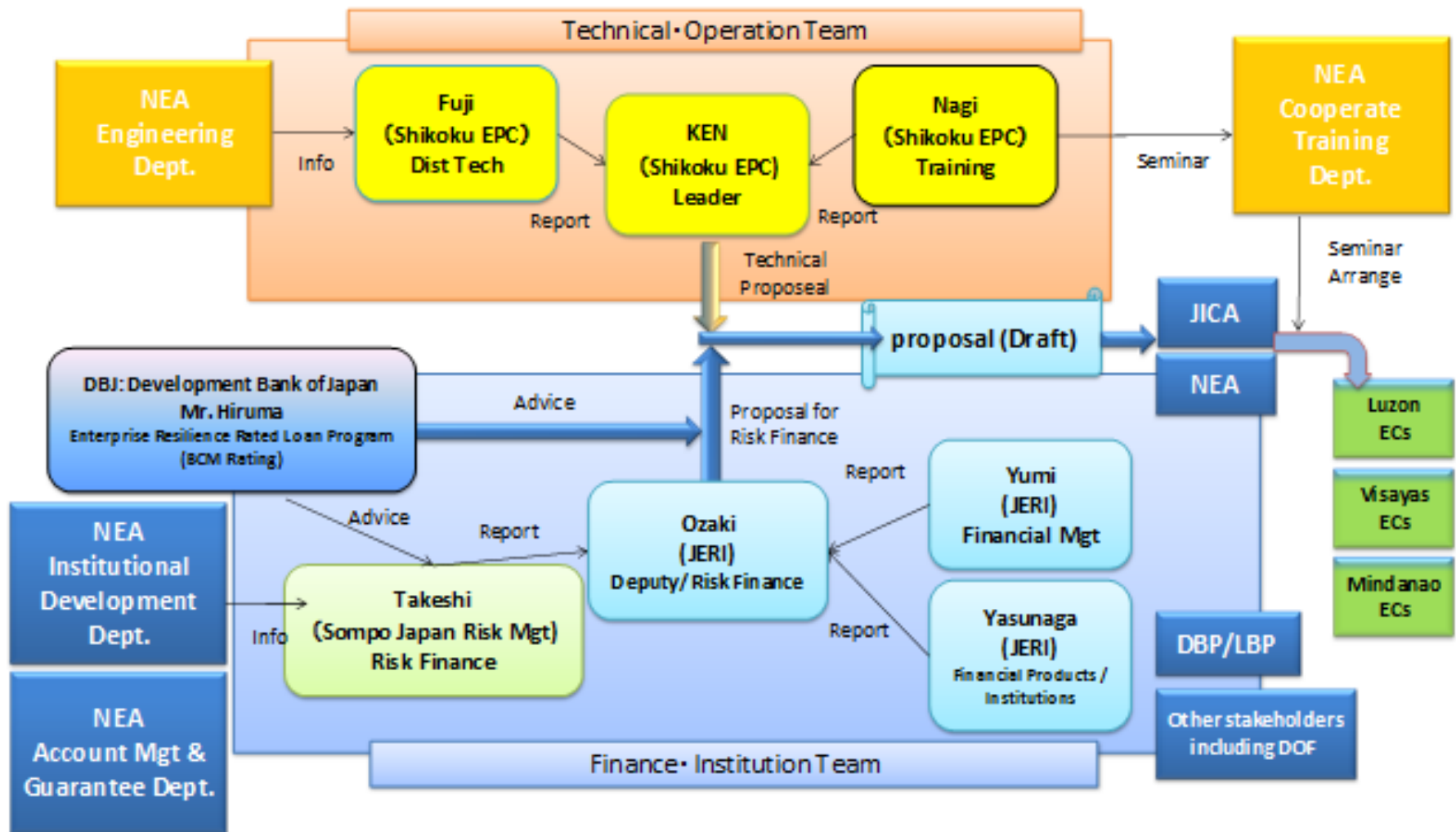
Importance of Improving Disaster Resiliency of ECs

- ☆ Building disaster resilience of electric power distribution network, which is an essential infrastructure in the Philippines, is very important in order to ...
 - **Maintain stability of people's lives and business activities in a region**
 - **Enhance the long-term socio-economic attractiveness and competitiveness of the region**
 - **Reduce potential fiscal burden for the central and local governments and for the ECs**

- ☆ Business Continuity Management (BCM) is an integral part of strengthening disaster resilience of a company. BCM has two main components;
 - Preparedness / mitigation to prevent operation level decrease (1)
 - Business continuity plan to achieve optimum and prompt recovery (2)

- ☆ With good BCM being implemented, post-disaster phases could be shortened and post-disaster financing needs could be reduced significantly.

Stakeholders of the project



Overview of BCM rating by the Development Bank of Japan

Enterprise Resilience Rated Loan Program by Development Bank of Japan -BCM rating-

Such recent disasters as the Great Hanshin-Awaji Earthquake, the Chuetsu Offshore Earthquake and in 2011 the Great East Japan Earthquake caused tremendous damage to the economy, with many organizations forced to suspend operations for extended periods.

In addition to planning for protection for personnel and property, companies face the need to draft business continuity plans to hedge themselves against lost revenue and protect their clients in the event of disaster.



Enterprise Resilience Rated Loan Program (BCM rating)

Product Philosophy

Change of enterprise stakeholder

Diversification of needs

Social responsibility

Risk/crisis management

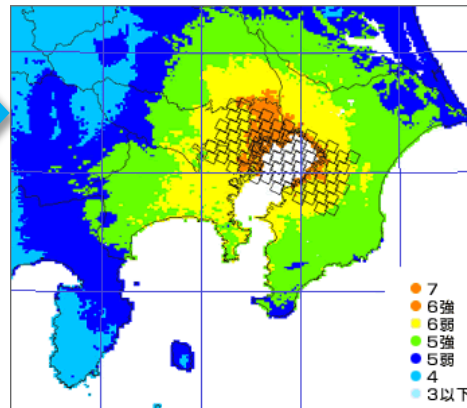
Purpose

Create companies who have resilience in emergency

Create disaster preparedness market

Financial market

Tail risks
(natural disasters, terrorism...)



Advanced companies

- Earthquake resistant, decentralized facilities
- Backup of systems
- Risk finance

Corporate finance (indirect financing)

ROA

ROE

DCF

Evaluation from viewpoint of economy



Credit and cash flow capacity
in emergency

Preparedness/mitigation
(risk management)

Business continuity
(crisis management)

Preparedness Rated Financing

Outline of BCM Rating

- ☆ Among the total 100 points in the BCM Rating, the points related to preparedness/mitigation comprise 25%, BC Hardware 25% and BC Software 50%.
- ☆ Interest rates are set according to BCM Rating to incentivize company's BCM activities.

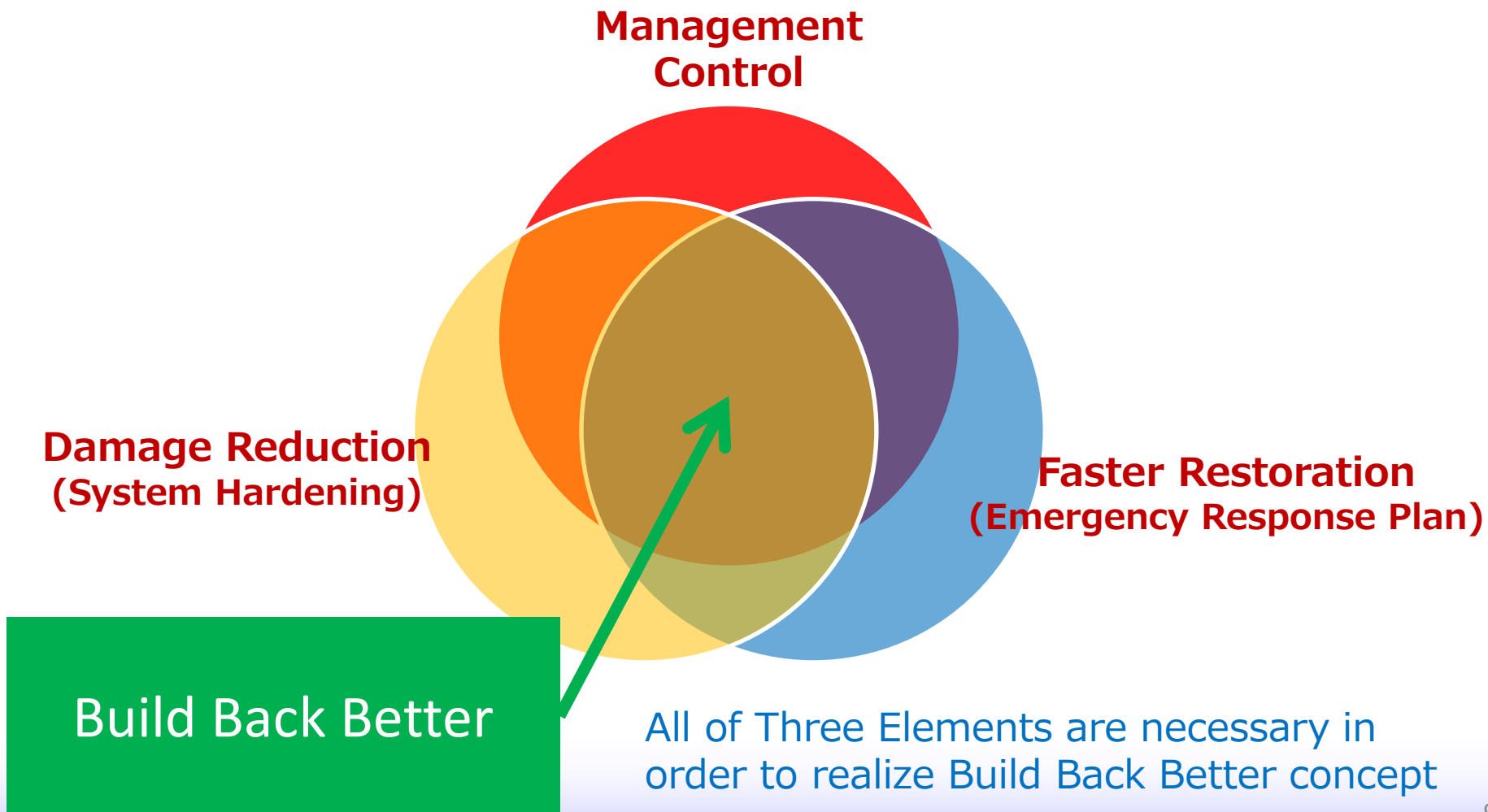


Preparedness /Mitigation	Disaster Prevention Plan		▶	RANK A
	Emergency Response and Operations			
	Secondary Disaster Prevention Plan			
	Compliance			
Hardware	Durability of Important Property		▶	RANK B
	Distribution and Fungibility of the Head Office and Important Bases			
	Redundancy of Information Systems			
B C Software	Principle of Business Continuity and Crisis Management Plan		▶	RANK C
	Risk Assessment for Business Continuity (Business Impact Analysis)			
	Understanding and Time Series Analysis of Bottleneck on Business Continuity			
	Target Restoration Time Based on Supply Delivery Responsibility			
	Strategy of Business Continuity from Viewpoint of Stakeholder Management			
	Awareness and Training Programmes of Business Continuity			
	Resilience of Supply Chain and Value Chain			
	Crisis Communications to Stakeholders			
Financial Stability (Using Risk Finance and Insurance)				
Total	Total Assessment		▶	RANK D (ineligible)

(source) DBJ

Financial Incentive Scheme for Enhancing Disaster Resilience of ECs

Key Elements in Business Continuity Management for Electric Distribution Service (1)



Key Elements in Business Continuity Management for Electric Distribution Service (2)

Damage Reduction

- 1) Well Designed Facility for Natural hazard
- 2) Protection against Secondary Damage
- 3) Power Distribution Loop and Isolation
- 4) Additional Protection for Important Facility

Faster Restoration

- 1) Forecast Power Outage Area
- 2) Restoration Capability
- 3) Conditions to Restoration Work
- 4) Mutual Aid System

Management Control in BCM

- 1) System Hardening Plan
- 2) Emergency Response Plan

Note: Rating indicators are further breakdown into around 50 items in total



Assessment of vulnerability of the power distribution facility against Natural Hazards

Rating indicators	
1) Well designed electric distribution system prepared for Natural Hazard	● Sufficient Natural Hazard assessment
	● Well adapted specification in design
	● Quality control - Installation
	● Inspection, Maintenance & Repair
2) Protection against secondary damage	● Tree and vegetation management
	● Flying debris
	● High tide during storm
	● Land slide, flash flood or mud flow
3) Electric distribution loop and Isolation	● Redundancy, loop distribution
4) Additional Protection for Important Facilities	● Reliable power lines to important facilities – hospital, water, communication,

**Faster
Restoration**

Assessment of restoration capability of EC within the pre-set time frame after a disaster

Rating indicators

1) Forecast power outage area	● Pre-typhoon damage assessment
2) Restoration Capability	● EC's capacity for restoration works
	● EC's control and command in a disaster
3) Conditions to restoration works	● Redundancy in power supply
	● Possible access obstruction for restoration
4) Mutual aid system	● Effectiveness of Taskforce Kapatid



Assessment of management control for enhancing preparedness for Natural Disasters

Rating indicators	
1) Management commitment	<ul style="list-style-type: none">● Clear commitment for upgrading facility prepared for Natural Hazards
2) System hardening plan	<ul style="list-style-type: none">● Facility upgrade plan w/funds
	<ul style="list-style-type: none">● Rehabilitation plan w/funds
3) Emergency response plan	<ul style="list-style-type: none">● Development, update and training
	<ul style="list-style-type: none">● Pre-disaster activity
	<ul style="list-style-type: none">● Outage monitoring system

Introduction of BCM rating to ECs

➤ Should BCM rating be embedded in the current KPS rating system?

Pros & Cons of Two Possible Scenarios

Integration into the current KPM rating system	Establishment of an independent rating system
<ul style="list-style-type: none"> ⊙ Comprehensive rating system could be established to assess ECs' performance including BCM ○ Relatively less additional workload for NEA and EC staff △ Financial incentives are not used in the current KPS rating × Limited function as an incentive mechanism to promote ECs' effort in BCM improvement if relatively smaller points are allocated to disaster resilience parameters 	<ul style="list-style-type: none"> ⊙ Higher possibility to encourage ECs to make efforts for disaster resiliency enhancement depending on the contents of incentives given, as a rating system solely focused on BCM ○ Easier application in case of adoption by other sectors other than ECs and other institutions other than NEA (such as policy-based financial institutions) × NEA and EC staff might feel additional burden with high possibility of additional business flow creation

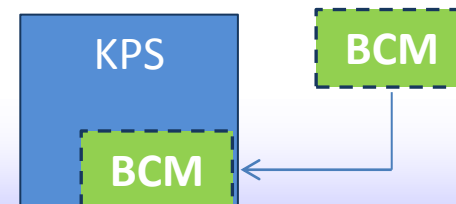
(1) New KPS

Parameters	Weight	Departments in charge
Financial	30%	Financial Services Dept, Account Management & Guarantee Dept
Institutional	35%	Institutional Development Dept
Technical	30%	Engineering Dept
Reportorial	5%	
BCM	??	???

(2) Independent BCM rating

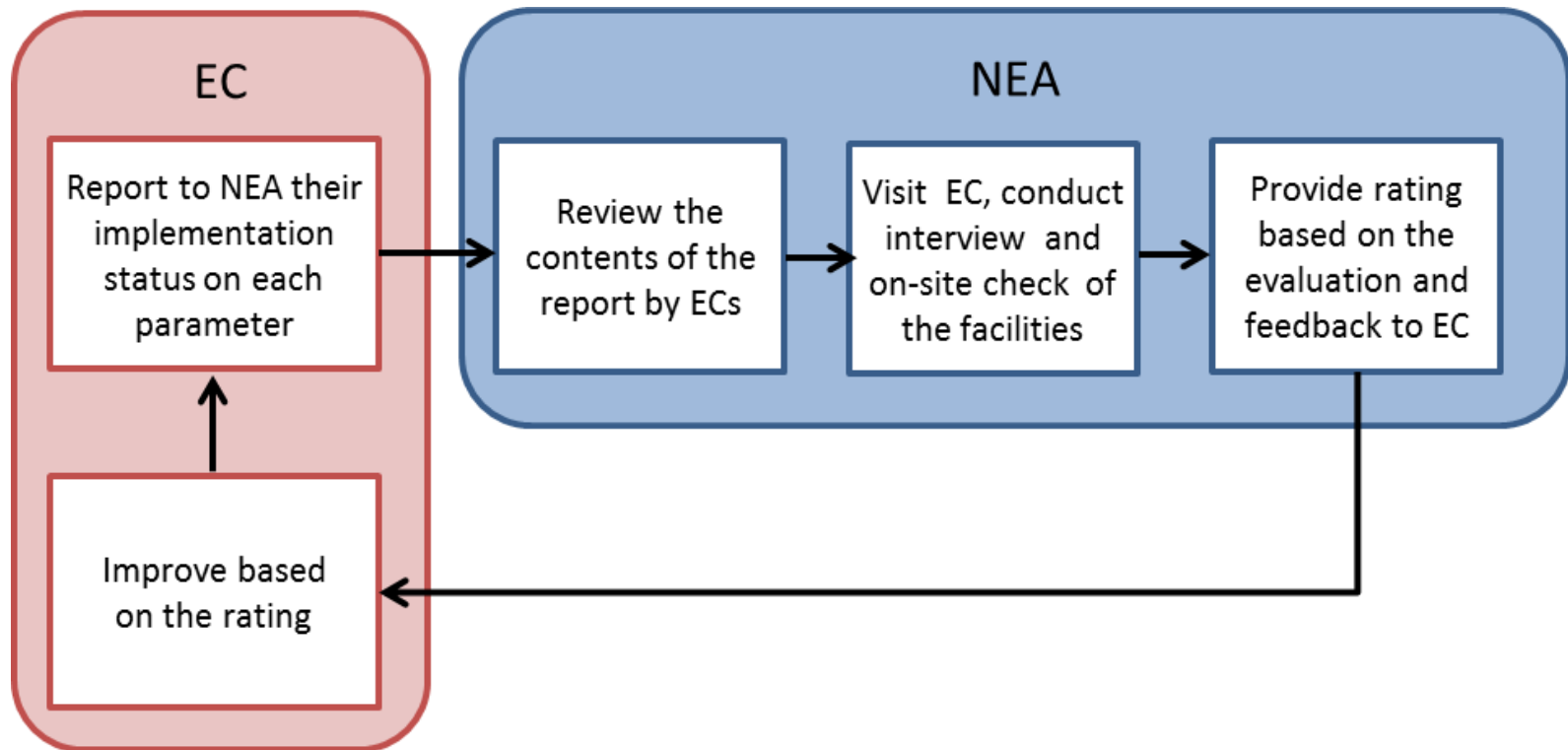


(3) Mixture of (1) and (2)



Operational Procedure of BCM rating

- Identification of responsible department(s) within NEA will be needed.
- ECs will need to report periodically their BCM implementation status to the NEA.
- In the BCM rating process, NEA will need to conduct on-site check of ECs, especially in the start-up stage, to have mutual understanding of the rating system and its importance.
- PDCA cycle should be introduced for continuing improvement of BCM by ECs.



Possible Financial Incentives in BCM rating (1)

➤ For ECs with higher BCM rating, the following financial incentives should be considered.

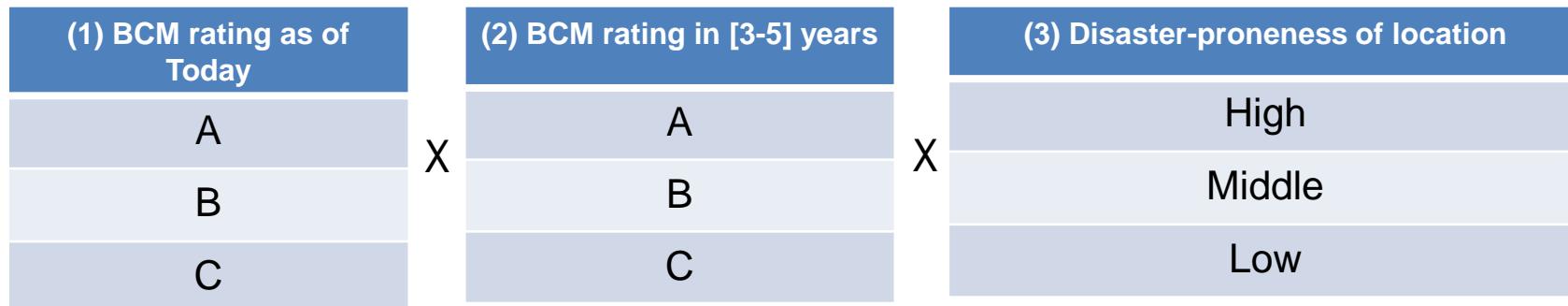
To enhance ex-ante preparedness	To enhance ex-post business continuity
(1) Preferential loans by NEA to promote pre-disaster investment to strengthening facilities of ECs <ul style="list-style-type: none"> - Lower interest rate (cf. current interest rate: 6.5%) - Longer loan term (longer than 15 years) 	(4) Preferential contingent loan program (possibly by commercial banks)
(2) Preferential guarantee program (possibly by LGUGC) to help pre-disaster investment funding by commercial banks <ul style="list-style-type: none"> - Lower guarantee fee (cf. current guarantee fee: 0.25%) - Larger guarantee amount (cf. current upper limit: 80%) 	(5) Preferential calamity loans (by the central government/NEA)
(3) Similar preferential loans to be applied by commercial banks	(6) Preferential disaster insurance program <ul style="list-style-type: none"> - Lower insurance premium

Cf. DBJ's BCM rating's preferential interest rates

Rating	Preferential loan condition
A	Company with excellent disaster preparedness/mitigation and BCM resilience
B	Company with good disaster preparedness/mitigation and BCM
C	Company with sufficient disaster preparedness/mitigation and BCM
D	Disqualified
	Resilience rated loan program is not applicable

Possible Financial Incentives in BCM rating (2)

- Evaluating ECs' disaster preparedness as of today will not be sufficient to solve the current challenge.
- Assessing the ECs' future disaster preparedness based on their BCM planning should be incorporated in this rating scheme.
- Also, disaster-proneness of each location needs to be considered for NEA to prioritize funds allocation.



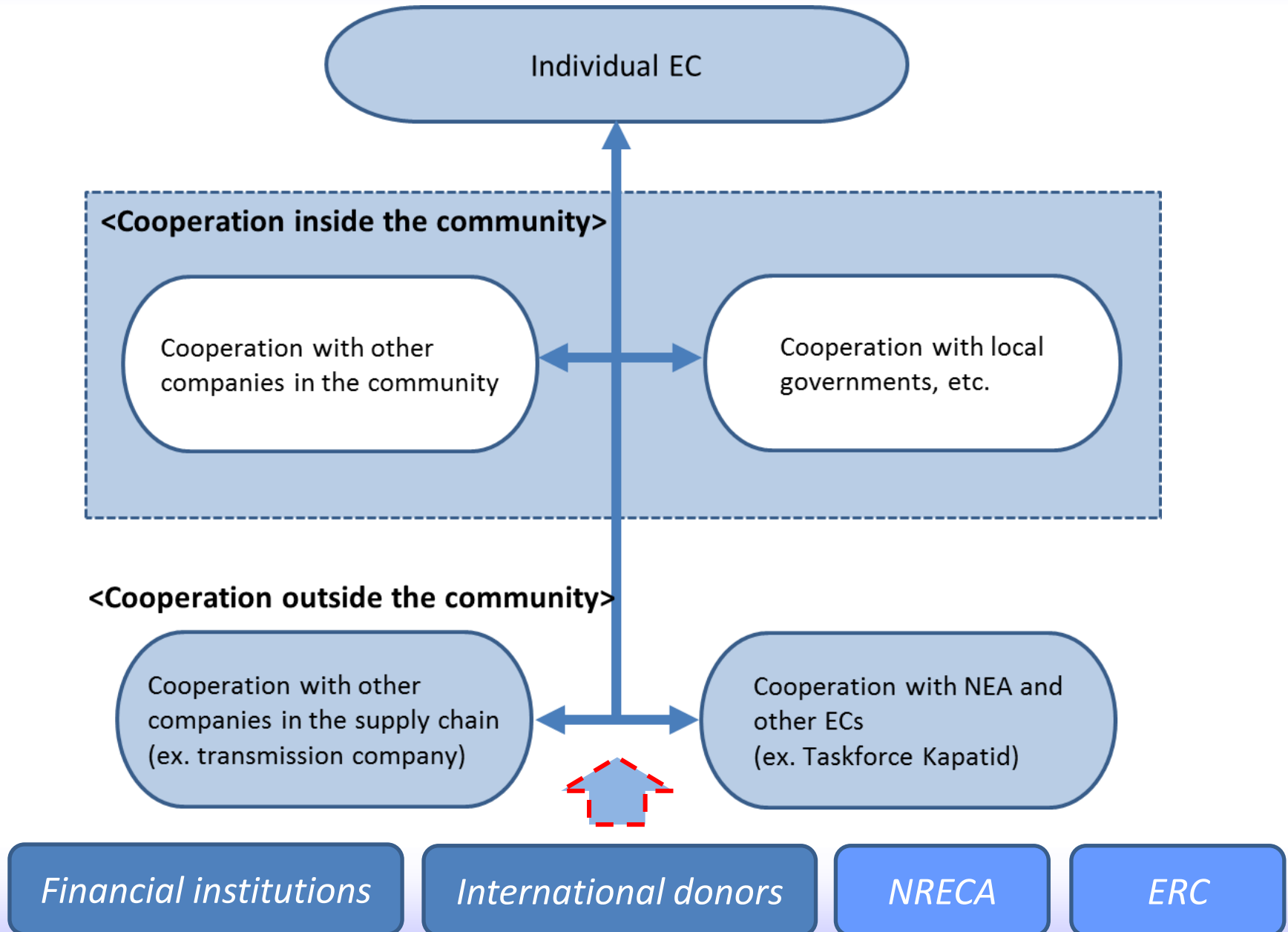
(1)	(2)	(3)	Preferential rates* (compared with base rate)
A	A	Middle	[- 0.5%]
B	A	Middle	[-1.0%]
C	A	Middle	[- 1.5%]
B	B	Middle	[- 0.2%]
C	B	Middle	[-0.7%]
C	C	Middle	Not applicable

In order for NEA to prioritize limited funds allocation, the following possibilities could be considered.

- In year 1, 2, NEA provide loans only to ECs in "high" disaster-prone area. (In year 3, 4, in "middle" area and year 5 in "low" area)
- Interest rates discount would be [2 x] in "high" area and [0.75 x] in "low" area.

*The rates are tentative proposal

BCM activities to be shared with other stakeholders



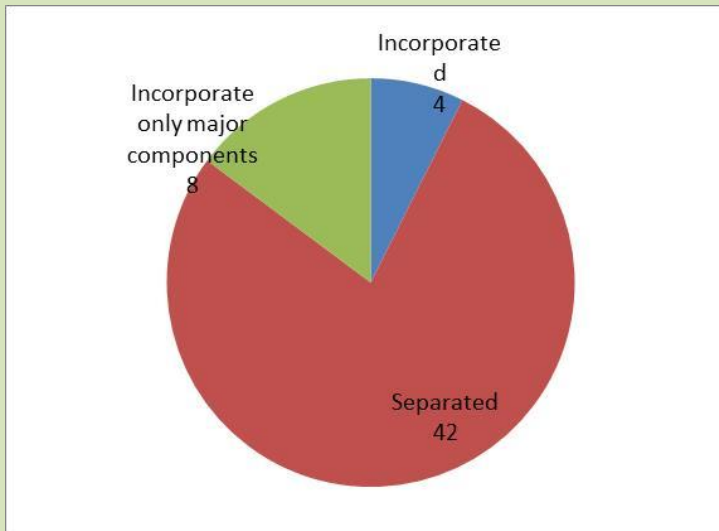
Results of the Questionnaire in Seminars

[ECs (n=57)]

1) Possible introduction of a new BCM rating



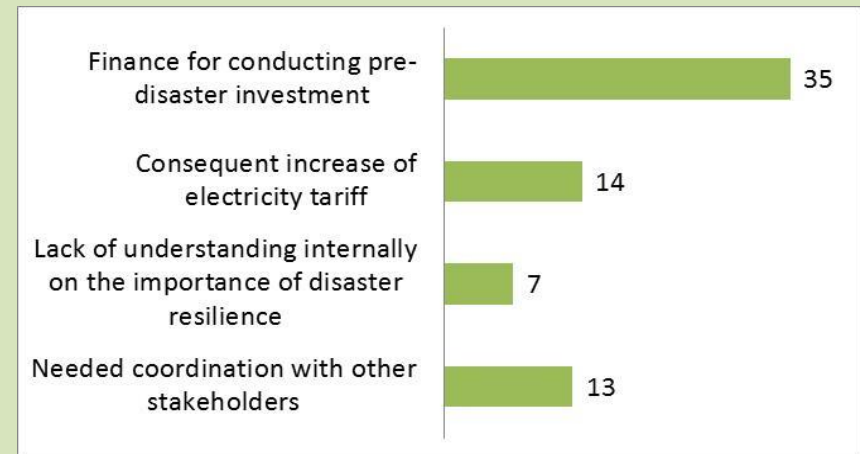
2) New BCM rating to be incorporated into KPS or separated from KPS



3) Proposed rating indicators are appropriate or sufficient



4) Hurdle to enhance disaster resilience of your EC



Roundtable Discussion for ADFIAP Members

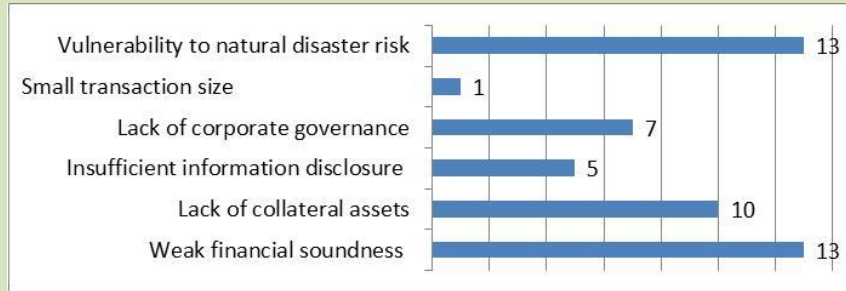
- To disseminate the JICA project on BCM rating and to get feedback from financial institutions, we had a roundtable discussion for ADFIAP member institutions in September 2015 at DBP headquarters.
- 37 people from 8 member institutions including DBP and Landbank participated in the discussion.
- Overall, there was strong interest in introducing new BCM rating and being involved in a discussion platform.



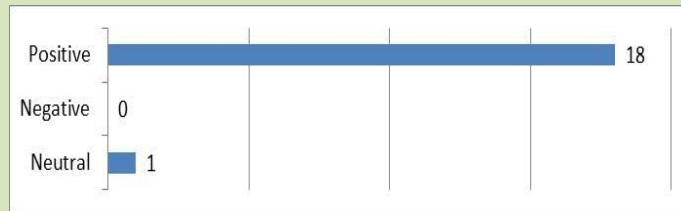
Results of the Questionnaire in Seminars

[LGUGC PFIs (n=19)]

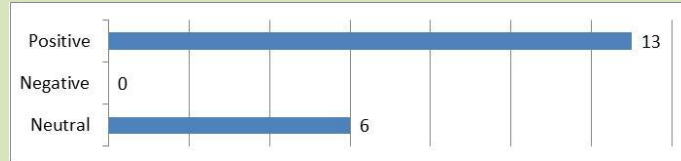
1) Major obstacles to extend further credit to ECs



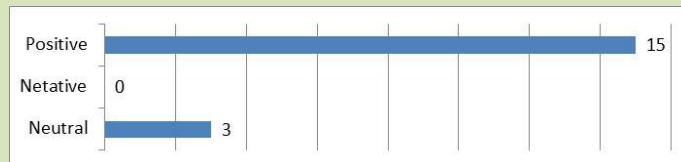
2) NEA's possible introduction of a new BCM rating



3) Your institution's possible introduction of a new BCM rating

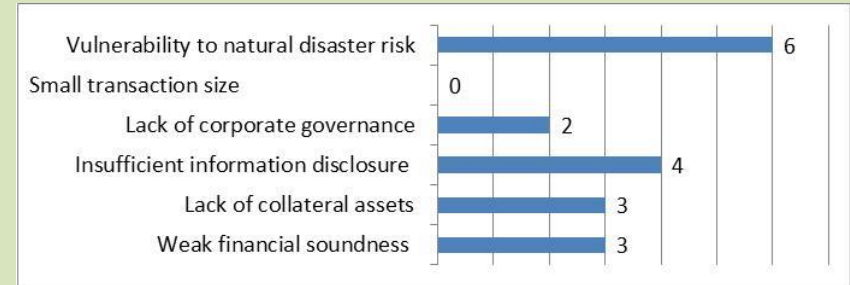


4) Your possible involvement in a discussion platform

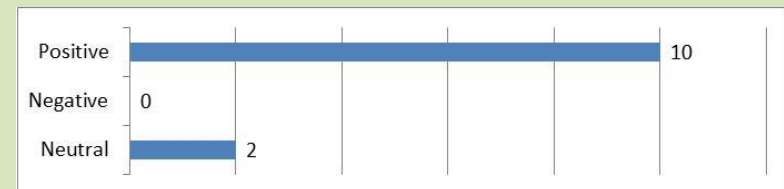


[ADFIAP members (n=12)]

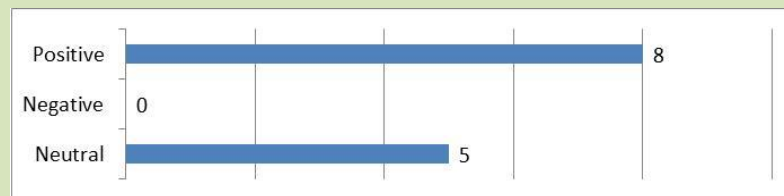
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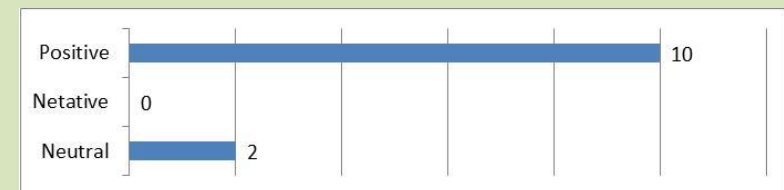
2) NEA's possible introduction of a new BCM rating



3) Your institution's possible introduction of a new BCM rating



4) Your possible involvement in a discussion platform



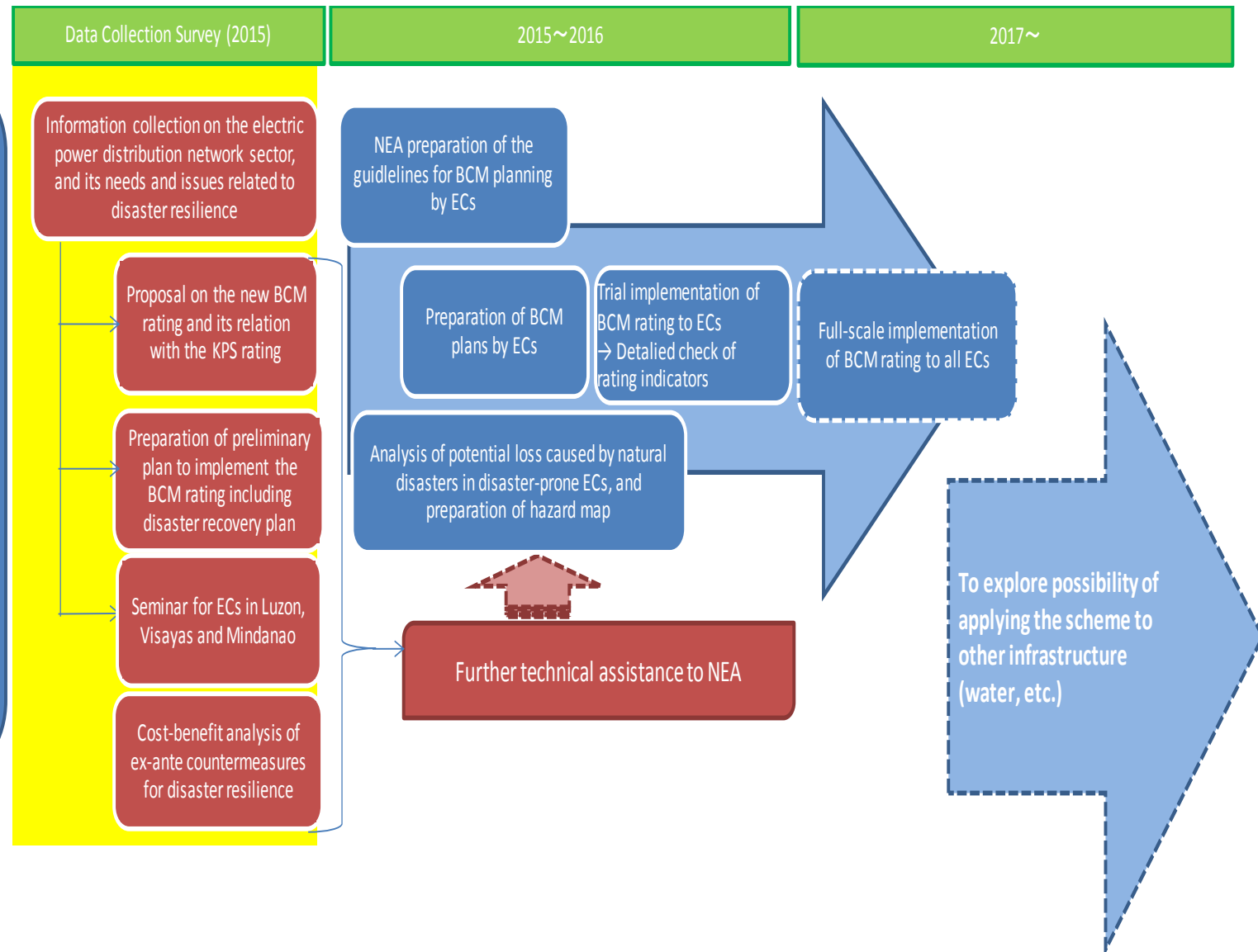
Next Step to Introduce Financial Incentive Scheme on Disaster Resilience to NEA/ECs

- Next step to realize this financial incentive mechanism for disaster resilience will be:
 - For JICA to consider possible technical assistance to NEA for its capacity development in (a) making the guideline of BCM planning for ECs, (b) cost benefit analysis of ex-ante countermeasures, and (c) trial implementation and refinement of rating indicators
 - For JICA to consider possible financing to NEA for its preferential lending to ECs or to LGUGC for its preferential guarantee program
 - For JICA to consider possible two-step loan program for commercial banks' loans to ECs
 - For JICA and international donor organizations to continue discussion on collaboration and bundling of each effort in disaster risk financing

- Disaster risk financing will be important for not only ECs but also other infrastructure sectors and industries.

Discussion platform among DFIs and commercial banks may be required for the financial industry to move forward with its efforts in this field. [ADFIAP could play a central role in such a platform.](#)

Next Step to Introduce Financial Incentive Scheme on Disaster Resilience to NEA/ECs



Next Step to Introduce Financial Incentive Scheme on Disaster Resilience to NEA/ECs

