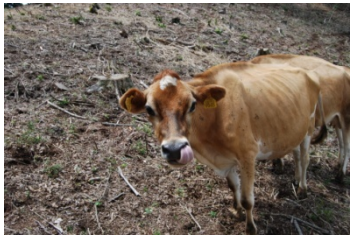
CBAsia 2014 International workshop: Learning from the practice of consensus building and participatory planning in Asia (19-20 June, 2014)

Failure analysis on biomass use and nature restoration projects in Japan









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The Case of Nature Restoration Projects in Japan

Nature restoration in Japan is based on “Legislation for Natural Restoration” legislated in December 2002.

The purpose of this law is to restore nature from a comprehensive perspective, to conserve the diversity of the biosphere to achieve compatibility of nature and society.

More than 20 restoration projects are officially supported by the Ministry of Environment and local governments.

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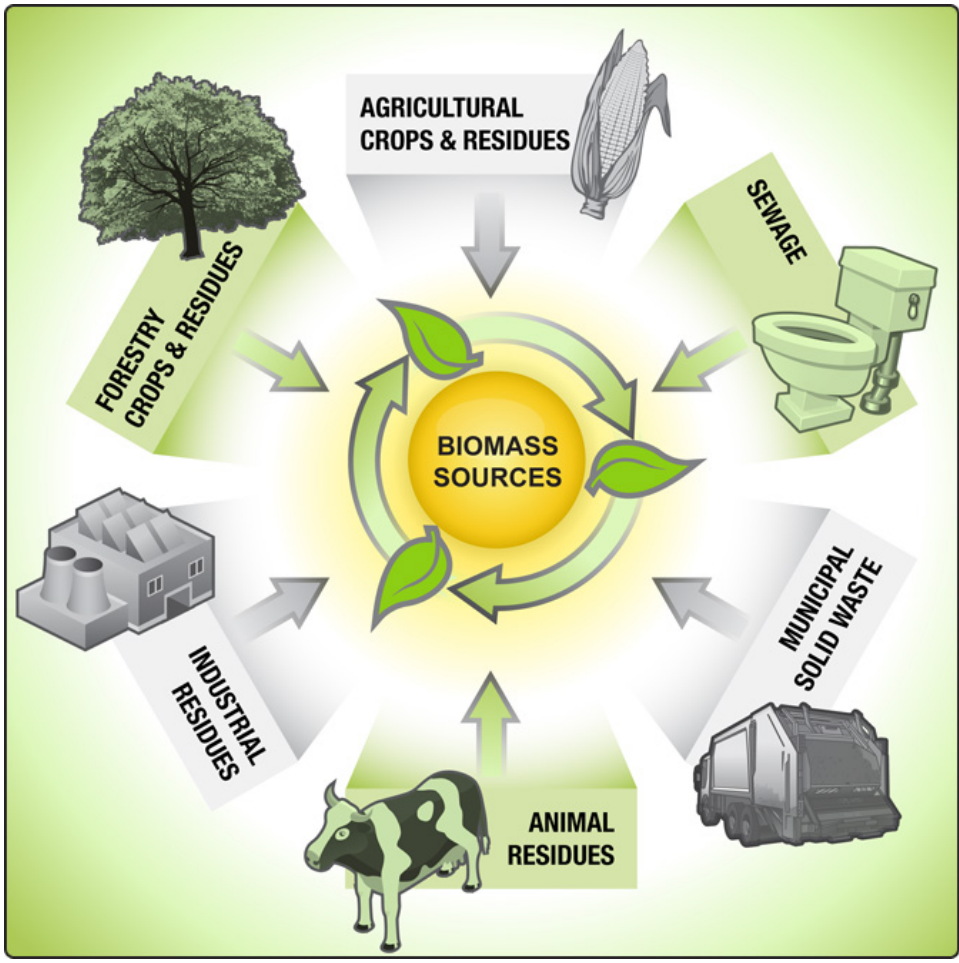
Biomass utilization projects

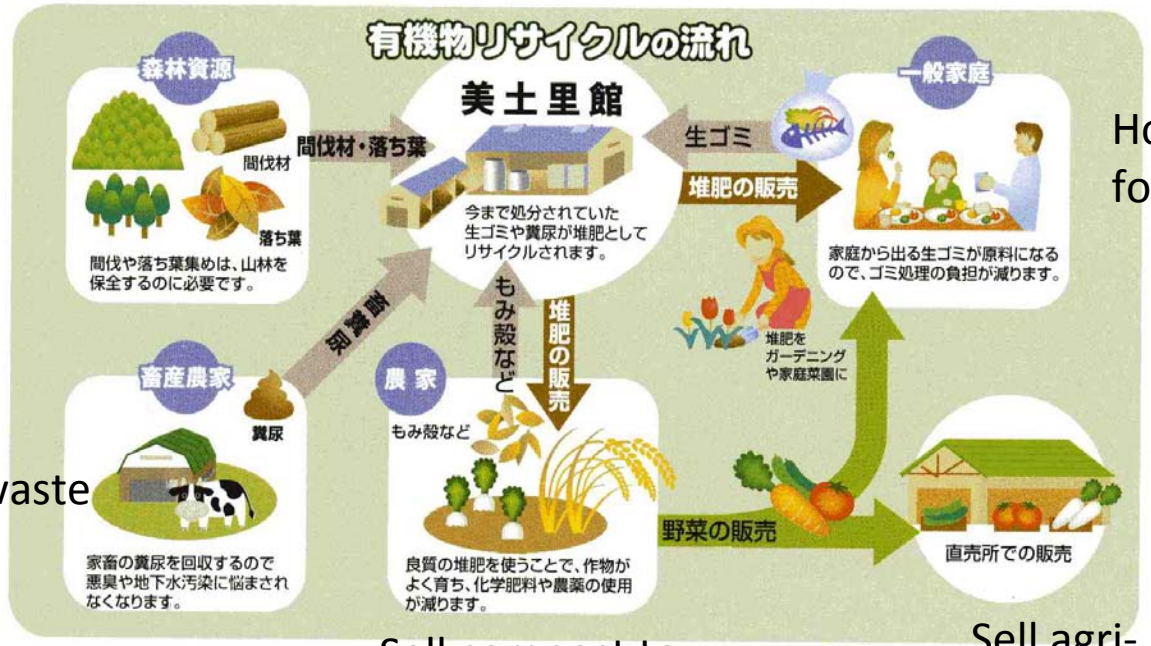
- Biomass: biological material derived from living, or recently living organisms
- Many biomass projects have been promoted and subsidied under the December 2002 Biomass Nippon Strategy approved by the Japanese Cabinet.
- Considered as "*carbon neutral*"



Motegi Town, Tochigi Prefecture

Leaves of deciduous woodland

Wood residues



Household food waste

Animal waste

Sell compost to local farmers

Sell agri-products to local market

(Source)栃木県茂木町(2006)美しい土の里から.

Challenges:

- Actions or projects under both nature restoration and biomass use initiatives have been implemented in the same town or region, at times without coordination and collaboration.
- In most projects, local government mangers, experts, and residents are involved in developing site-specific approaches and methods.
- Some projects are successful, but many difficulties and failures have been reported.

Research questions:

(1) How to approach failures? (How to define them, and how to collect relevant information, etc.)
失敗にどこまで迫ることができるのか？

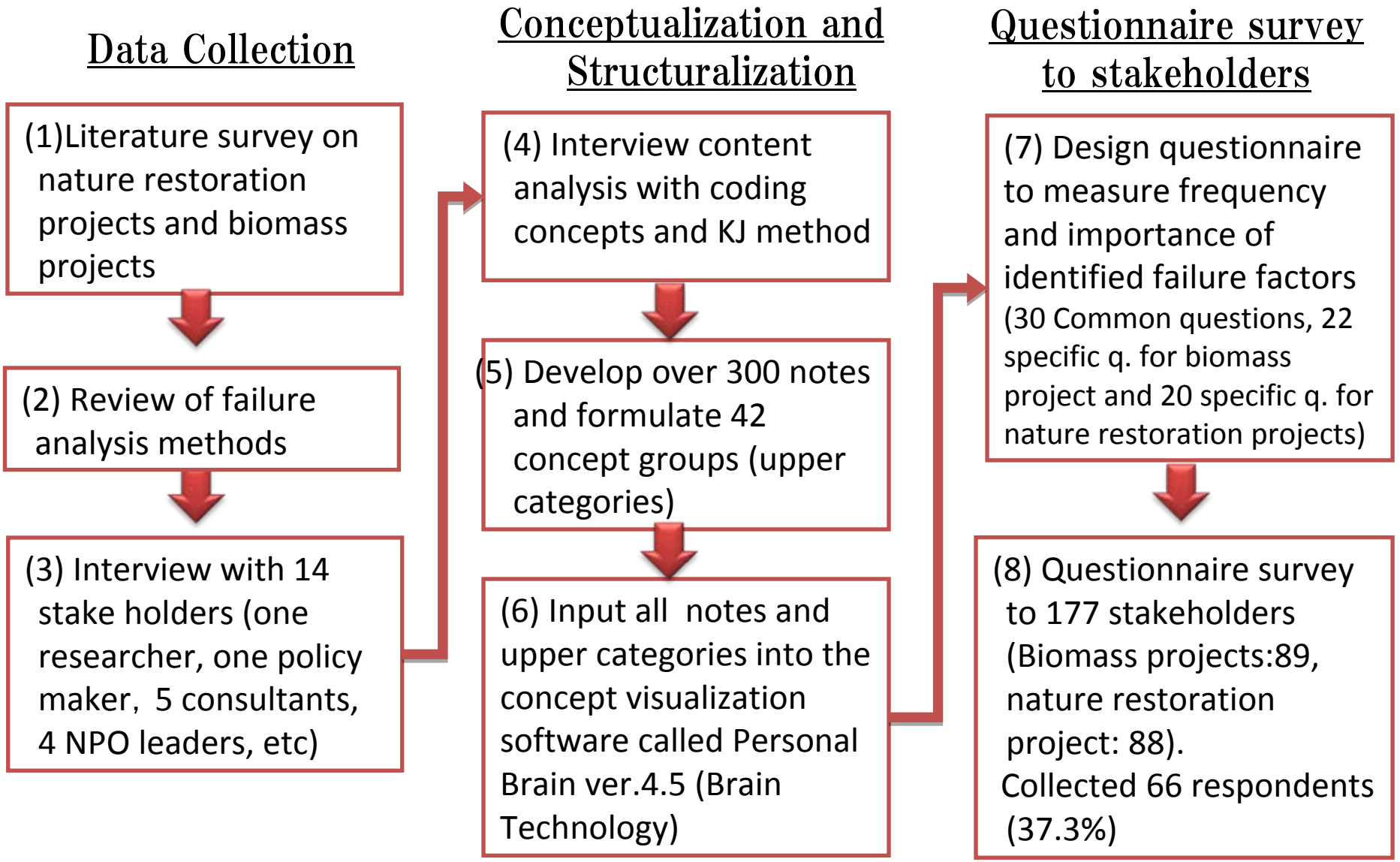
(2) How to structuralize or conceptualize various failures?
失敗はどのように体系化できるのか？

(3) What factors are important to avoid project failure?
どの失敗要因が重要なのか？

(4) How can we use the findings from this failure analysis?
この解析はどう役立ちうるのか，どのような応用が可能か？

Osamu Saito (2009) Failure Analysis of Nature Restoration and Biomass Utilization Projects in Japan,早稲田大学高等研究所紀要, 1: 43-60

Methods and Materials:



(1) How to approach failures?

- Broad definition and perception of failure
- Various end-points that projects want to avoid
- Once the projects subsidized by government, it is extremely difficult to collect real and honest information

Examples of various endpoints

Nature restoration	Biomass
- Loss of target (rare) species - Loss of species diversity - Expansion of alien species	- Loss of energy or CO_2 balance - Loss of economic balance - Loss of market

Typology of failure (Diamond, 2005)

(i) failure to anticipate a problem

(ii) failure to perceive the problem once it has arisen

(iii) failure to attempt to solve a problem after it has been perceived; and

(iv) failure to succeed in attempts to solve a problem

Diamond, J. (2005) *Collapse: How Societies Choose to Fail or Succeed*, Penguin USA.

Acceptable failure vs. Unacceptable failure
「許容できる失敗」と「許容できない失敗」

Unacceptable failure: When the damage by failure gets significantly more serious and irreversible than the case without any action.

How to define this “unacceptable failure” highly depends on the context of each project.

(2) How to structuralize or conceptualize various failures?

Category		Description
Cognition 認識	**Framing and approach 考え方・アプローチ**	何をもって失敗と判断すべきか，経済性，環境負荷，生物多様性，資源循環，地域活性化，社会的な合意形成などの評価クライテリアに関する知識を，この項目の下で整理する。また，自然再生・バイオマス利用の両事業に関する基本的な考え方に関する情報と知識もここに整理する。
	Past failure experiences 過去の失敗事例	既存の失敗事例分析などのメタ情報をここに整理する。
Plan and action 計画と実践	**Project flow and process 事業フロー・プロセス**	それぞれの事業フロー・プロセスごとに，失敗事例の内容と要因に関する情報と知識を整理する。例えば，自然再生事業では，基礎調査，全体構想，実施計画，実施・施工，維持管理・モニタリング，フィードバックというプロセス段階で区分する。
	Stakeholder ステークホルダー	行政，NPO・ボランティア，学識・研究者，コンサルティング業者などのステークホルダーの主体別に，失敗事例の内容と要因に関する情報と知識を整理する。
	Target area 対象地域	対象地域には，干潟，河川，里山，山地などの自然環境のタイプで区別したほか，その面積規模のような空間特性に関連する情報と知識も整理する。
	Technology 技術	自然再生事業の場合には，予測・シミュレーション技術と自然再生技術に区分する。バイオマス利用事業の場合には，堆肥化，飼料化，バイオプラスチック，メタン発酵，液体燃料化，固形燃料化，燃焼・ガス化に区分する。
Results 結果	**Degradation 悪化**	経済性，環境影響，利害関係者間の関係などが事業の前後で悪化（コストや負荷量の増加，個体数の減少，質の劣化など）した事例とその要因に関する情報と知識を整理する。
	Discontinuation 非継続（停滞，頓挫，撤退）	事業の停滞，頓挫，撤退などの事例と事業の継続性を損なう要因に関する情報と知識を整理する。
	Trade-offs トレードオフ	ある事業はその評価クライテリアによって成功にもなるし，失敗にもなりうる。場合によっては，一石二鳥のようなwin-winの成果を得ることもできるかもしれないが，一般的には極端なトレードオフは避けてバランスをとることが事業の計画・実施のうえでは重要である。

Pitfalls of the nature restoration projects in Japan (1)

	Pitfalls (Difficulties, Barriers, and Failures) Collected by Interview Survey
Contextualization	◻ Policy makers and consultants **prefer a manual** for contextualizing restoration scheme for each target area and **tend to depend on it too much**. ◻ Thorough (sometimes trivial) field investigation that is not necessarily relevant to restoration policy making tends to be carried out during the initial stage of planning a restoration project.
"Threshold work" and "Boundary work"	◻ Insufficient assumption of environmental responses against restoration activities; ◻ **Difficulty of defining limits and ranges of environmental responses and changes**, **which makes feedback loops operate poorly**; ◻ **Difficulty of defining boundary of target area and stakeholders for the restoration project**;

Pitfalls of the nature restoration projects in Japan (2)

	Pitfalls (Difficulties, Barriers, and Failures) Collected by Interview Survey
Adaptive management and social learning	◘ Substantial investment in monitoring and assessment; ◘ The discrepancy between the long planning time horizon needed for an experimental approach and the short rotation of government managers**;** ◘ **Unending monitoring process without feedback to the restoration plan and process**; ◘ **Reluctance to accept past mistakes and failures**
Co-benefits and trade-offs	◘ The projects are supposed to assess not only ecological health but also social and economic health, but **the impacts on rural revitalization, industrial development, economic benefit and cost, local tradition, and capacity building are not fully taken into account**. ◘ Interrelations between those impacts are rarely analyzed due to methodological difficulty and data availability for such integrated impact assessment.

7 Lessons learned from the failure analysis

1) **Disclosure and sharing of failures** (失敗情報の開示と共有)

2) **Discuss gray zone and threshold between acceptable and unacceptable failures** (許容できる失敗と許容できない失敗の境界を関係者が予め検討する)

3) **The way to define stakeholder often determines the options to select for the project** (ステークホルダーの参加の枠組みが事業の選択肢を決める)

4) **Activate feedback process** (フィードバックを機能させる)

5) **Operationalized adaptive management** (順応的管理を実務に落とし込む)

6) **Ensure longer term and continuous commitment** (長期的，継続的なコミットメントを担保する)

7) **Be patient, and collaborate with a bit wider perspective** (少しの我慢，より広い視野からの連携強化)

Not only economic feasibility and energy balance, but also nature restoration and other impacts should be take into account from a bit border perspective

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Conclusion

- This study collected samples of project difficulties and failures associated with nature restoration and biomass utilization projects, analyzed the structure of the problems, and discussed the major causes of failure.
- Based on previous reports and interviews with 14 practitioners and scientists with experience in the projects, the author developed a knowledge structuralization system.
- The study proposed seven lessons and directions for improvement of such projects and for better collaboration.