



## A/R Methodological tool

### “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities”

(Version 01)

## I. SCOPE AND APPLICABILITY AND PARAMETERS

### Scope

1. This tool provides a general framework and a step-wise approach to identify the baseline scenario and simultaneously demonstrates additionality in A/R CDM project activities.
2. Application of this tool allows for transparent identification of baseline scenario which further allows for conservative establishing of baseline net greenhouse gas removals by sinks for a proposed afforestation or reforestation project under the CDM.
3. Project participants proposing new baseline methodologies may incorporate this tool in their proposal. Project participants may also propose other approaches for identification of the baseline scenario and the demonstration of additionality to the Executive Board for its consideration.
4. In validating the application of this tool, Designated Operational Entities (DOEs) should assess credibility of all data, rationales, assumptions, justifications and documentation provided by project participants to support the selection of the baseline and demonstration of additionality.

### Applicability conditions

The tool is applicable under the following conditions:

- Forestation of the land<sup>1</sup> within the proposed project boundary performed with or without being registered as the A/R CDM project activity shall not lead to violation of any applicable law even if the law is not enforced.
- This tool is not applicable to small - scale afforestation and reforestation project activities.

### Parameters

5. This procedure does not use its own parameters.

## II. PROCEDURE

6. Project participants shall apply the following five steps:  
STEP 0. Preliminary screening based on the starting date of the A/R project activity  
STEP 1. Identification of alternative scenarios

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<sup>1</sup> In the context of this tool, forestation is used for the identification of possible land use scenarios that go beyond afforestation and reforestation as defined in the Marrakech Accords and includes the any establishment of forest through natural or artificial means.



- STEP 2. Barrier analysis
- STEP 3. Investment analysis (if needed)
- STEP 4. Common practice analysis

The procedure is summarized in the indicative flowchart presented in Figure 1. For more specific detail regarding the individual steps, please refer to the text.

#### **STEP 0. Preliminary screening based on the starting date of the A/R project activity**

7. If project participants claim that the afforestation or reforestation CDM project activity has a starting date after 31 December 1999 but before the date of its registration, then the project participants shall:

- Provide evidence that the starting date of the A/R CDM project activity was after 31 December 1999, and
- Provide evidence that the incentive from the planned sale of CERs was seriously considered in the decision to proceed with the project activity. This evidence shall be based on (preferably official, legal and/or other corporate) documentation that was available to third parties at, or prior to, the start of the project activity.

#### **STEP 1. Identification of alternative land use scenarios to the proposed A/R CDM project activity**

8. This step serves to identify alternative land use scenarios to the proposed CDM project activity that could be the baseline scenario, through the following sub-steps:

##### *Sub-step 1a. Identify credible alternative land use scenarios to the proposed CDM project activity*

9. Identify realistic and credible land-use scenarios that would have occurred on the land within the proposed project boundary in the absence of the afforestation or reforestation project activity under the clean development mechanism (CDM)<sup>2</sup>. The scenarios should be feasible for the project participants or similar project developers taking into account relevant national and/or sectoral policies<sup>3</sup> and circumstances, such as historical land uses, practices and economic trends. The identified land use scenarios shall at least include:

- Continuation of the pre-project land use;
- Forestation of the land within the project boundary performed without being registered as the A/R CDM project activity;

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<sup>2</sup> For example, continuation of the pre-project land-use or switch to land-use typical for region where the A/R CDM project is planned to be located, establishing agricultural plantation, tourist resort, hunting area/farm, utilizing regionally typical forms of funds investment or other economically attractive activities.

<sup>3</sup> The Annex 3 to the report of the EB at its twenty-second meeting and the Annex 19 to the report of the EB at its twenty-third meeting clarify how the relevant national and/or sectoral policies shall be taken into account during identification of a baseline scenario. See: <http://cdm.unfccc.int/Reference/Guidclarif>.



- If applicable, forestation of at least a part of the land within the project boundary of the proposed A/R CDM project at a rate resulting from<sup>4</sup>:
  - Legal requirements; or
  - Extrapolation of observed forestation activities in the geographical area with similar socio-economic and ecological conditions to the proposed A/R CDM project activity occurring in a period since 31 December 1989 as selected by the PPs.

10. For identifying the realistic and credible land-use scenarios; land use records, field surveys, data and feedback from stakeholders, and information from other appropriate sources, including Participatory rural appraisal (PRA)<sup>5</sup> may be used as appropriate. If the baseline approach selected is 22b or c, then the project shall perform a survey of local experts or land owners/users on their plans for land management/investments during the period to the project start.

11. All identified land use scenarios must be credible. All land uses within the boundary of the proposed A/R CDM project activity that are currently existing or that existed at some time since 31 December 1989 but no longer exist, may be deemed realistic and credible. For all other land use scenarios, credibility shall be justified<sup>6</sup>. The justification shall include elements of spatial planning information (if applicable) or legal requirements and may include assessment of economical feasibility of the proposed alternative land use scenario.

**Outcome of Sub-step 1a:** List of credible alternative land use scenarios that would have occurred on the land within the project boundary of the A/R CDM project activity.

***Sub-step 1b. Consistency of credible alternative land use scenarios with enforced mandatory applicable laws and regulations***

(This sub-step does not consider national and local policies that do not have legally-binding status and local policies that have been implemented since the adoption of the modalities and procedures for the CDM [decision 17/CP.7, 11 November 2001])

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<sup>4</sup> In this case, the project participants will assess the baseline rate of forestation and shall provide justification that the project will lead to an increased rate of afforestation/reforestation that would not occur in the absence of the project activity and that this results from direct intervention by the project participants. If the proposed A/R CDM project activity does not increase the rate of afforestation/reforestation, the proposed project activity is not additional.

<sup>5</sup> Participatory rural appraisal (PRA) is an approach to the analysis of local problems and the formulation of tentative solutions with local stakeholders. It makes use of a wide range of visualisation methods for group-based analysis to deal with spatial and temporal aspects of social and environmental problems. This methodology is, for example, described in:

- Chambers R (1992): Rural Appraisal: Rapid, Relaxed, and Participatory. Discussion Paper 311, Institute of Development Studies, Sussex.
- Theis J, Grady H (1991): Participatory rapid appraisal for community development. Save the Children Fund, London.

<sup>6</sup> e.g. construction of an airport is usually not a credible land use scenario in a rural region with low density population and weak road infrastructure.



12. Apply the following procedure:

- Demonstrate that all land use scenarios identified in the sub-step 1a: are in compliance with all mandatory applicable legal and regulatory requirements;
- If an alternative does not comply with all mandatory applicable legislation and regulations then show that, based on an examination of current practice in the region in which the mandatory law or regulation applies, those applicable mandatory legal or regulatory requirements are systematically not enforced and that non-compliance with those requirements is widespread, i.e. prevalent on at least 30% of area of the smallest administrative unit that encompasses the project area;
- Remove from the land use scenarios identified in the sub-step 1a, any land use scenarios which are not in compliance with applicable mandatory laws and regulations unless it can be shown these land use scenarios result from systematic lack of enforcement of applicable laws and regulations.

**Outcome of Sub-step 1b:** List of plausible alternative land use scenarios to the A/R CDM project activity that are in compliance with mandatory legislation and regulations taking into account the their enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations.

If the list resulting from the Sub-step 1b is empty or contains only one land use scenario, than the proposed A/R CDM project activity is not additional.

→ *Proceed to Step 2 (Barrier analysis)*

## **STEP 2. Barrier analysis**

This step serves to identify barriers and to assess which of the land use scenarios identified in the sub-step 1b are not prevented by these barriers.

### **Sub-step 2a. Identification of barriers that would prevent the implementation of at least one alternative land use scenarios**

13. Identify realistic and credible barriers that prevent realization of the land use scenarios identified in Sub-step 1b. The barriers should not be specific for the project participants, but should apply to the proposed A/R CDM project activity as such, even if similar project developers would have developed the project activity. Such barriers may include, among others:

- Investment barriers, other than insufficient financial returns as analyzed in Step 3, *inter alia*:
  - Similar activities have only been implemented with grants or other non-commercial finance terms. In this context similar activities are defined as activities of a similar scale that take place in a comparable environment with respect to regulatory framework and are undertaken in the relevant geographical area;
  - No private capital is available from domestic or international capital markets due to real or perceived risks associated with investments in the country where the A/R project activity is to be implemented, as demonstrated by the credit rating of the country or other country investment reports of reputed origin;
  - Debt funding is not available for the land-use scenarios;



- Lack of access to credit.
- Institutional barriers, *inter alia*:
  - Risk related to changes in government policies or laws;
  - Lack of enforcement of land-use-related legislation.
- Technological barriers, *inter alia*:
  - Lack of access to necessary materials, for example planting materials;
  - Lack of infrastructure for implementation of the technology.
- Barriers related to local tradition, *inter alia*:
  - Traditional knowledge or lack thereof, laws and customs, market conditions and practices;
  - Traditional equipment and technology.
- Barriers due to prevailing practice, *inter alia*:
  - The land use scenario is the “first of its kind”: No activity of this type is currently operational in the host country or region.
- Barriers due to local ecological conditions, *inter alia*:
  - Degraded soil (e.g. water/wind erosion, salination, etc.);
  - Catastrophic natural and / or human-induced events (e.g. land slides, fire, etc);
  - Unfavourable meteorological conditions (e.g. early/late frost, drought);
  - Pervasive opportunistic species preventing land use (e.g. grasses, weeds);
  - Unfavourable course of ecological succession;
  - Biotic pressure in terms of grazing, fodder collection, etc.
- Barriers due to social conditions, *inter alia*:
  - Demographic pressure on the land (e.g. increased demand on land due to population growth);
  - Social conflict among interest groups in the region where the project takes place;
  - Widespread illegal practices (e.g. illegal grazing, non-timber product extraction and tree felling);
  - Lack of skilled and/or properly trained labour force;
  - Lack of organisation of local communities.
- Barriers relating to land tenure, ownership, inheritance, and property rights, *inter alia*:
  - Communal land ownership with a hierarchy of rights for different stakeholders limits the incentives to undertake the land-use scenarios;
  - Lack of suitable land tenure legislation and regulation to support the security of tenure;
  - Absence of clearly defined and regulated property rights in relation to natural resource products and services;



- Formal and informal tenure systems that increase the risks of fragmentation of land holdings;
- Possibilities of large price risk due to the fluctuations in the prices of products over the project period in the absence of efficient markets and insurance mechanisms;
- Barriers relating to markets, transport and storage;
- Unregulated and informal markets for products and services prevent the transmission of effective information to project participants;
- Remoteness of land area and undeveloped road and infrastructure incur large transportation expenditures, thus eroding the competitiveness and profitability of products from the land use;
- Possibilities of large price risk due to the fluctuations in the prices products over the project period in the absence of efficient markets and insurance mechanisms;
- Absence of facilities to convert, store and add value to products resulting from land use limits the possibilities to capture rents from the land use scenario.

**Outcome of Step 2a:** List of barriers that may prevent one or more land use scenarios identified in the Step 1b.

**Sub-step 2b. Elimination of land use scenarios that are prevented by the identified barriers**

14. Determine which land use scenarios identified in the Sub-step 1b are prevented by at least one of the barriers listed in sub-step 2a. Substantiate, that the barrier identified as preventing realization of a land use scenario is valid and conclusive in the context of the land use scenario in question. The assessment of a barrier may take into account the level of access to and availability of information, technologies and skilled labour in the region where the planned A/R CDM project activity is located. Eliminate these scenarios from further consideration.

15. If the land within the boundary of the proposed of the A/R CDM project activity was at least partially forested since 31 December 1989 and the land is not a forest at the project start, identify reasons/actions/incentives that allowed for the past forestation and demonstrate that the current legal/financial or other applicable regulations or socio-economical or ecological or other local conditions have changed to the extent that allows for conclusion that repetition of the forestation performed without being registered as the A/R CDM project activity is not possible.

16. Include all land use scenarios that were identified in the Sub-step 1b and were not eliminated in the Sub-step 2b into the list of land use scenarios that are not prevented by any barrier.

**Outcome of Sub-step 2b:** List of land use scenarios that are not prevented by any barrier.

17. In applying sub-steps 2a and 2b, provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers. Anecdotal evidence can be included, but this alone is not sufficient proof of barriers. The type of evidence to be provided may include:

- Relevant legislation, regulatory information or environmental/natural resource-management norms, acts or rules;



- Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, associations, companies, bilateral/multilateral institutions, etc;
- Relevant statistical data from national or international statistics;
- Documentation of relevant market data (e.g. market prices, tariffs, rules);
- Written documentation from the company or institution developing or implementing the A/R CDM project activity or the A/R CDM project developer, such as minutes from Board meetings, correspondence, feasibility studies, financial or budgetary information, etc;
- Documents prepared by the project developer, contractors or project partners in the context of the proposed project activity or similar previous project implementations;
- Written documentation of independent expert judgements from agriculture, forestry and other land-use related Government / Non-Government bodies or individual experts, educational institutions (e.g. universities, technical schools, training centres), professional associations and others.

### **Sub-step 2c. Determination of baseline scenario (if allowed by the barrier analysis)**

18. Apply the following decision tree to the outcome of sub-step 2b:

*Is forestation without being registered as an A/R CDM project activity included in the list of land use scenarios that are not prevented by any barrier?*

→ *If yes, then:*

*Does the list contain only one land use scenario?*

→ *If yes, then the proposed A/R CDM project activity is not additional.*

→ *If no, then continue with Step 3: Investment analysis.*

→ *If no, then:*

*Does the list contain only one land use scenario?*

→ *If yes, then the remaining land use is the baseline scenario.*

*Continue with Step 4: Common practice test*

→ *If no, then through qualitative analysis, assess the removals by sinks for each scenario and select one of the following options:*

***Option 1:*** *Baseline scenario is the land use scenario that allows for the highest baseline GHG removals by sinks. Continue with Step 4: Common practice test, .*

***Option 2:*** *Continue with Step 3: Investment analysis.*

### **STEP 3. Investment analysis**

19. This step serves to determine which of the remaining land use scenarios identified in the Sub-step 2b is the most economically or financially attractive. For this purpose, an investment comparison analysis is conducted.



***Sub-step 3a. Determine appropriate analysis method***

20. Determine whether to apply simple cost analysis, investment comparison analysis or benchmark analysis. If the planned A/R CDM project activity generates no financial or economic benefits other than CDM related income, then apply the simple cost analysis (Option I). Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Note, that Options I, II and III are mutually exclusive hence, only one of them can be applied.

***Sub-step 3b. – Option I. Apply simple cost analysis***

21. Document the costs associated with the A/R CDM project activity and demonstrate that the activity generates no financial benefits other than CDM related income.

22. Document the incomes and costs associated with each of the land use scenarios that are not prevented by any barrier.

***→ If at least one land use scenario that is not prevented by any barrier generates financial benefits then select as the baseline the land use scenario that allows for the highest difference between incomes and costs over the crediting period. Proceed to Sub-step 3d. Sensitivity analysis.***

***→ Otherwise, select as the baseline the land use scenario that allows for the highest baseline GHG removals by sinks. If the baseline is the proposed A/R CDM project activity then it is not additional. Otherwise, Proceed to Step 4. Common practice test.***

***Sub-step 3b. – Option II. Apply investment comparison analysis***

23. Identify the financial indicator, such as IRR<sup>7</sup>, NPV, payback period, cost benefit ratio most suitable for the project type and decision-making context.

***Sub-step 3b. – Option III. Apply benchmark analysis***

24. Identify a suitable financial indicator, such as IRR<sup>8</sup>, NPV, payback period, cost benefit ratio, or other (e.g. required rate of return (RRR) related to investments in agriculture or forestry, bank deposit interest rate corrected for risk inherent to the project or the opportunity costs of land, such as any expected income from land speculation) most suitable for the project type and decision context. Identify the relevant benchmark value, such as the required rate of return (RRR) on equity. The benchmark is to represent standard returns in the market, considering the specific risk of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Benchmarks can be derived from:

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<sup>7</sup> For the investment comparison analysis, IRRs can be calculated either as project IRRs or as equity IRRs. Project IRRs calculate a return based on project cash outflows and cash inflows only, irrespective the source of financing. Equity IRRs calculate a return to equity investors and therefore also consider amount and costs of available debt financing. The decision to proceed with an investment is based on returns to the investors, so equity IRR will be more appropriate in many cases. However, there will also be cases where a project IRR may be appropriate.

<sup>8</sup> For the benchmark analysis, the IRR shall be calculated as project IRR. If there is only one potential project developer (e.g. when the project activity upgrades an existing process), the IRR shall be calculated as equity IRR.





- Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert;
- Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects;
- A company internal benchmark (weighted average capital cost of the company) if there is only one potential project developer (e.g. when the proposed project land is owned or otherwise controlled by a single entity, physical person or a company, who is also the project developer). The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark.

***Sub-step 3c. Calculation and comparison of financial indicators (only applicable to options II and III):***

25. Calculate the suitable financial indicator for the proposed A/R CDM project activity *without the financial benefits from the CDM* and for all the land use scenarios that are not prevented by any barrier. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding tCER or ICERs revenues, but including subsidies/fiscal incentives where applicable), and, as appropriate, non-market cost and benefits in the case of public investors.

26. Present the investment analysis in a transparent manner and provide all the relevant assumptions in the CDM-AR-PDD, so that a reader can reproduce the analysis and obtain the same results. Clearly present critical economic parameters and assumptions (such as capital costs, lifetimes, and discount rate or cost of capital). Justify and/or cite assumptions in a manner that can be validated by the DOE. In calculating the financial indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions (e.g. insurance premiums can be used in the calculation to reflect specific risk equivalents).

27. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.

28. If **Option II** (investment comparison analysis) is used then apply the following decision tree:

***Is forestation without being registered as an A/R CDM project activity included in the list of land use scenarios that are not prevented by any barrier?***

***→ If yes, then:***

***Has the proposed A/R CDM project activity a less favourable financial indicator (e.g. IRR), than at least one land use scenario that is not prevented by any barrier?***

***→ If yes, then select as the baseline scenario the land use scenario that allows for the highest value of the financial indicator (e.g. IRR).***

***Proceed to Sub-step 3d. Sensitivity analysis.***

***→ If no, then the proposed A/R CDM project activity is not additional.***

***→ If no, then:***

***Select as the baseline scenario the land use scenario that allows for the highest financial indicator (e.g. IRR). Proceed to Sub-step 3d. Sensitivity analysis***



29. If **Option III** (benchmark analysis) is used then apply the following decision tree:

*Is forestation without being registered as an A/R CDM project activity included in the list of land use scenarios that are not prevented by any barrier?*

→ *If yes, then:*

*Has the proposed A/R CDM project activity a financial indicator (e.g. IRR) that does not meet the benchmark and at least one of the land use scenarios that are not prevented by any barrier has a financial indicator that meets the benchmark?*

→ *If yes, then select as the baseline scenario the land use scenario that meets the benchmark and allows for the most favourable financial indicator (such as IRR, NPV, cost benefit ratio). Proceed to Sub-step 3d. Sensitivity analysis.*

→ *If no, then*

→ *If the financial indicator of the A/R CDM project activity meets the benchmark, then the proposed A/R CDM project activity is not additional.*

→ *If the financial indicators of neither the A/R CDM project activity nor any of the alternatives meets the benchmark then the baseline scenario is the continuation of the pre-project land use.*

→ *If no, then:*

*Has at least one of the land use scenarios that are not prevented by any barrier the financial indicator that meets the benchmark?*

→ *If yes, then select as the baseline scenario the land use scenario that has the most favourable financial indicator (such as IRR, NPV, cost benefit ratio). Proceed to Sub-step 3d. Sensitivity analysis.*

→ *If no, then the baseline scenario is the continuation of the pre-project land use.*

#### **Sub-step 3d. Sensitivity analysis (for Option II and III)**

30. Include a sensitivity analysis to assess whether the initial conclusion regarding the financial attractiveness of the baseline scenario is robust to reasonable variations in the critical assumptions. The investment analysis only provides a valid argument in identifying the baseline scenario and demonstrating additionality if it consistently supports (for a realistic range of assumptions) the initial conclusion of the analysis.

31. Apply the following decision tree:

*Is forestation without being registered as an A/R CDM project activity included in the list of land use scenarios that are not prevented by any barrier?*

→ *If yes, then:*

*Is the sensitivity analysis conclusive?*



→ *If yes, then the selection of baseline scenario is valid. Proceed to Step 4. Common practice test.*

→ *If no, then the proposed A/R CDM project activity is not additional.*

→ *If no, then:*

*Is the sensitivity analysis conclusive?*

→ *If yes, then the selection of baseline scenario is valid. Proceed to Step 4. Common practice test.*

→ *If no, then select as the baseline scenario the land use, which allows for the highest baseline GHG removals by sinks. Proceed to Step 4. Common practice test.*

**Outcome of step 3:** Identification of the most economically and/or financially attractive land use scenario within the boundary of the proposed A/R CDM project area according to the most suitable financial indicator, taking into account the results of the sensitivity analysis.

#### **STEP 4. Common practice analysis**

32. The previous steps shall be complemented with an analysis of the extent to which forestation activity has already diffused in the geographical area of the proposed A/R CDM project activity. This test is a credibility check to demonstrate additionality which complements the barrier analysis (Step 2) and, where applicable, the investment analysis (Step 3).

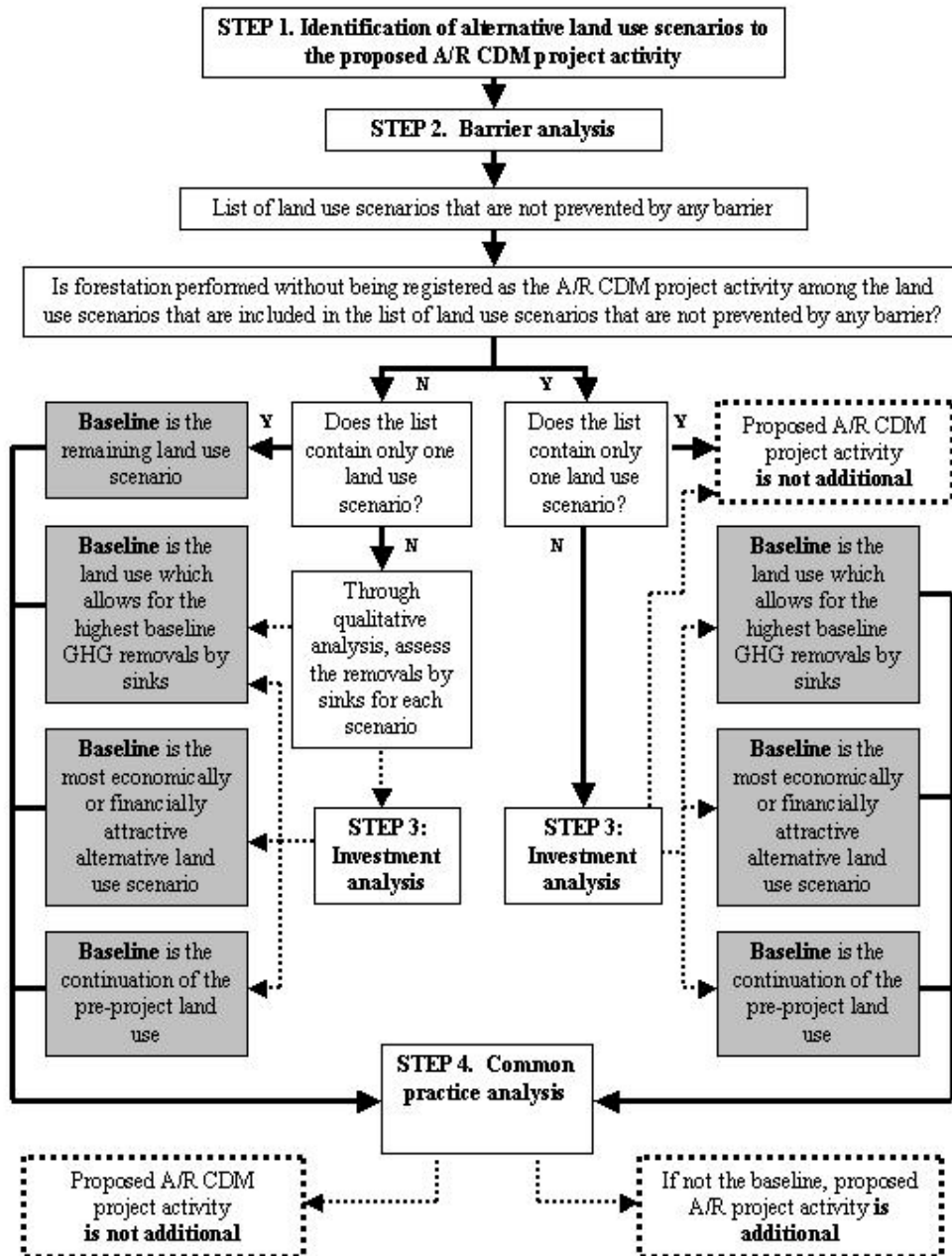
33. Provide an analysis to which extent similar forestation activities to the one proposed as the A/R CDM project activity have been implemented previously or are currently underway. Similar forestation activities are defined as that which are of similar scale, take place in a comparable environment, *inter alia*, with respect to the regulatory framework and are undertaken in the relevant geographical area, subject to further guidance by the underlying methodology. Other registered A/R CDM project activities shall not be included in this analysis. Provide documented evidence and, where relevant, quantitative information. Limit your considerations to any period since 31 December 1989.

34. If forestation activities similar to the proposed A/R CDM project activity are identified, then compare the proposed project activity to the other similar forestation activities and assess whether there are essential distinctions between them. Essential distinctions may include a fundamental and verifiable change in circumstances under which the proposed A/R CDM project activity will be implemented when compared to circumstances under which similar forestations were carried out. For example, barriers may exist, or promotional policies may have ended. If certain benefits rendered the similar forestation activities financially attractive (e.g., subsidies or other financial flows) explain, why the proposed A/R CDM project activity cannot use the benefits. If applicable, explain why the similar forestation activities did not face barriers to which the proposed A/R CDM project activity is subject.

→ *If Step 4 is satisfied, i.e. similar activities can be observed and essential distinctions between the proposed CDM project activity and similar activities cannot be made, then the proposed CDM project activity is not additional. Otherwise, the proposed A/R CDM project activity is not the baseline scenario and, hence, it is additional.*



Figure 1: Indicative flowchart of the combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities.



Explanation:  
 Black arrow - continue;  
 Dotted arrow: possible outcome.



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**History of the document**

<b>Version</b>	<b>Date</b>	<b>Nature of revision</b>
01	EB35, Annex 19 19 October 2007	Initial adoption