T-VER-P-TOOL-01-01

Combined Tool to identify the baseline scenario and demonstrate additionality in forest project activities

Version 01

1. Introduction

This tool aims to establish a baseline scenario and demonstrate additionality in forest project activities, both small and large scale, to be developed for voluntary GHG emission reduction according to the requirements of Thailand Voluntary Emission Reduction Program: T-VER.

2. Relevant definitions

Details appear in Annex 1

3. Characteristics of relevant activities and conditions

This tool defines the procedure for baseline scenario and additionality demonstration of a T-VER project in order to obtain a baseline scenario that is transparent and in accordance with conservation principles. The voluntary verification body (VVB) should assess the reliability of all project data, assumptions, and documentation that support the baseline selection and additionality demonstration for forest project activities. The conditions for using the tool are as follows:

3.1 Any activity in the project must be legal.

3.2 Project developers who wish to propose a new voluntary greenhouse gas reduction methodology may use this tool to develop the methodology. When an approach other than those specified in this tool is desired, the project developer must propose a method for determining the baseline scenario and additionality demonstration to TGO for initial approval.

4. Steps for baseline scenario determination and additionality demonstration for large scale project

Determination of the baseline scenario and further proof of normal operations for large projects consists of five steps (Figure 1) as follows:

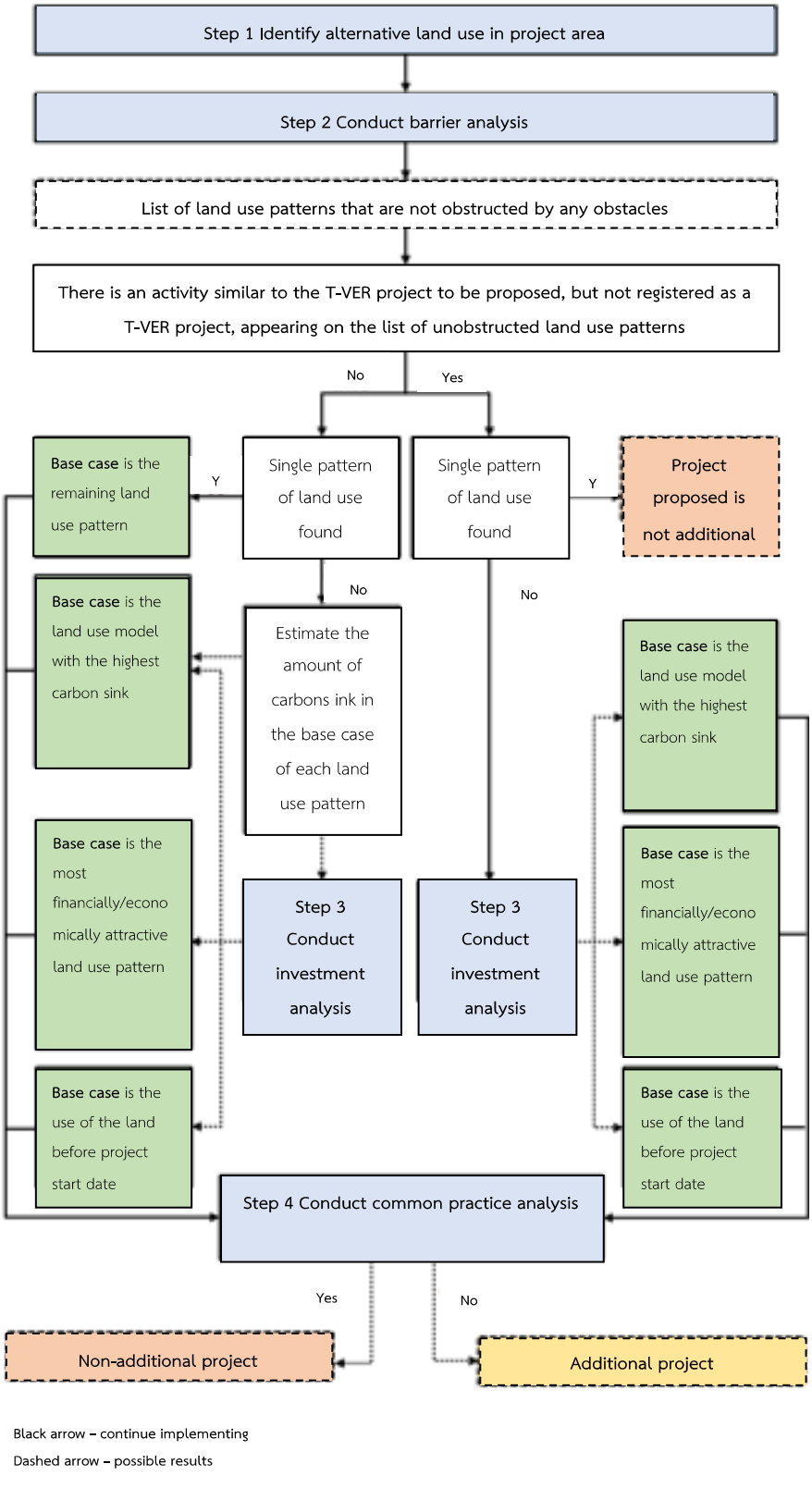
Step 0 Examination of the project start date

Step 1 Identification of alternative scenarios

Step 2 Barrier analysis

Step 3 Investment analysis

Step 4 Common practice analysis



Picture 1 Baseline scenario determination and additionality demonstration

4.1 Step 0 Examination of the project start date

Projects must commence its operations after 25 May 2022 (the date that this tool is acknowledged by the TGO Board of Directors) and present the following evidences:

- Evidence that the project started operations after 25 May 2022.
- Evidence that the project has return from the sale of carbon credit as motivation in planning and decision making.

4.2 Step 1 Identify alternative land use in project area

Steps for identifying alternative scenarios for land use in T-VER project boundary, which may be the baseline scenario, are shown as follow:

4.2.1 Identify reliable alternatives of land use patterns

Identify alternatives for project land use pattern, including activities similar to T-VER project but not yet registered as T-VER project, that is possible for project participants or project developers to implement in similar manner while considering relevant national and/or regional policies as well as events such as land use, common practices, and economic trend as influencing factors. A project must consider to choose at least 2 alternatives:

- Current pattern of land use
- Project implementation similar to T-VER project planned but not yet submitted for T-VER project registration

When project activities found in similar pattern to T-VER project planned for registration in the project boundary, the project must consider if it happens because of

- Legal requirements or
- Anticipation of forestry activities in a geographic area with similar socioeconomic and ecological conditions to the project site from 25 May 2012 (no later than 10 years passed) depending on the project developer may choose the date.

To identify realistic and credible land use patterns, land use records may be used together with field survey Information and suggestions from stakeholders as well as information from other appropriate sources, including a Participatory Rural Appraisal (PRA) community analysis, may be used where appropriate.

All identified land use patterns must be reliable. This may have been in the current form or existed for some time since May 25, 2012, but no longer exists. Other forms of land use must be proven credibility. Other information for consideration may be spatial plans (if any) or legal requirements and may include the results of economic feasibility assessment of different types of land use patterns.

Results of step 4.2.1 is a list of reliable alternative land use patterns that may occur within the project area.

4.2.2 Verify the conformity of alternative land use patterns with applicable laws and regulations. The project developer may proceed with the following steps:

- Demonstrate that all specified land use patterns are in compliance with other relevant legal and regulatory requirements
- If there is a land use pattern that is inconsistent with laws and regulations It must be demonstrated that systematic non-enforcement of laws or regulations is a prevalent site practice e.g., at least 30 percent of the smallest management unit area surrounding the project site, for example
- Remove alternative land use patterns that are inconsistent with laws and regulations from the list *unless they can demonstrate a lack of systematic enforcement*

Results of step 4.2.2 is a list of possible alternative land use patterns that are consistent with other laws and regulations, unless there is a lack of enforcement of laws and regulations in the project area.

If the list contains only "a single land use pattern similar to T-VER project to be proposed without intention to register it as a T-VER project", this project do not operate in addition to normal operations (additional).

4.3 Step 2 Barrier Analysis

4.3.1 Identify barriers to different types of land use

Identify realistic and convincing barriers to prevent land use as shown in the list mentioned in step 4.2.2. The obstacle should not be specific to a project developer of a proposed T-VER project, but must be able to happen to any project developers operating similar projects.

- Investment barriers are barriers other than insufficient financial returns from the analysis in Step 3. Investment barriers include:

- Activities are similar to project activities carried out through grants or other non-commercial sources of financing and categorized to be within similar activity size, environment, legal framework, and geographical context.
- Lack of financial capital, either from domestic or foreign sources, due to the country's actual or foreseeable investment risks reported as credit rating in the investment report of the country of other countries
- Unable to borrow money for project implementation
- No access to credit sources

- Institutional barriers
  - Risks from changes in government policies or laws
  - Lack of laws enforcement in forestry and land use sector
- Technological barriers
  - Risk from changes in government policies or laws
  - Lack of enforcement of laws related to forests and land use
- Barriers related to local tradition
  - Lack of legal knowledge and traditional market conditions and practices
  - Using traditional equipment and technology
- Barriers due to prevailing practice
  - Land use patterns are the "first of its kind" activities that have not been carried out in any country or region before.
- Barriers caused by the local environment.
  - Soil deterioration such as water/wind erosion, salinity, etc.
  - Natural disasters and/or human-caused events such as landslides, forest fires, etc.
  - Unfavorable weather conditions such as drought, frost, etc.
  - The spread of plant species that interfere with plant germination, such as weeds, grasses, etc.
  - Obstacles to the natural reproduction of plants
  - Animal grazing forage harvest
- Obstacles due to social conditions

- Population pressures on land, such as increased demand for land due to population growth.
- Social conflicts between interest groups in the project area
- Widespread illegal activities such as illegal logging illegal animal husbandry Illegal hunting of forest products, etc.
- Lack of skilled and/or properly trained workers
- Lack of local community organization

- Barriers related to land ownership, title, inheritance and land rights
  - Community land holdings with different hierarchies of rights for different stakeholders Limit the motivation to carry out T-VER activities
  - o Lack of appropriate land tenure laws and regulations to support the stability of the tenure
  - There are no clearly defined rights for goods and services from natural resources.
  - Formal and informal land tenure systems that increase the risk of land tenure fragmentation
  - Price risk arising from fluctuations in product prices related to project activities over the life of the project. In the absence of an effective market and warranty mechanism
  - Barriers related to marketing, transportation and storage
  - Unregulated and informal marketplace for products and services related to project activities. It hinders the efficient transmission of information to the project developer.
  - The distance between the project site and the undeveloped infrastructure affects transportation costs and competitiveness and reduces the product profitability of the project activities.
  - Limiting the possibility of collecting rent from land use due to lack of processing, storage and value-added facilities for land-use produce

Results of step 4.3.1 is a list of obstacles that may hinder various types of land use. One or more variations obtained from step 4.2.2.

4.3.2 Eliminate barriers to land use patterns from the list

Assess whether the land use pattern derived from step 4.2.2 contains obstacles to the barriers listed in step 4.3.1. If any, the level of access and availability of information, technology and skilled labor in the same region may be taken into account, and barrier land use patterns are excluded from the list.

If the land within the scope of the proposed T-VER project contains some part of the forest area counting from 25 May 2012, but it was not a forest when the project started, the project developer must state the reasons/actions/incentives for its logging operation history. The project developer must also demonstrate that any current applicable law/financial or regulation or socio-economic conditions or other ecosystems or localities have changed until it can be concluded that forests cannot be created in the area without registering as a T-VER project.

Make a list of the land use patterns that are not obstructed by any obstacles, which are the land use patterns identified in sub-step 4.2.2, and which are not the barriers listed in step 4.3.1.

Results of step 4.3.2 list of land use patterns that are not hindered by any obstacles.

Implementation of step 4.3.1 and 4.3.2 shall provide transparent documentary evidence demonstrating the existence and significance of the obstacles identified in step 4.3.2. 4.3.1. Types of evidence are:

- Relevant laws, regulations or environment/natural resources, norms, actions or practices.
- Relevant studies or surveys such as market surveys, technology studies, etc., conducted by universities, research institutes, NGOs, associations, companies, bilateral/multilateral institutions, or others.
- Relevant statistical data from national or international statistics.
- relevant market information documents such as market prices, tax rates, regulations
- Written documents from companies or institutions that develop or implement T-VER project activities, such as resolutions from board meetings. communication feasibility study financial or budget information, etc.

- Documents provided by the project developer, contractor or project partner in the context of the proposed T-VER project activity or similar previous project implementation.
- Documentation supporting independent expert judgments from government/nongovernmental organizations related to Agriculture, Forestry and Other Land Use (AFOLU) or individual experts. Educational institutions (e.g. universities, technical training centers, and professional associations)

4.3.3 Baseline scenario identification

Consider the results obtained from step 4.3.2 with the following conditions:

There are forestry activities like the T-VER project. to offer but not to register as a project T-VER is included in the list of land use patterns that are not hindered by any obstacles.

➔ If “yes”

Check whether the transaction has only one form of land use or not.

> if “ yes”: T-VER project activities have no further operations from normal operations.

> if “no”: take Step 3 Investment analysis

➔ If “no”

Check whether the transaction has only one form of land use or not

>if “ yes”: The remaining land use model is the “baseline scenario” of the project and is carried out in accordance with the Step 4 Common practice analysis.

>if “ no”: A qualitative analysis shall be performed by assessing the retention of each land use pattern and selecting one of the following options

Option 1 The base case is the land use model with the highest greenhouse gas sequestration. and proceed according to Step 4 Common practice analysis

Option 2 Proceed according to Step 3 Investment analysis

4.4 Step 3 Investment analysis

The most economically or financially attractive land-use model can be considered from the investment comparison analysis of various land use patterns According to the list obtained from Step 4.3.2 with the following requirements:

4.4.1 Determine appropriate analytical methods

Choose one of the most appropriate methods for the project to analyze a simple cost analysis, investment comparative analysis, or comparative analysis with standard values.

If the planned T-VER project activities do not generate any financial or economic benefits in addition to the revenues associated with T-VER, a simple cost analysis (Option 1) will be used. If planned T-VER project activities are found to generate any financial or economic benefits other than income, in relation to T-VER, an investment comparative analysis (Option 2) or Benchmark Analysis (Option 3) will be chosen.

4.4.2 Option 1 Simple cost analysis

Document the expenditures associated with T-VER project activities and demonstrate that the activities generate no financial benefit other than income associated with T-VER.

Document the income and expenses associated with each land use pattern that is not hindered by any obstacles.

If there is at least one land use pattern that does not have any obstructions and generate financial benefits as a base case, choose a land use model that distinguishes between income and costs over the maximum credit period and proceed to step 4.4.6 sensitivity analysis

Otherwise, choose a land use model with the highest greenhouse gas sequestration as the base case. T-VER project activities to be carried out It shall be deemed that there is no further operation than normal operation. If it is not, the project developer shall proceed to step 4 common practice analysis.

4.4.3 Option 2 Investment comparative analysis

Identify financial metrics such as Internal Rate of Return (IRR), Net Present Value (NPV), payback period, and cost benefit ratio for project type and decision context.

4.4.4 Option 3 Benchmark analysis

Identify financial metrics such as IRR, NPV, payback period, cost-benefit ratio, or others such as the Required Rate of Return (RRR) associated with investments in agriculture, forestry or land use, bank deposit interest rate adjusted according to the risks associated with the project or opportunity cost of land, such as expected income from land speculation that is most appropriate for the project type and the context in which the decision will be made.

Benchmark can be determined from:

(1) Government bond interest rates, which are adjusted according to risks to reflect private investment and/or project type as accredited by independent financial experts

(2) Estimation of the required financial cost and return on investment (eg commercial loan interest rates and national guarantees and the type of project activity involved) based on the perspective of bank employees and private investors, or the desired return of similar projects

(3) Reference from a reliable agency operating similar projects that have already been undertaken. The project developer must demonstrate that this standard has been consistently applied in the past. and project activities development agencies similarly using this benchmark.

4.4.5 Calculation and comparison of financial indicators (Options 2 and 3 only)

Calculate the value of the appropriate financial metrics for the T-VER project activities to be offered, excluding the return on sales of T-VER project carbon credits. and calculate the values of financial indicators for other forms of land use activities. that is not hindered by any obstacles all related expenses (e.g., investments, operating expenses, and maintenance) and revenue (excluding revenue from sales of carbon credits but including subsidies/financial incentives, if any), including non-market related costs and benefits in the case of public investment.

Present Investment analysis and provide all information relevant to project assumptions So that readers can analyze and have the same results. Clearly present key economic parameters and assumptions (e.g., cost, project lead time, discount rate, etc.), justify and/or reference assumptions in a way that can be verified by external assessors for voluntary projects. When calculating financial indicators, include project risks in cash flow form. Based on project-specific expectations and assumptions (e.g., using insurance premiums in calculations to reflect risks)

The assumptions and data used to analyze the investment of project activities and alternatives shall not differ. unless they can prove the difference.

Option 2 Investment comparative analysis. The project developer can proceed with the following steps:

There are forestry activities like the T-VER project to offer, but not to be registered as a T-VER project. It is included in the list of land use patterns that are not hindered by any obstacles.

➔ If "yes", T-VER project activities have less attractive financial metrics (e.g., IRR) than unimpeded land use patterns, at least one model or not

>If " yes", select a land use model with the highest financial indicator value (e.g., IRR) as the base case and proceed according to Step 4.4.6.

> If " no", the proposed T-VER project has no further operations from normal operations.

➔ If "no", select a land use model with the highest financial indicator value (e.g., IRR) as the base case and proceed according to Step 4.4.6.

Option 3 Benchmark analysis is performed in accordance with the following steps:

There are forestry activities like the T-VER project to offer, but not to be registered as a T-VER project. It is included in the list of land use patterns that are not hampered by any obstacles.

➔ If "yes", T-VER project activities have values of financial indicators (e.g., IRR) that do not meet the benchmark. and is there a land use pattern that is not hindered by any barriers and is worthy of at least one of the benchmark financial indicators?

> If "yes", select a land use model that meets the benchmark and has the best financial indicator values (e.g., IRR, NPV, cost-benefit ratio) as the base case, and perform a sensitivity analysis in accordance with 4.4.6.

>If "no"

> If the value of the financial indicators of the T-VER project activity meets the benchmark, the proposed T-VER project activities have no further operations from normal operations.

> If the value of the financial indicators of either T-VER project activities or any form of land use Others do not meet the standard criteria. The base case is the pattern of land use before project implementation.

➔ If "no", there is a land use pattern that is not hindered by any barriers and its value of the financial indicators meets at least one of the benchmarks

> If " yes", select a land use model with the best financial indicator values (e.g., IRR, NPV, cost-benefit ratio) as the base case and analyze the sensitivity in accordance with 4.4.6.

> If " no", the base case is the land use pattern before the project commences.

4.4.6 Sensitivity analysis (Option 2 and 3)

The project sensitivity analysis aims to assess whether the preliminary conclusions from the financial analysis results are valid if the value of the critical variables changes. Please proceed with the following steps:

There are forestry activities like the project but there is no request for registration as a project. T-VER is included in the list of land use patterns that are not hindered by any obstacles.

➔ If "yes", check if the sensitivity analysis has a conclusion or not

>if "yes", the base case selection is correct. Proceed to Step 4 General Practice Test

>if " no", the T-VER project has no further operations than normal operations

➔ if "no", check if the sensitivity analysis has a conclusion or not

>if "yes", the base case selection is correct. Proceed to Step 4 General Practice Test

> if "not", the base case is the land use pattern with the highest greenhouse gas sequestration. Please proceed according to Step 4 Common practice analysis.

Results of step 4.4 is to identify the land use patterns within the project area that are most economically and/or financially attractive based on the values of the most appropriate financial indicators. taking into account the sensitivity analysis results

4.5 Step 4 Common practice analysis

The results of the above analysis must be combined with the Common practice analysis to analyze the degree of distribution of forestry activities in the geographic area associated with the project site. Common practice analysis validates credibility and helps support barrier analysis (Step 2) and investment analysis (Step 3) by analyzing whether there are forestry activities that are similar to the proposed activities of the T-VER project in the same geographical area or not. Forestry activities are considered similar, they must possess the same activity size, operate in a comparable environment, and under the same regulatory framework. This excludes other T-VER project activities that are already registered, where documentary evidence and relevant quantitative information must be provided during the period from 25 May 2012.

If forestry activities similar to the proposed T-VER project activities are identified, compare and assess what are the key differences. Major differences may include fundamental and verifiable changes, for example, there may be obstacles or termination of support policies. If certain benefits make similar forestry activities financially attractive (for example, subsidies or other financial flows), explain why the proposed T-VER project activity does not apply to such benefits. If possible, explain why similar forestry activities do not face that barrier.

If similar activities are found but significant differences cannot be made between that activity and the proposed T-VER project activity, the proposed T-VER project activity does not carry out additionality in accordance with the provisions. But if the differences can be distinguished and the proposed T-VER project activity is not the base case, the proposed project activity does carry out additionality.

5. Additionality demonstration for small projects

The project developer must provide evidence to demonstrate that this project cannot happen if at least one of the following barriers exist:

5.1 Investment barriers other than economic/financial barriers include:

(1) Inability to borrow money for project implementation

(2) Inability to access credit sources both at home and abroad

5.2 Institutional barriers

(1) Risk from changes in government policies or laws

(2) Lack of enforcement of laws related to forests and land use

5.3 Technological barriers

(1) Inability to access necessary materials such as planting material

(2) Lack of infrastructure necessary for the use of various technologies

5.4 Cultural barriers

(1) Lack of legal knowledge and marketing traditions and practices

(2) Use of traditional equipment and technology

5.5 Obstacles caused by common practices

(1) Pattern of land use demonstrates that “it is first time with this project” and never been implemented anywhere in the country or any region.

5.6 Obstacles caused by the local environment

(1) Soil deterioration such as water erosion / wind, and salinity

(2) Natural disasters and/or human-caused events such as landslides, and forest fires

6. References

1. CDM Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities Version 1.0

2. TOOL21: CDM Methodological tool: Demonstration of additionality of small-scale project activities Version 13.1

3. AR-AMS0007: Afforestation and reforestation project activities implemented on lands other than wetlands Version 03.1

Annex

Annex 1 Relevant Definitions

Baseline scenario	The land use pattern of the project area prior to the activity used to calculate the amount of greenhouse gas storage
Additionality	A project activity is additional if the project participants can demonstrate that GHG emission are reduced below those that would have occurred in the absence of the project activity or business as usual (BAU).
Small scale project	Greenhouse gas reduction projects that can reduce or store greenhouse gases up to 16,000 tons of carbon dioxide equivalent per year.
Large scale project	Greenhouse gas reduction projects that can reduce or store more than 16,000 tons of carbon dioxide equivalent per year.
Project starting date	Start date of forest project activities

Document information

Version	Amendment	Entry into force	Description
01	--	1 March 2023	-