

October 27, 2017

## About JCR Green Bond Evaluation

Japan Credit Rating Agency, Ltd. (JCR) hereby announces that it started to provide a third party evaluation service for green bonds, named “JCR Green Bond Evaluation”.

Please see the attachments for Green Bond Evaluation Methodologies and the Green Bond Evaluation Process.

Inquiries about this matter :

Green Bond / ESG Evaluation Dept.    Atsuko Kajiware (email: [kajiware@jcra.com](mailto:kajiware@jcra.com))

Kosuke Kajiware (email: [kosuke.kajiware@jcra.com](mailto:kosuke.kajiware@jcra.com))

## JCR Green Bond Evaluation

October 27, 2017

### Preface

Green Bonds are debts whose use of proceeds are limited to the activities which have beneficial effects on environment; e.g. contribute to prevent the climate change, protect water resources and/or biodiversity, etc. To be more specific, green bonds are those issued by organizations including corporations and local governments, and are ensured to limit its Use of Proceeds to green projects, to track the management of proceeds and to be keep transparency in the reporting after the issuance<sup>1</sup>.

Comparing to the United States and EU markets, there are still few cases of green bond issuances in Japan, and its further developments are expected from the market participants. Considering such situations, Ministry of Environment of Japan published the Green Bond Guidelines 2017 (hereinafter referred to as "Guidelines") in order to encourage the issuance of green bonds and investments to them in Japan. When promoting such issuance, MOE will seek to prevent "green-wash" bonds (bonds labelled as "green", despite the fact that they have no environmental benefits, or that their proceeds have not been appropriately allocated to Green Projects) from being issued and invested in, for the purpose of maintaining the credibility of the greenness of Green bonds. In the global green bond principle by ICMA (International Capital Market Association) (hereinafter, "GBP") and the Guidelines by MOE, it is recommended that issuers use an external review to confirm the alignment of their green bonds with the key features of the GBP.

Under such situations, JCR provides "JCR Green Bond Evaluation" as an external review to green bonds, reflecting the concept of GBP and Guidelines. JCR applies a transparent evaluation system based on scoring the evaluation items defined in JCR Green Bond Evaluation. JCR believes that this evaluation system will indicate the issuers what they need to do for preparing the issuance of green bonds more precisely and it will also help investors to decide its investment policy regarding green bonds more appropriately. Through the provision of this green bond evaluation, JCR aims to contribute to spread the knowledge about green bonds to the market, to develop a sound green bond market and to improve global environmental issues.

### I Subject of evaluation

JCR green Bond evaluation is applicable to various financing tools, such as bonds, loans, etc. whose use of proceeds are green projects, whose examples are raised in GBP or Guidelines. The followings are the sector or products classification of those financing tools:

---

<sup>1</sup> Source of the definition: Ministry of Environment, "Green Bond Guidelines 2017".

- (1) Corporation, Financial Institutions, Government, Local Government, Multilateral Financial Institutions, Public entities
- (2) Project finance
- (3) Investment Funds
- (4) Asset backed securities

## II Basic framework of JCR Green Bond Evaluation

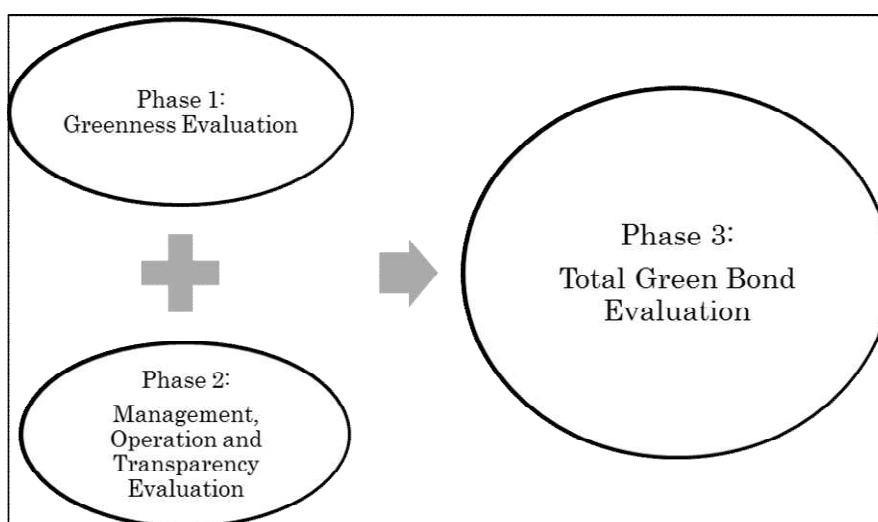
JCR implement three steps to evaluate green bonds.

In “Evaluation Phase 1”, JCR evaluates “greenness” of the bonds, etc. First, it assesses whether the projects which are financed by the bonds, etc. are Green Projects or not. If it is judged that it is a green project, JCR assesses how much the proceeds are allocated to green projects.

In “Evaluation Phase 2”, JCR evaluates “Management, Operation and Transparency”. JCR evaluates the issuers’ management and operation system and transparency. JCR believes if the management and operation system is well developed, it will improve the certainty of implementing the planned use of proceeds and the green projects. In addition, JCR evaluates the degree of disclosures related to the use of proceeds, management of proceeds, selection policy, criteria and processes. (JCR call this as “certainty of realizing the greenness evaluation at the phase 1”).

In “Evaluation Phase 3”, JCR determines the total evaluation results by comprehensively considering “Greenness Evaluation” result and “Management, Operation and Transparency Evaluation” result.

JCR Green Bond Evaluation flow:



### III Evaluation framework by each evaluation phase

#### 1. Evaluation Phase 1: Greenness Evaluation

In this evaluation phase, JCR assesses how much the use of proceeds is allocated to green projects, if the projects are considered as green projects. Evaluation results shall be classified into 5 grades from “g1” to “g5” as follows.

Greenness Evaluation (how much the use of proceeds is allocated to green projects)	Evaluation grade
100% to $\geq 90\%$ (Almost all the proceeds are allocated to green projects)	g1
$>90\%$ to $\geq 70\%$ (Most of the proceeds are allocated to green projects)	g2
$>70\%$ to $\geq 50\%$ (More than half of the proceeds are allocated to green projects)	g3
$>50\%$ to $\geq 30\%$ (Less than half of the proceeds are allocated to green projects)	g4
$>30\%$ to $\geq 10\%$ (Very low amount of the proceeds are allocated to green projects)	g5
$>10\%$	Not qualified

#### 2. Evaluation Phase 2 : Management, Operation and Transparency

In this phase, JCR evaluates the issuers' management and operation system and the degree of transparency based on the four evaluation items, which is followed the GBP and the Guidelines. The evaluation results are classified into five grades, from “m1” to “m5”.

Evaluation scores by grade	Evaluation grade
100 to $\geq 80$ (AM system is well developed and the degree of transparency is very high. The project implementation and allocation of the proceeds are highly likely to be made as were planned.)	m1
$>80$ to $\geq 60$ (AM system is developed and the degree of transparency is high. The project implementation and allocation of proceeds are expected to be made as were planned.)	m2
$>60$ to $\geq 40$ (AM system and the degree of transparency have some problems and there are little concerns that the plan and the fund allocation will not be processed as were planned.)	m3
$>39$ to $\geq 20$ (AM system and the degree of transparency have problem and there is a concern that the plan and the fund allocation will not be processed as were planned.)	m4
$> 20$ (AM system and the degree of transparency have serious problems and it is difficult to expect the plan and the fund allocation will not be processed as were planned.)	m5

### 3. Evaluation Phase 3: Overall evaluation

In phase 3, JCR determines an overall evaluation from Green 1 to Green 5, based on greenness evaluation (g1 to g5), adding up the administration, management and transparency evaluation (m1 to m5).

When determining the overall evaluation, use the JCR green bond evaluation matrix, described below:

Green 1 is the highest green bond evaluation in JCR green bond evaluation. This is assigned to those which get the highest evaluation in both “greenness evaluation” and “management, operation and transparency evaluation”.

**【JCR Green Bond Evaluation Matrix】**

Management, Operation & Transparency Greenness	m1	m2	m3	m4	m5
g1	Green 1	Green 2	Green 3	Green 4	Green 5
g2	Green 2	Green 2	Green 3	Green 4	Green 5
g3	Green 3	Green 3	Green 4	Green 5	Not qualified
g4	Green 4	Green 4	Green 5	Not qualified	Not qualified
g5	Green 5	Green 5	Not qualified	Not qualified	Not qualified

### 4. Evaluation symbols

JCR’s green bond evaluation symbols are expressed by the combination of “Greenness Evaluation as g1 to g5”, “Management, operation & Transparency Evaluation as m1 to m5” and “Overall Evaluation as Green 1 to Green 5”.

**【JCR Green Bond Evaluation Results】**

<b>Overall Evaluation</b>	<b>Green 1 ~ Green 5</b>
<b>Greenness Evaluation (Use of Proceeds)</b>	<b>g1 ~ g5</b>
<b>Management, operation and Transparency Evaluation</b>	<b>m1 ~ m5</b>

## IV Evaluation methodology (Evaluation factors and scoring)

### 1. Phase 1: Greenness Evaluation factors

When evaluating greenness, JCR assesses the following factors.

### Use of proceeds (how much the proceeds are allocated to green bonds)

- (1) The proceeds are allocated to Green Projects that satisfy the conditions (2) and (3) (including, but not limited to, green projects listed in GBP and Guidelines).
- (2) The project clearly has positive impacts on environment.
- (3) Positive impacts obviously surpass the negative impacts (It is preferable that such impacts are assessed quantitatively and are comparable.)

\*If the negative impacts on environment are larger than the positive impacts, such use of proceeds may be out of evaluation, even if other evaluation factors' scores are high.

## 2. Phase 2: Management, Operation and Transparency

### (1) Four major factors of phase 2 and the score weight

Major Evaluation factors	Weight
1. Appropriateness and Transparency concerning selection criteria and processes of the use of proceeds	25%
2. Appropriateness and Transparency of management of the Proceeds	25%
3. Reporting	25%
4. Efforts taken by the organization	25%

### (2) Breakdown of each evaluation factor

#### Evaluation items by each factor

#### 1. Appropriateness and Transparency concerning selection criteria and processes of the use of proceeds

- (1) Greenness of the each project is assessed and affirmed by an issuer.
- (2) In case that the green project has both positive and negative impacts, an issuer takes any measures to avoid or mitigate such negative impacts.
- (3) It is appropriate the environmental objectives that the issuer tries to realize through the green bonds, the criteria to select a green project which satisfies the objective and the process to determine the project.
- (4) The objective, criteria and process are explained to investors.

#### 2. Appropriateness and Transparency of management of the Proceeds

- (1) Funding plan is appropriate.
- (2) The issuer has a system to track all the proceeds in proper way.
- (3) There is an internal control system to check the above tracking systems by taking internal

---

Evaluation items by each factor

---

audit or external audit, etc.

---

- (4) Documentary evidence to track the proceeds is retained.
- 
- (5) If there is unallocated proceeds, the issuer explains how to manipulate these proceeds to investors in advance. There is a plan to manipulate these unallocated proceeds with safe and liquid asset.
- 

### 3. Reporting

- (1) The Use of proceeds are explained to investors by prospectus or other legal documents, etc.
- 
- (2) The issuer plans to disclose the most updated information about the use of proceeds after the issuance.
- 
- (3) Information disclosure is planned to be made at least once a year. After allocating all the proceeds, the issuer plans to disclose any significant changes after allocating all the proceeds, if necessary.
- 
- (4) Disclosures includes the following;
- List of green project where the proceeds are allocated
  - Outline of each green project, including its progress
  - Amount allocated to each green project
  - Positive impacts brought by each green project
  - Positive impacts brought by each green project
  - Unallocated amount, plan to allocate, and how to manipulate the unallocated proceeds.
- 
- (5) When disclosing the positive impacts, the issuer uses appropriate key performance indicator considering the nature of each green project. It is preferable that such impacts are quantitative and that the issuer prepares to disclose the calculation formula and assumptions.
- 

### 4. Efforts taken by the organization

- (1) Senior Managements identifies the environmental issues as one of the important and highly prioritized issues for their management strategy.
- 
- (2) An internal department/division which has expertise in environment issues or external institutions is involved in the process.
- 
- (3) The issuer has clear policy and procedures for green bond issuance and criteria to determine the green projects where the proceeds are allocated.
- 
- (4) The issuer verifies its green project and environmental policy by asking the opinions from external environmental experts.
-

## V Description of how JCR consider each evaluation factor

### 1. Greenness Evaluation (Phase 1)

When identifying the bond as a green bond, it is important that the proceeds are allocated to green projects which clearly have a positive impact on environment. In order to encourage the development of sound green bond market, it is also important to ensure the credibility of green bonds by excluding the so called "green wash bonds", which appeal as a green bond, but actually there is no clear positive impacts on environment or the proceeds are appropriately allocated to green projects, from the green bond market. Considering these factors, JCR shall assess the greenness of the use of proceeds carefully, referring the green project list in GBP and Guidelines (Please refer to the attachment for these project lists). These project lists are examples and JCR may find other cases as a green project by its own judgment.

Even if the use of proceeds is green, some projects may bring negative impacts on environment at the same time. Therefore, JCR affirms whether the negative impacts are well assessed by the internal department/division or external experts to take necessary measures to avoid or mitigate such impacts. As a result, if the negative impacts are larger than the positive impact on environment, JCR may not provide green bond evaluation in principle.

Types and its positive impact of green projects may change day after day by technological innovation. JCR will implement its evaluation referring to the most updated green project types and calculation formula of environmental impacts that are effective at the time of evaluation.

### 2. Management, operation and transparency evaluation (Phase 2)

#### (1) Appropriateness and transparency concerning selection criteria and processes of the use of proceeds

JCR assesses whether the following factors are internally well considered and planned to make them properly or not. In addition, it also affirms whether the following factors are sufficiently explained to the investors in advance.

- i. The objectives to realize the green bond (for example, prevention of climate changes, energy saving, etc.)
- ii. Criteria for selecting green projects (how assess and select a green project which has a positive impact on environment in terms of the objective the issuer plans to achieve).
- iii. Outlines of the process to determine the project (①Is it appropriate as the use of proceeds considering the issuer's planned objectives and criteria? ②Who and how is the selected green projects matches the environmental objectives based on which criteria?)

JCR also think that it is preferable to have an internal specific department/division or get opinions from external institutions when determining these factors.

#### (2) Appropriateness and transparency concerning management of the proceeds



It is expected that there are various ways to manage the proceeds depending on each issuer. JCR will assess whether the proceeds funded by green bond issuance are ensured to allocate to green project or not. In addition, JCR also check whether there is a tracking system to grasp how much the proceeds are allocated to the green project easily and internal control are effectively developed or not. Guidelines show some example of tracking the proceeds system. As such, the tracking system should be explained to investors.

If there is unallocated proceeds, JCR also assesses whether such unallocated portion will be allocated to the green project promptly and also assesses how to manage and manipulate the unallocated proceeds.

### (3) Reporting

According to GBP, the issuer should report the most updated information about the use of proceeds periodically, at least once a year, until all the proceeds will be allocated, if necessary. In such report, the outline of the green project where the proceeds are allocated, allocated amount, expected environmental positive impacts (it is preferable to use both quantitative and qualitative performance indicators.) should be included.

JCR evaluates whether the issuer plans periodical reporting after issuign green bonds precisely and effectively at the time of issuing green bonds, based on GBP and Guidelines.

### (4) Efforts taken by the organization

It is important that the senior management of the issuer identifies the environmental issues as one of the highly prioritized issues in its management strategy. Under this strategy, it is also important that they establishes Policy, procedures of issuing green bonds and selecting criteria of green projects with the involvement of internal department/division, which specifically deal with environmental issues or in cooperation with external institutions.

The department is not necessarily specializes only on environmental issues, however, it is preferable that the issuer ensure to have staff who has knowledge of green bond and environmental issues and consider how to the organization treat the environmental issues.

## VI Assumptions and limit of this evaluation

JCR's green bond evaluation is to affirm the positive impacts on environment at the time of planning the issuance or the time of issuing green bonds are calculated quantitatively or qualitatively by the issuer or the third parties. This evaluation will not guarantee such impacts will continue in the future.

Positive and negative impacts of green projects are calculated internally or by external institution by the request of issuers. JCR evaluates the impacts based on this calculated results and it will not calculate the impacts by itself.

## VII Periodical review

JCR may implement periodical review, if it finds the necessity to following up the unallocated proceeds and planned reporting after the issuance.

End.

**Green Project listed in Green Bond Principle by ICMA<sup>i</sup>  
and  
those in the Green Bond Guidelines 2017 by Ministry of Environment**

ICMA GBP	MOE Guidelines
Renewable energy (including production, transmission, appliances and products);	<p>Renewable energy (including production, transmission, appliances and products)</p> <ul style="list-style-type: none"> <li>· Renewable energy power generation projects, including solar power, wind power, mid and small sized water power, biomass, geothermal power.</li> <li>· Projects to install transmission or energy storage battery, to maintain, coordinate the demand and supply and store the energy which are generated by renewable energy</li> <li>· Projects to produce appliances and products such as solar panels, transmission wires, energy storage batteries, which are used for the above projects</li> <li>· Projects which use renewable energy power such as solar, geothermal power, etc.</li> </ul>
<p>Energy efficiency (such as in new and refurbished buildings, energy storage, district heating, smart grids, appliances and products);</p> <p>Green buildings which meet regional, national or internationally recognized standards or certifications.</p>	<p>Energy efficiency (including construction and of energy efficiency buildings, renovations to energy efficient buildings, air conditioning of the energy storage area, smart grid and appliances)</p> <ul style="list-style-type: none"> <li>· Net Zero Energy House (ZEH), Net Zero Energy Building (ZEB) and other construction of energy efficiency buildings</li> <li>· Renovating the existing buildings such as office, factories and houses to acquire the environment authentication such as LEED CASBEE BELS</li> <li>· Projects to install appliances or facilities which are energy efficient to office, factories, houses, etc.</li> <li>· Development and installation of smart grid related appliances</li> </ul>
<p>Pollution prevention and control (including waste water treatment, reduction of air emissions, greenhouse gas control, soil remediation, waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy, value added products from waste and remanufacturing, and associated environmental monitoring)</p>	<p>Pollution prevention and management (including waste water treatment, reduction of greenhouse gas control, soil remediation, waste recycling and associated environmental monitoring)</p> <ul style="list-style-type: none"> <li>· Projects to realize circular economy (Designing and producing energy efficient and long-life products, inverse, manufacturing and advanced waste treatment (including recycling and energy collection)</li> <li>· Projects to control the emission of hazardous chemical by preventing leakage, volatilization and penetration.</li> <li>· Projects to install facilities of advanced treatment and reuse of waste water from factories.</li> <li>· Projects to treat soil contamination</li> </ul>

<p>Environmentally sustainable management of living natural resources and land use (including environmentally sustainable agriculture; environmentally sustainable animal husbandry; climate smart farm inputs such as biological crop protection or drip-irrigation; environmentally sustainable fishery and aquaculture; environmentally-sustainable forestry, including afforestation or reforestation, and preservation or restoration of natural landscapes);</p>	<p>Environmentally sustainable management of living natural resources and land use (including environmentally sustainable agriculture, fisheries and aqua culture, forestry; IPM (Integrated Pest Management) of pests, drip irrigation)</p> <ul style="list-style-type: none"> <li>· Projects to acquire the certifications for sustainability such as MSC, ASC for fisheries and aquaculture.</li> <li>· Projects to acquire the certification for sustainability such as FSC for forestry.</li> <li>· Afforestation projects</li> </ul>
<p>Terrestrial and aquatic biodiversity conservation (including the protection of coastal, marine and watershed environments);</p>	<p>Terrestrial and aquatic biodiversity conservation (including the protection of coastal, marine and watershed environments)</p> <ul style="list-style-type: none"> <li>· Projects to conserve wetland and coral reef.</li> <li>· Projects to preserve and redevelop village-vicinity mountain and ocean</li> <li>· Projects to regenerate river protected shore to near-natural.</li> </ul>
<p>Clean transportation (such as electric, hybrid, public, rail, non- motorized, multi-modal transportation, infrastructure for clean energy vehicles and reduction of harmful emissions);</p>	<p>Clean transportation (low pollution emission cars such as electric, hybrid cars, public transportation, railways, bicycles, multi-modal transportation, infrastructure for clean energy vehicles and reduction of harmful emissions)</p> <ul style="list-style-type: none"> <li>· Projects to develop and produce pollution emission cars such as electric, hybrid cars and to develop its infrastructure</li> <li>· Projects to improve efficiency in development of planned physical distribution base, intensive transportation network, modal shift, co-sharing of transportation and distribution</li> <li>· Projects to introduce equipment to support eco-driving (digital type operation recorders)</li> <li>· Projects for developing facilities of park and ride and car sharing</li> </ul>
<p>Sustainable water and wastewater management (including sustainable infrastructure for clean and/or drinking water, wastewater treatment, sustainable urban drainage systems and river training and other forms of flooding mitigation);</p>	<p>Sustainable water and wastewater management (including sustainable infrastructure for clean and/or drinking water, wastewater treatment, sustainable urban drainage systems and river training and other forms of flooding mitigation);</p> <ul style="list-style-type: none"> <li>· Projects to preserve hydrologic cycle such as water source cultivation or soil infiltration of rain water (including developing green infrastructure)</li> <li>· Projects to develop facilities for flood mitigations</li> <li>· Desalination projects</li> </ul>

Climate change adaptation (including information support systems, such as climate observation and early warning systems);	Climate change adaptation (including information support systems, such as climate observation and early warning systems); · Projects to strengthen disaster prevention of distribution, railways, harbor, airport, road and water related infrastructure, waste treatment facilities and traffic safety devices
Eco-efficient and/or circular economy adapted products, production technologies and processes (such as development and introduction of environmentally friendlier products, with an eco-label or environmental certification, resource-efficient packaging and distribution);	Eco-efficient and/or circular economy adapted products, production technologies and processes (such as development and introduction of environmentally friendlier products, with an eco-label or environmental certification, resource-efficient packaging and distribution); · Projects to produce the production which could acquire environmental certifications · Projects to implement R&D and introduction of greenhouse emission reduction technologies and products.

(Source)

ICMA website :

<https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

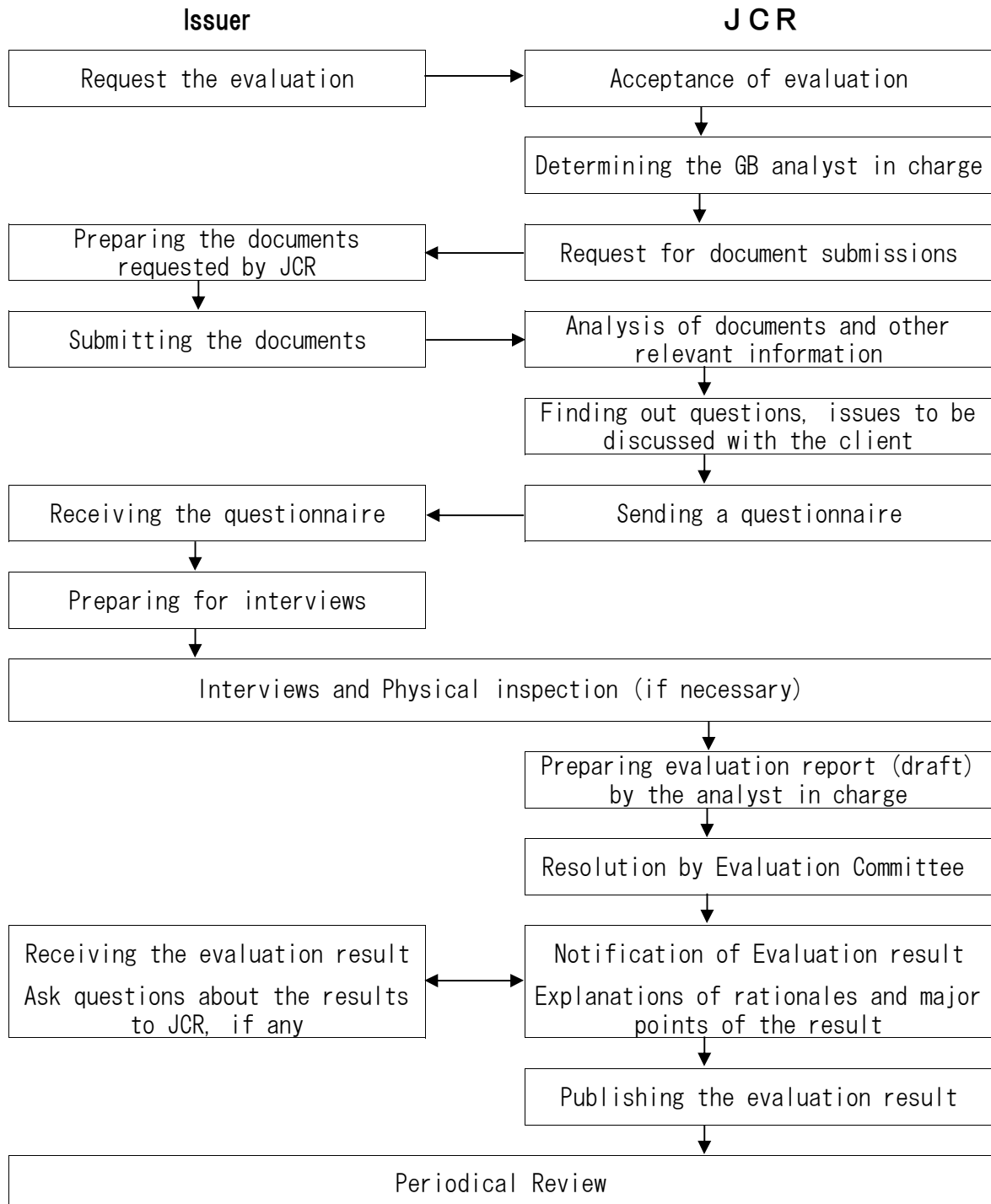
Ministry of Environment website :

<http://www.env.go.jp/press/files/jp/105353.pdf>

<sup>i</sup> According to ICMA's Green Bond Principles, the above list is intended to be indicative and captures the most commonly used types of projects supported or expected to be supported by the Green Bond market. Green Projects may relate to more than one category. The categories, listed in no specific order, include, but are not limited to those.

(Reference)

(Chart) Green Bond Evaluation Process



(Note) Physical inspection, publishing the evaluation result and periodical review may be implemented, if necessary