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CREの社会経済評価手法の提案

CRE　Community Renewable Energy

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Contents

- CREの定義と意義 (Definition and Meaning of CRE)
- データ収集と解析（Case Studies)
- 評価の試み (Evaluation)
- 課題 (Challenge)

CRE: Community Renewable Enegy

Community-owned RE (AUS)

定義: Community of people is involved in initiating, developing, operating and benefitting

- Contribution (4D):
  - Decarbonizing
  - Decentralizing
  - Democratizing
  - Demonstrating

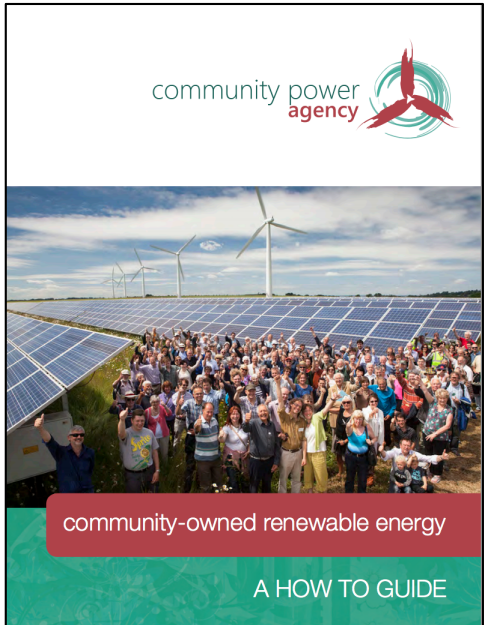
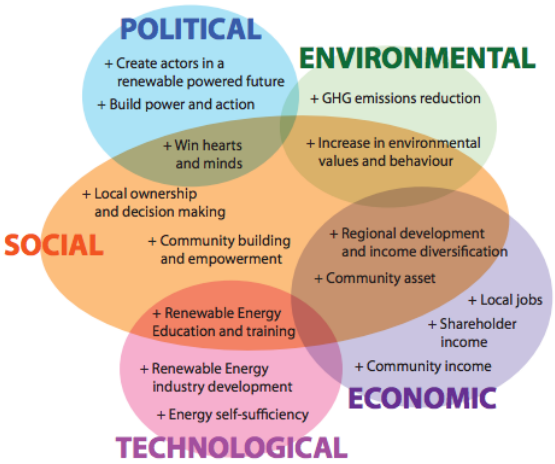


Figure 3: The Benefits and Motivations of Community Renewable Energy Projects



The benefits of community renewable energy projects
From the "Home Energy Handbook", 2012

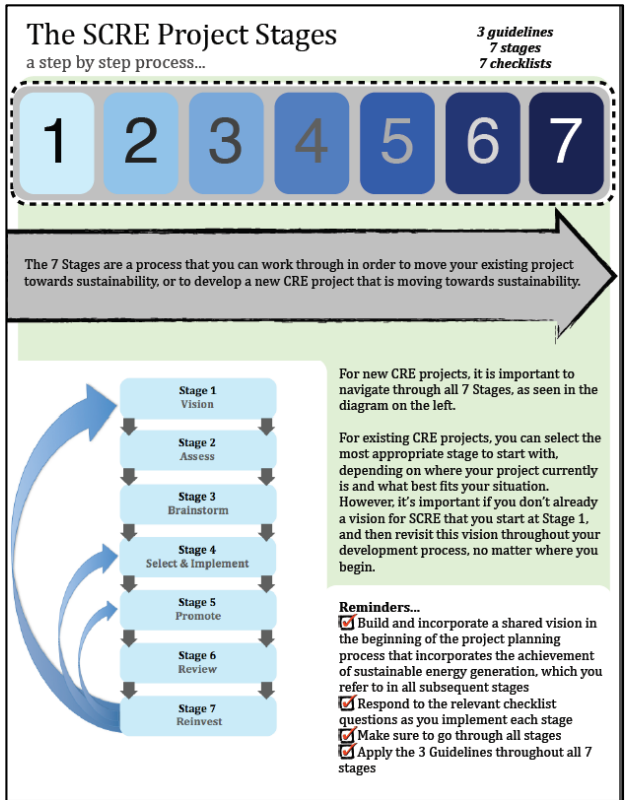
http://cpagency.org.au/wp-content/uploads/2014/06/CPAgency_HowtoGuide2014-web.pdf

Sustainable CRE Tools (SWE)

- Three Important Component
  - Renewable Energy Generation
  - Community Involvement
  - Community Benefit

The Sustainable Renewable Energy (SCRE) Tool

for communities strategically working towards more sustainable renewable energy development



http://www.bth.se/fou/cuppsats.nsf/all/e9b34e63ecf6d54dc12577410071d41d/$file/MovingTowardsSustainableCommunityRenewableEnergy.pdf

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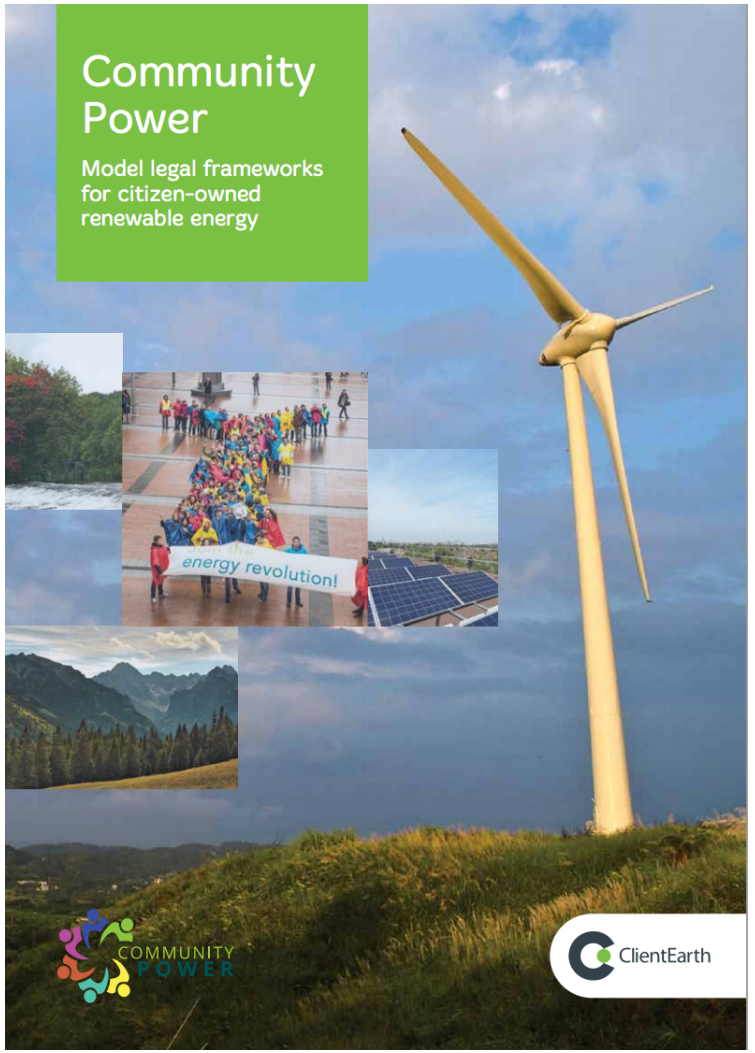
Other Guidelines in Developed Countries

North America

http://www.cec.org/Storage/88/8461_Guide_to_a_Developing_a_Re_Project_en.pdf

UK



http://www.clientearth.org/reports/community-power-report-250614.pdf

Support Program for Establishing New Energy Vision in Japan

(Clarification)
RE installation; where, by whom, what kind of energy, how, for what purpose, by when

(Challenges)
Awareness, finance, effectiveness, technology, human resources

Meaning of CRE at Southeast Asia

- Contribution (4D):
  - Decarbonizing
    - Important for Climate Change
    - Reducing Fossil Fuel Consumption
  - Decentralizing
    - For decentralizing community
  - Democratizing
    - Developing rural community
  - Demonstrating
    - Good practice for other communities

ASEAN contribution will not be negligible

Population of ASEAN(2014)

順位(世界)	名称		Million
1位(4位)	インドネシア	(IDN)	251.49
2位(12位)	フィリピン	(PHL)	99.43
3位(14位)	ベトナム	(VNM)	90.63
4位(20位)	タイ	(THA)	68.66
5位(25位)	ミャンマー	(MMR)	51.42
6位(45位)	マレーシア	(MYS)	30.26
7位(67位)	カンボジア	(KHM)	15.31
8位(101位)	ラオス	(LAO)	6.90
9位(112位)	シンガポール	(SGP)	5.47
10位(165位)	ブルネイ	(BRN)	0.41
	合計	Total	619.99
	世界の合計 (187ヶ国)	World	7,105.15
	(ASEAN / 世界)	ASEAN/World	8.70%

http://ecodb.net/ranking/group/XG/imf_lp.html

＜Source＞ IMF - World Economic Outlook Databases (Apr. 2015)

Decentralized population in ASEAN is 131million, equivalent to Japan

国名		一次エネルギー消費量（1000兆Btu）	（2000年比）	一人あたり（100万Btu）	電化率	無電化人口（百万人）
日本	(JPN)	20.31	3.9	164.70	100.0	0.0
インドネシア	(IDN)	6.42	65.2	25.68	73.7	62.4
タイ	(THA)	5.15	100.3	74.00	99.3	0.5
マレーシア	(MYS)	3.11	56.5	108.76	99.4	0.2
シンガポール	(SGP)	3.11	103.4	578.61	100.0	0.0
ベトナム	(VNM)	2.33	216.1	24.56	97.3	2.1
フィリピン	(PHL)	1.31	14.7	12.37	89.7	9.5
ミャンマー	(MMR)	0.28	68.0	4.98	26.0	44.4
ブルネイ	(BRN)	0.15	133.8	378.37	99.7	0.0
カンボジア	(KHM)	0.10	198.6	5.10	24.0	10.6
ラオス	(LAO)	0.10	181.9	15.03	78.0	1.4
					合計	131.1

http://www.dir.co.jp/consulting/asian_insight/20150604_009786.html

http://www.asiabiomass.jp/topics/1311_06.html

Stability of Grid in ASEAN

- Reducing interruption

System Average Interruption Duration Index (min/y)　　2-10min (JPN)

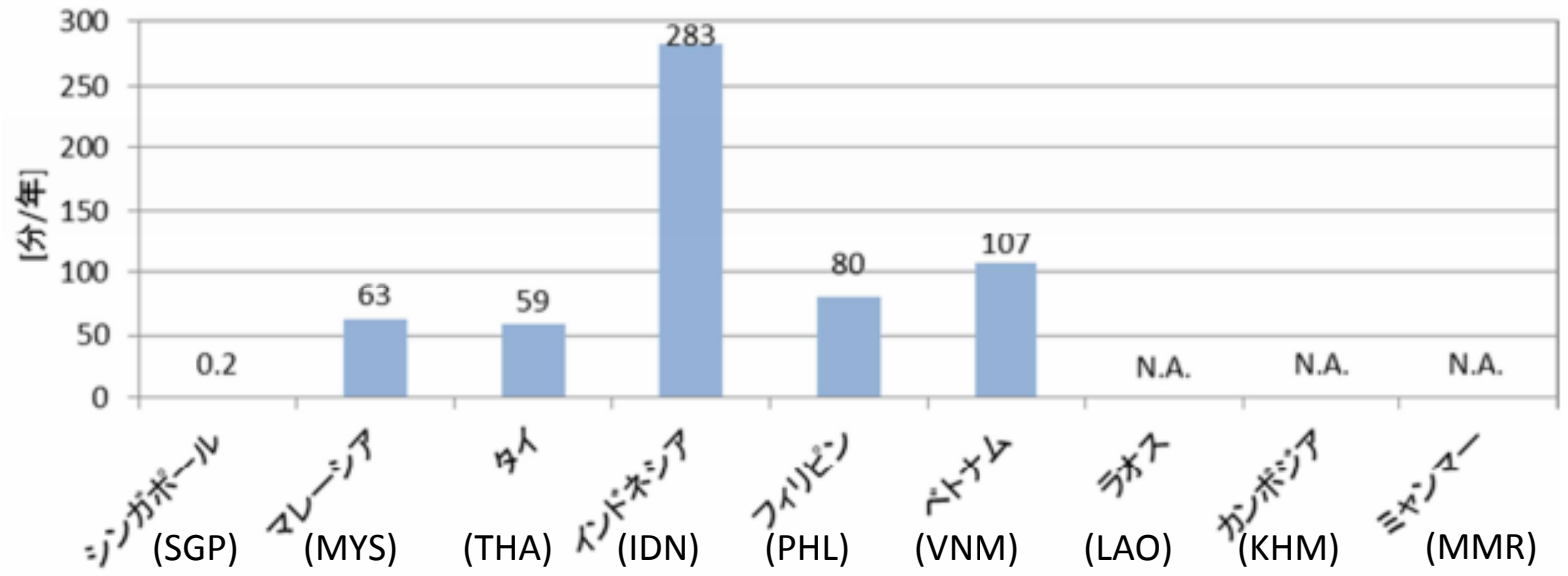


図 2-18　ASEAN 各国の年間平均停電時間（SAIDI）（2011 年）

http://www.meti.go.jp/meti_lib/report/2015fy/000687.pdf

Advantages of Community Renewable Energy in SE Asia

- Electrification
- Stabilization of electricity
- Activation of community
- Stable income from electricity selling

Disadvantage in SE Asia

- very low electricity price by subsidy

24USc (JPN)

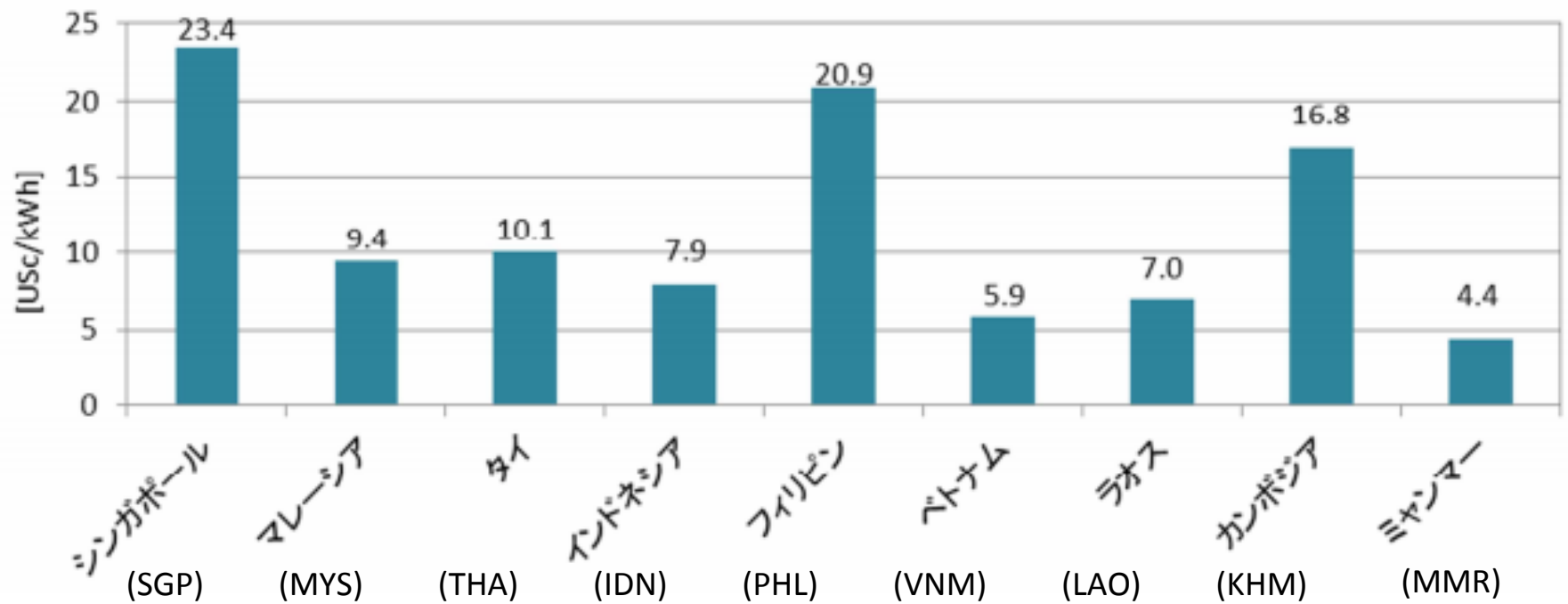


図 2-19 ASEAN 各国の平均電気料金単価（2011 年）

出所）海外電力調査会統計より作成

注） ブルネイは統計データなし

http://www.meti.go.jp/meti_lib/report/2015fy/000687.pdf

データ収集と解析

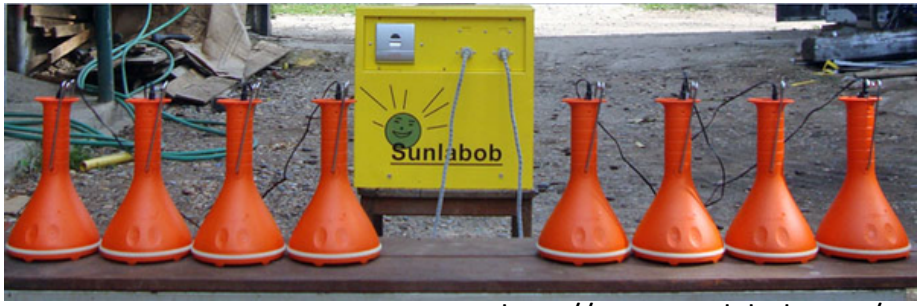
Key item	Comments
Initiator	
Ownership	
Management	
Benefit	
Challenges	

Case study 1 (solar lantern in Lao)

Sunlabob Renewable Energy Co. Ltd. provides technology and teaches managements to communities.

Local community collects money and operates system.

http://www.fpa2.com/details_projet.php?idprojet=314&lang=en



http://www.sunlabob.com/

Analysis (Solar Lantern)

Key item	Evaluation
Initiator	Company
Ownership	Community
Management	Community- supplying electricity to lantern 4-6USD/ Month, price equivalence to kerosene
Benefit	Community- lighting in house -improving in-house environment
Challenges	Limitation of lantern capacity, Maintenance

Case study 2 (biogas)

A) $4m^3$ (VNM)
- Introducing in a area
- Individual House
- Cooking use

B) $500m^3$ (THA)
- operation by chicken farm
- supplying gas to 150 for a fee

Analysis (Biogas VNM)

Key item	Evaluation
Initiator	NGO
Ownership	Household
Management	Household
Benefit	Household- Cooking gas
Challenges	Communication with neighborhood

Analysis (Biogas THA)

Key item	Evaluation
Initiator	Company chicken farm
Ownership	Company
Management	Company- chicken farm
Benefit	Community-Cooking gas, local environment
Challenges	Management system

Case study 3 (small hydro)

A) 2.7MW (VNM)
- no benefit for local people
- existing stable grid

B) 37kW (THA)
- community partially invested
- contribution to stabilization
- operation cost covered by FIT

Analysis (Small hydro VNM)

Key item	Evaluation
Initiator	Company
Ownership	Company
Management	Company- Local people hired as security
Benefit	Company
Challenges	Improvement of local environment

Analysis (Small hydro THA)

Key item	Evaluation
Initiator	Community
Ownership	Community (20%)
Management	Community
Benefit	Community-Stabilization of electricity
Challenges	Financial scheme, water management (irrigation)

Case study 4 (biomass, JPN)

- 1.6MW boiler
  Wooden chip from trims:2500ton/year
  Hot water for bath in a hotel
  Municipality leads the project

Analysis (Biomass, JPN)

Key item	Evaluation
Initiator	Municipality
Ownership	Municipality
Management	Union- collecting, supplying
Benefit	Hotel
Challenges	Supplying other waste woods than trims (regulation)

統合評価 Integrated Evaluation

- とりあえずコミュニティとのかかわり度合を評価
- 多くのレポートでコミュニティが深くかかわっている方が継続していると評価

- Evaluation based on community commitment
- Many reports pointed out the community involvement is important

International Association for Public Participation

IAP2'S PUBLIC PARTICIPATION SPECTRUM

iap2 international association for public participation

The IAP2 Federation has developed the Spectrum to help groups define the public's role in any public participation process.
The IAP2 Spectrum is quickly becoming an international standard.

INCREASING IMPACT ON THE DECISION →

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. We will seek your feedback on drafts and proposals.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Sustainability of Project (tentative)

Project	Initiator	Owner	Management	Benefit	Total
Solar(LA)	0	4	5	5	14
Biogas(VN)	0	3	2	5	10
Biogas(TH)	2	4	4	5	15
Hydro(VN)	1	0	2	1	4
Hydro(TH)	4	3	5	5	17
Biomass (JP)	3	3	4	2	12

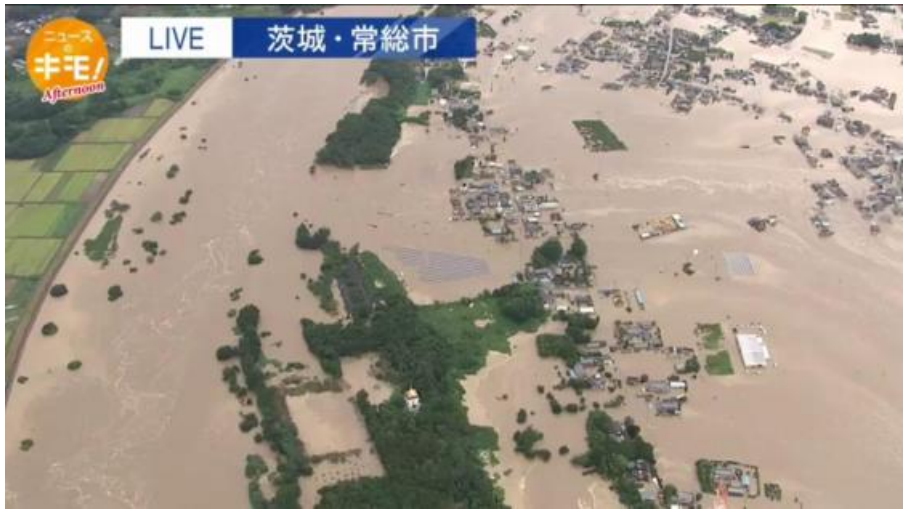
1: Inform 2:consult 3:Involve 4: Collaborate 5: Empower

The larger the score is, the more the community is sustainable.

Why is community involvement important?

- The panels were put by a company out of municipality.
- Local community was not informed the details of construction.
- They may cut the bank when they put PV panel on the bank.

- It might trigger the collapse!



Overflow of Kinu at PV solar!
September 11th, 2015

課題 Challenges

- 指標の精査
  - 初期段階での関わり
    - 会合、教育セミナー、お知らせなど
  - 利益
    - 経済以外に社会、政治、環境
- 評価の目的は？

- Examining the indices
  - Commitment at planning
    - Meeting, education seminar, announcement etc
  - Benefit
    - Society, Politics, Environment other than Economic
- Clarification of the purpose of evaluation？

THANK YOU FOR ATTENTION