Technical Procedures for CDM/JI Project at Planning Stage

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Background

1. *Importance* of the technical issues of the procedures for the CDM/JI scheme such as definition of system boundary and baseline setting.

2. *Urgency* of the generating common understanding on the technical issues of the procedures towards the necessary consensus on the CDM/JI at an international level.

3. *Necessity* of positive discussions about the technical issues of the procedures for the CDM/JI scheme from a project implementer's point of view.

Objectives

- to identify technical issues of the procedures for the CDM/JI scheme to be discussed from a project implementer's point of view

Necessary clarification for CDM/JI project

When planning projects, the project implementers should clarify the following items:

(1) The amount of GHG emissions reductions or enhancement of removals estimated at the planning stage and the estimation methodologies.

(2) Methodologies and systems for monitoring GHG emissions or removals.

Technical work steps

Step 1:

Outlining the project plans

Step 2:

Identifying the project impacts

Step 3:

Estimating GHG emissions reductions/enhancement of removals

Step 4:

Documenting the results of estimation

Step 5:

Designing the monitoring plans

Step 1:Outlining the project plans

1-1:

Outline the overall project

Identify natural and socio-economic factors relating to the project implementation, in the host country as well as the local area (local government level) where the project will be implemented.

-international statistical data,
-host-country statistical data,
-national programmes,
-regional development programmes

1-2:

Identify processes relating to GHG emissions/removals

Extract the technologies, methodologies and processes, etc., relating to GHG emissions and removals, and ascertain the international status and the host country status (state-of-the-art, rate of diffusion) of them.

-highest performance/diffusion level of the technology in the international community,
-the newest/the most diffusible technology in the host country

1-3:

Estimate the lifetime of the project

Step 2: Identifying the project impacts, and determining system boundaries

"Direct impacts" are defined as impacts that arise from activities that result in GHG emissions and removals, in direct relation to the achievement of the principal objectives of the project.

"Indirect impacts" are defined as impacts that do not relate directly to the principal project objectives. They relate indirectly to the project implementation process and outputs from activities that result in GHG emissions and removals.

2-1:

Identify impacts relating to GHG emissions/removals

(1) Project impacts relating to GHG emissions and removals are identified, and classified into direct and indirect impacts.
(2) The direct and indirect impacts are summarized in the Flowchart of Project Impacts (Flowchart B).
(3) Each activity that can cause direct and indirect impacts are classified using the Flowchart C and D, and ways to consider the impacts are decided upon (Table 4).

2-2:

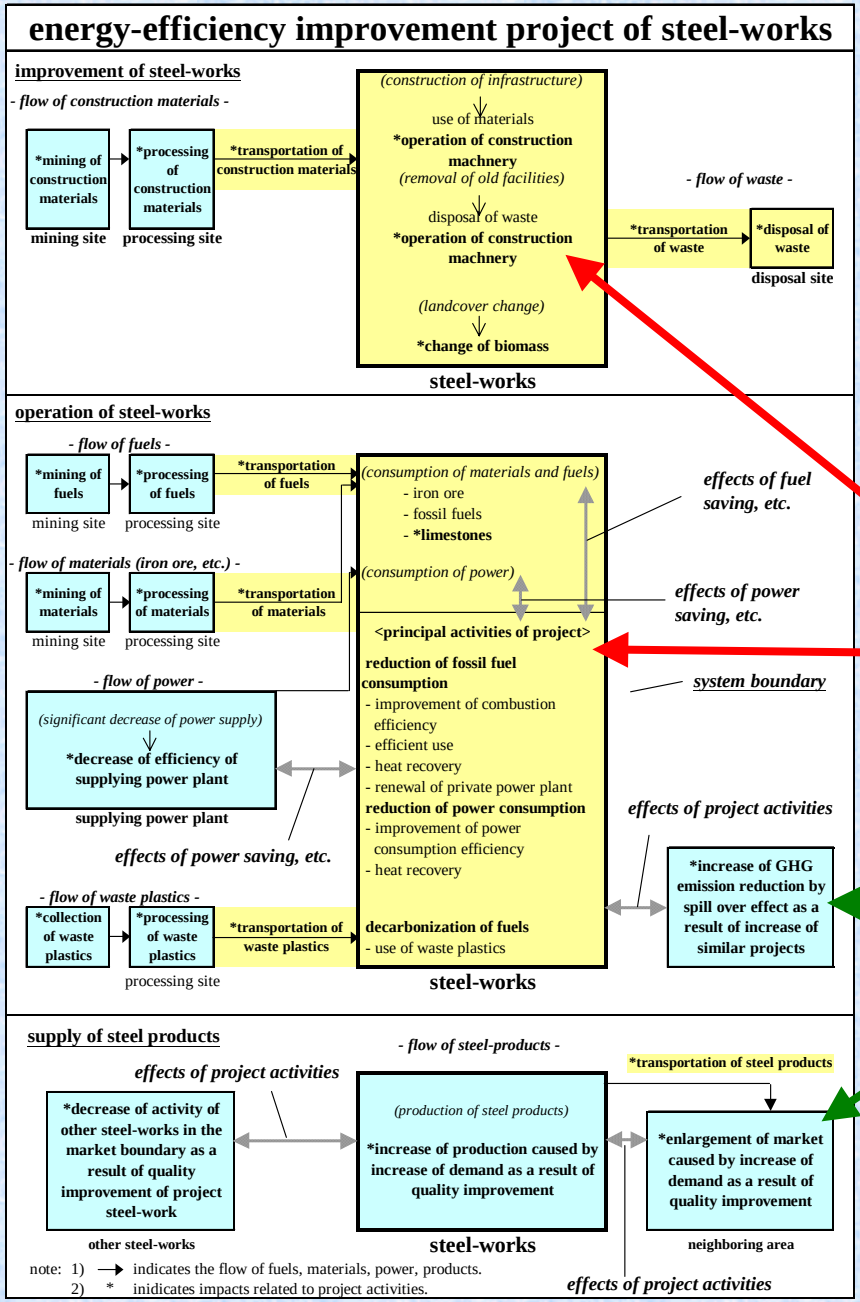
Determine system boundaries

Referring to the Flowchart of Project Impacts, the system boundaries are determined, taking into account direct and indirect impacts that require consideration (Flowchart E).

Classification of direct and indirect impacts

direct impacts	items	energy-efficiency improvement project of steel-works			
		activities related to GHG emissions/ removals	indicators of activities	classification (A～E)	system boundary (+/-)
impacts from principal objectives	reduction of fossil fuel consumption	in co	fossil fuel consumption		
		ef			
		he			
		re pl			
	reduction of power consumption	in co			
		he			
	decarbonization of fuels	us (w			
other impacts	fossil fuel consumption	op co			
		tr co			
		tr di			
		tr			

indirect impacts	items	energy-efficiency improvement project of steel-works			
		activities related to GHG emissions/ removals	indicators of activities	classification (a～e)	system boundary (+/-)
impacts from principal objectives	fossil fuel consumption	mining and processing of fuels	fossil fuel consumption, method of mining and processing of fuel	a	-
		collection and processing of waste plastics	waste plastic consumption method of collection and processing of waste plastics	a	-
	decrease of energy-efficiency of power plant	decrease of efficiency of power plant caused by significant decrease of power supply	power consumption of steel-works fed by the supplying power plant, energy-efficiency of the supplying power plant	d	+
other impacts	fossil fuel consumption	mining and processing of construction materials	amount of construction materials, methods of collection and processing of construction materials	a	-
		mining and processing of materials (iron ore, etc.)	consumption of iron ore, method of mining and processing of materials (iron ore, etc.)	a	-
		increase of production and enlargement of market caused by increase of demand as a result of quality improvement	needs of clients to steel products, increase amount of steel products as a result of quality improvement, enlargement of market as a result of quality improvement	f	-



Flowchart B

The direct and indirect impacts are summarized in the Flowchart of Project Impacts .

Direct impacts

Indirect impacts

Consideration of direct and indirect impacts using Flowchart C & D

2-1:

Identify impacts relating to GHG emissions/removals

(1) Project impacts relating to GHG emissions and removals are identified, and classified into direct and indirect impacts.

(2) The direct and indirect impacts are summarized in the Flowchart of Project Impacts (Flowchart B).

(3) Each activity that can cause direct and indirect impacts are classified using the Flowchart C and D, and ways to consider the impacts are decided upon (Table 4).

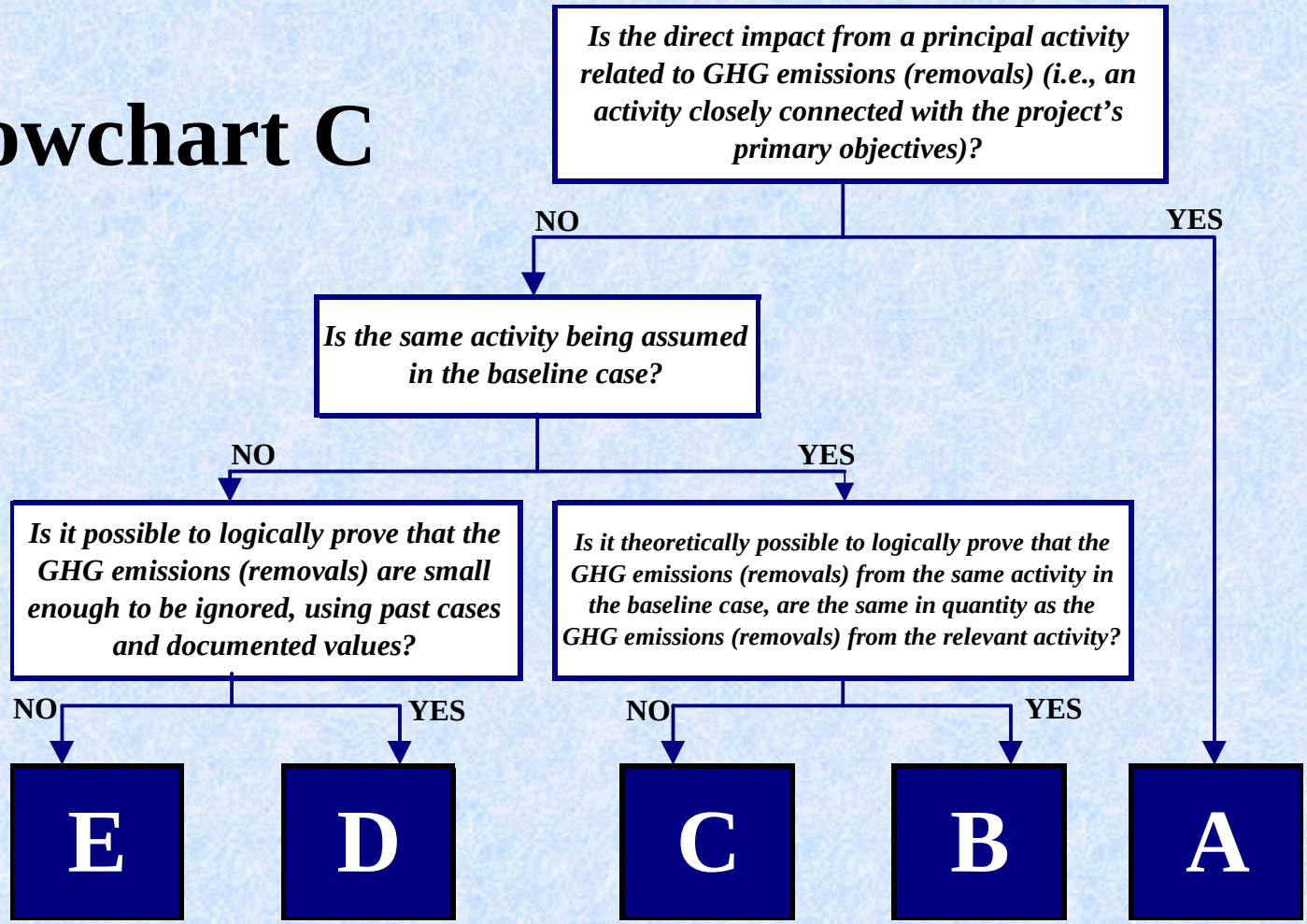
2-2:

Determine system boundaries

Referring to the Flowchart of Project Impacts, the system boundaries are determined, taking into account direct and indirect impacts that require consideration (Flowchart E).

Flowchart for Consideration of Direct Project Impacts

Flowchart C

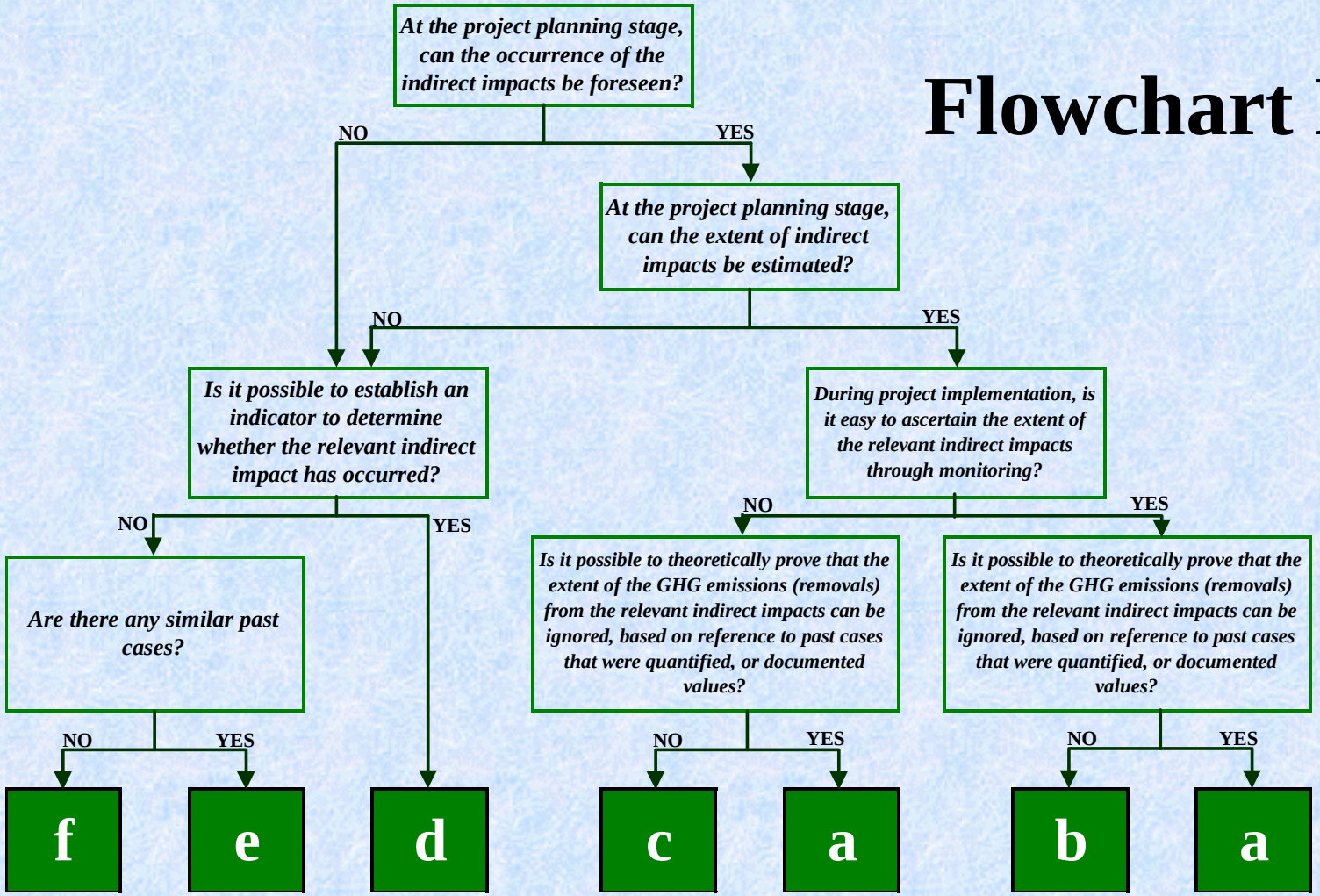


How to consider each category of direct impact using Flowchart C

Category	Consideration
A	Count all GHG emissions (removals) related to the relevant direct impact.
B	Include the relevant direct impacts within the system boundaries, but do not include them in the estimation items for project emissions (removals).
C	Include the relevant direct impacts within the system boundaries, and do include them in the estimation items for project emissions (removals).
D	After comparing with total GHG emissions (removals) and confirming that the GHG emissions (removals) from the relevant direct impacts can be ignored, exclude them from the system boundaries and estimation items of project emissions (removals). The comparison is based on past cases or documented values of GHG emissions (removals) relating to the relevant direct impacts.
E	Include the relevant direct impacts within the system boundaries, and do include them in the estimation items for project emissions (removals).

Flowchart for Consideration of Indirect Project Impacts

Flowchart D



How to consider each category of indirect impact using Flowchart D

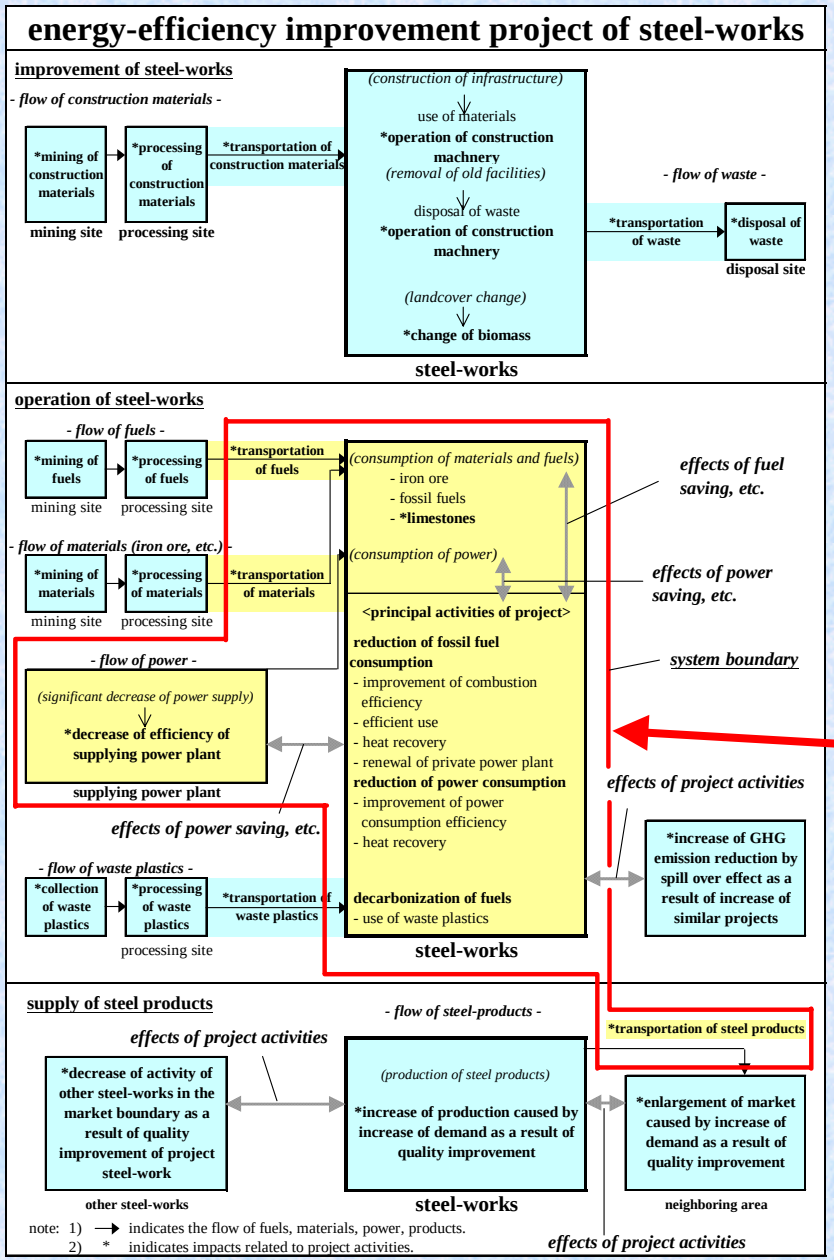
Category	Consideration
a	After comparing with total GHG emissions (removals) and confirming that the GHG emissions (removals) from the relevant indirect impacts can be ignored, exclude them from the system boundaries and estimation items of project emissions (removals). The comparison is based on past cases or documented values of GHG emissions (removals) relating to the relevant indirect impacts.
b	Take the relevant indirect impacts into account within the system boundaries, decide on an equation for calculation and estimate the GHG emissions (removals) from the relevant impacts. In addition, decide on the monitoring items, conduct monitoring during implementation of the project, and ascertain the actual GHG emissions (removals) from the relevant impacts. The result is reflected at the time credits are acquired.
c	Take the relevant indirect impacts into account within the system boundaries and use past cases and documented values to make an assumption of the GHG emissions (removals) from the relevant indirect impacts (e.g., 10% of the total emissions). Set this as the “subtraction factor for indirect impacts that cannot be considered” and reflect this in the amount of credits obtained.
d	Take the relevant indirect impacts into account within the system boundaries and decide on an indicator to judge whether or not the relevant indirect impact occurs. During project implementation, or after implementation, if the relevant impact has clearly occurred, it is dealt with by setting the “subtraction factor for indirect impacts that cannot be considered” as in ‘c’, with reference to past cases and documented values.
e	The relevant indirect impacts are not taken into account within the system boundaries, but similar cases are referred to, and the potential for the relevant impact to occur and their extent are noted. These items are confirmed at the time credits are acquired.
f	The relevant indirect impacts are not taken into account within the system boundaries, but are considered when the baseline emissions are reviewed, using this flowchart again.

Classification of direct and indirect impacts by project activities

Table 4

Direct impacts	Items	Energy-efficiency improvement project of steelworks			
		Activities related to GHG emissions/ removals	Indicators of activities	Classification (A〜E)	System boundary (+/-)
Impacts from principal objectives	**Reduction of fossil fuel consumption**	improvement of combustion efficiency	fossil fuel consumption, fuel saving of renewed facilities	A	+
		efficient use	fossil fuel consumption, fuel saving of renewed facilities	A	+
		heat recovery	fossil fuel consumption, fuel saving of renewed facilities	A	+
		renewal of private power plant	fossil fuel consumption of private power plant, energy saving of renewed facilities	A	+
	Reduction of power consumption	improvement of power consumption efficiency	power consumption, power saving of renewed facilities	A	+
		heat recovery	power generated by heat recovery	A	+
	Decarbonization of fuels	use of alternative fuels (waste plastics)	waste plastic consumption	A	+
Other impacts	**Fossil fuel consumption**	operation of construction machinery	scale of project	D	-
		transportation of construction materials	amount of construction materials, distance from supply site of	D	-
		transportation and disposal of waste	amount of waste, waste type, distance from disposal site	D	-
		transportation of fuels	fossil fuel consumption, distance from supply site of fuels	B	+
		transportation of materials (iron ore, etc.)	iron ore consumption, distance from supply site of materials (iron ore, etc.)	B	+
		transportation of waste plastics	waste plastic consumption	D	-
		use of limestone	use of limestone (iron ore consumption)	B	+
		transportation of steel products	amount of steel products, distance from demand site of steel products	B	+

Indirect impacts	Items	Energy-efficiency improvement project of steelworks			
		Activities related to GHG emissions/ removals	Indicators of activities	Classification (a〜e)	System boundary (+/-)
Impacts from principal objectives	**Fossil fuel consumption**	mining and processing of fuels	fossil fuel consumption, method of mining and processing of fuel	a	-
		collection and processing of waste plastics	waste plastic consumption method of collection and processing of waste plastics	a	-
	Decrease of energy-efficiency of power plant	decrease of efficiency of power plant caused by significant decrease of power supply	power consumption of steel-works fed by the supplying power plant, energy-efficiency of the supplying power plant	d	+
Other impacts	**Fossil fuel consumption**	mining and processing of construction materials	amount of construction materials, methods of collection and processing of construction materials	a	-
		mining and processing of materials (iron ore, etc.)	consumption of iron ore, method of mining and processing of materials (iron ore, etc.)	a	-
		increase of production and enlargement of market caused by increase of demand as a result of quality improvement	needs of clients to steel products, increase amount of steel products as a result of quality improvement, enlargement of market as a result of quality improvement	f	-
	Reduction of fossil fuel consumption	decrease of activity of other steelworks in the market boundary as a result of quality improvement of this project	amount of steel products with current quality produced by other steelworks, fuel consumption by other steelworks	f	-
	Landcover change	change of biomass caused by landcover change	biomass in the project area	a	-
	GHG emission reduction	increase of GHG emission reduction by spillover effect as a result of increase of similar projects	technical needs of iron manufacturers in host countries, GHG emission reduction effect of the project	f	-



Flowchart E

System boundary of the project

Step 3: Estimating GHG emissions reductions and enhancement of removals

3-1:

Decide on the baseline scenario

The baseline scenario is decided (Flowchart F and G).

3-2:

Estimate project emissions and removals

(1) Information including the necessary activity volume data to estimate GHG emissions and removals from those activities are collected and organized, as well as factors relating to emissions and removals.
(2) A formula is created for estimation of project emissions/removals (Table 6).
(3) Project emissions and removals are estimated.

3-3:

Estimate baseline emissions and removals

(1) Information is collected and organized including the necessary activity volume data to estimate GHG emissions and removals from those activities, as well as factors relating to emissions and removals.
(2) A formula is created for estimation of baseline emissions/removals (Table 6).
(3) Baseline emissions and removals are estimated.

3-4:

Estimate GHG emissions reductions/enhancement of removals

3-5:

Consider project risks and responses

Flowchart F - Step A -

Decision-making Steps for the Baseline Scenario

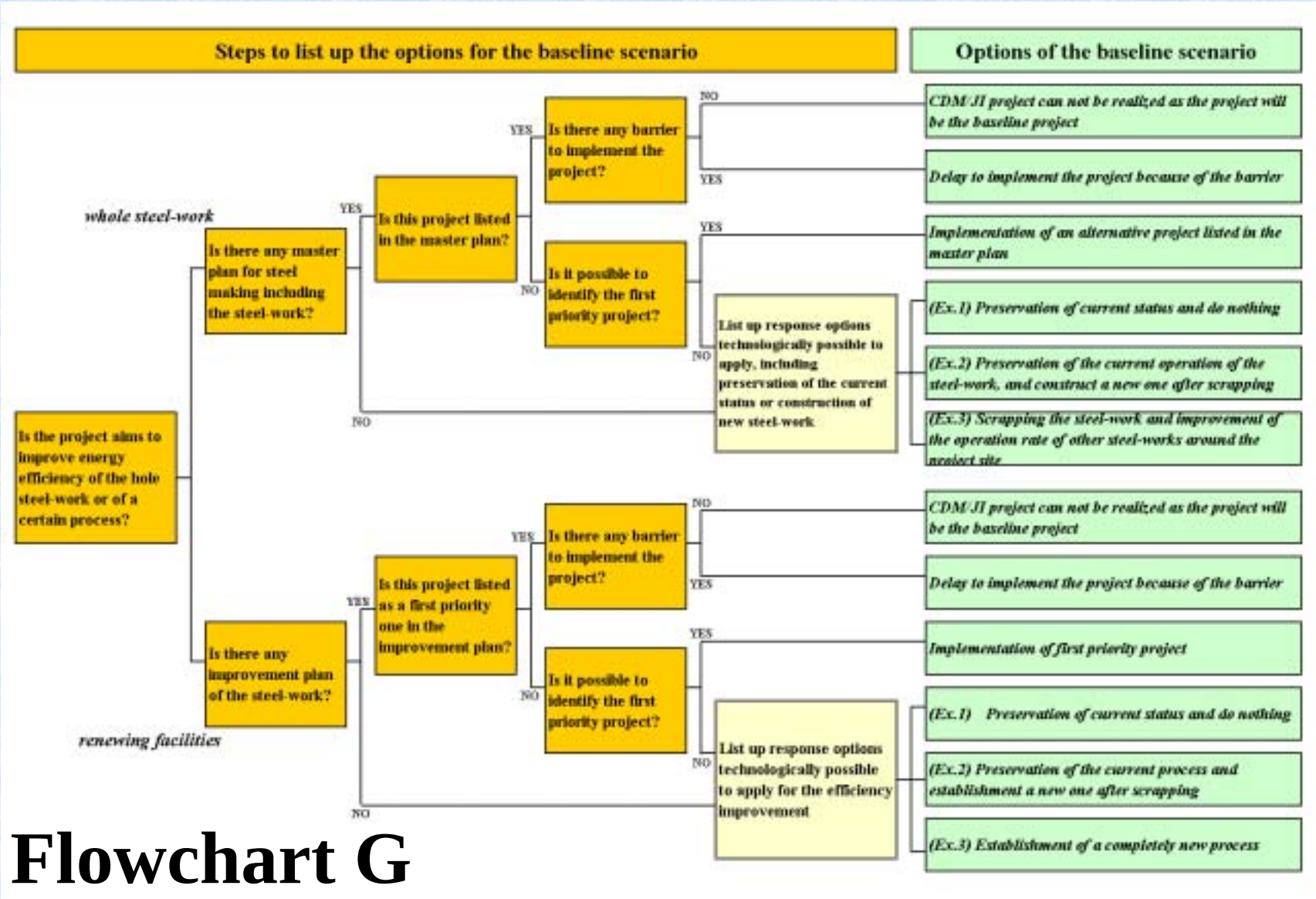
Step A: Policy and technical assessments

- to list options for baseline scenarios that are technically feasible and are consistent with policies of national strategies and higher-level national programmes in the host country and the project's target region.

Step B: Economic assessment and elimination of options

- to conduct a cost-benefit assessment for each option of the baseline scenarios where carbon credits were not considered. For these options, an elimination process is conducted by considering the environmental and social acceptability in the host country and project's target region. Options, which are clearly unacceptable for environmental and social reasons, are eliminated. After mutual comparison of the options for baseline scenario that have been reduced to a few cases, and through discussion with the parties relevant to the project, the scenario with the highest cost-effectiveness is selected as the baseline scenario.

Steps to list up the options for the baseline scenario



Flowchart G

Flowchart F - Step B -

Decision-making Steps for the Baseline Scenario

Step A: Policy and technical assessments

- to list options for baseline scenarios that are technically feasible and are consistent with policies of national strategies and higher-level national programmes in the host country and the project's target region.

Step B: Economic assessment and elimination of options

- to conduct a cost-benefit assessment for each option of the baseline scenarios where carbon credits were not considered. For these options, an elimination process is conducted by considering the environmental and social acceptability in the host country and project's target region. Options, which are clearly unacceptable for environmental and social reasons, are eliminated. After mutual comparison of the options for baseline scenario that have been reduced to a few cases, and through discussion with the parties relevant to the project, the scenario with the highest cost-effectiveness is selected as the baseline scenario.

Step 4: Documenting the results of estimation

4-1:

Document technical items relating to GHG emissions reductions and enhancement of removals

The technical items considered under Step 2 and Step 3 relating to baseline establishment and estimation of emissions reductions are compiled and documented.

4-2:

Document the discussions relating to GHG emissions reductions and enhancement of removals

A summary is made to describe the involvement of stakeholders and their opinions, as well as the discussion that was held relating to baseline establishment and estimation of emissions reductions amounts.

4-3:

Compile baseline study report

The above information is summarized and compiled into a baseline study report.

Step 5: Designing the monitoring plans

5-1:

Design the monitoring plan

(1) Main elements relating to the amounts of project emissions and removals, as well as the estimation of baseline emissions and removals (monitoring items) are identified (Table 8).
(2) The method is specified for monitoring of each monitoring item.
(3) The procedure is designed for calculating GHG emissions reductions and enhancement of removals.
(4) The institutional responsibility is clarified for activities relating to monitoring.

5-2:

Prepare the monitoring reports

(1) The above information is summarized and compiled into a monitoring report.

Example of activity level data and factors required to be monitored during project implementation

Table 8

impacts		items	activities related to GHG emission/ sequestration	energy-efficiency improvement project of steel-works	
				activity level data	factors
direct impacts	impacts from principal objectives	reduction of fossil fuel consumption	improvement of combustion efficiency efficient use heat recovery	***estimation of GHG emission reduction in each renewing facility*** **necessary items:** - fossil fuel consumption of introducing facility (monthly) (a) - output of introducing facility (monthly) (a) **reference items:** - fossil fuel consumption of whole steel-works (monthly) (a) - steel products of whole steel-works (a)	***estimation of GHG emission reduction in each renewing facility*** **necessary items:** - composition of fossil fuels (carbon content, specific gravity, etc.)(c),(b) ** project implementer can use not only default value identified IPCC and each country, but also analysed value measured by himself.*
			renewal of private power plant	***estimation of GHG emission reduction in each renewing facility*** **necessary items:** - power generation (monthly) (a) - fossil fuel consumption (monthly) (a)	***estimation of GHG emission reduction in each renewing facility*** **in case that supplyed power substitutes by the power generation by heat recovery* - CO2 emission factor of power generation of the supplying power plant (a) - CO2 emission factor of fossil fuels (c),(b)

(a): project implementer has to be taken
(b): project implementer can be taken
(c): default value should be prepared

Conclusion

(1) Study the standardization of the procedures for the preparation of CDM/JI projects

(2) Identify and discuss technical issues which the project participants would encounter in going through the procedures

(3) Contribute to a future technical consideration in the UNFCCC process, particularly for the CDM