Working Paper

Costs and Benefits Analysis of REDD+ Implementation in Cambodia

Cambodia, 2014

REDD+ CAMBODIA

Disclaimer

This workshop report was prepared, and does not necessarily represent the views of the Cambodia REDD+ Taskforce, the Forestry Administration, the General Department of Administration of Nature Conservation and Protection, the Fisheries Administration, and FCPF Project.

The United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) is the specialist biodiversity assessment centre of the United Nations Environment Programme (UNEP), the world's foremost intergovernmental environmental organisation. The Centre has been in operation for over 30 years, combining scientific research with practical policy advice.

The workshop was organised by the Cambodia National REDD+ Programme and REDD+ Taskforce Secretariat, in collaboration with the UN-REDD Programme. Initiated in 2011, Cambodia's National UN-REDD Programme focuses on effective management of the REDD+ Readiness process and stakeholder engagement, development of the National REDD+ Strategy and Implementation framework, improved capacity to manage REDD+ at sub-national levels, and design of a monitoring system. Formed in 2010, Cambodia's multi-agency REDD+ Taskforce coordinates REDD+ related activities at the national level. It is facilitated and coordinated by the Forestry Administration and includes members from the Ministry of Environment and Ministry of Land Management, Urban Planning and Construction.

The UN-REDD Programme is the United Nations Collaborative Initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries. The Programme was launched in 2008 and builds on the convening role and technical expertise of the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The UN-REDD Programme supports nationally-led REDD+ processes and promotes the informed and meaningful involvement of all stakeholders, including Indigenous Peoples and other forest-dependent communities, in national and international REDD+ implementation.

Should readers wish to comment on this document, they are encouraged to get in touch via:
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Acknowledgements:
With thanks for comments and input from the participants of the workshop, including representatives of government agencies, international organisations and non-government organisations.Thanks also to the Cambodia REDD Taskforce Secretariatand technical advisors for their review of this report, as well as to Dr Ralph Blaney, UNEP-WCMC, for his comments and advice.

UNEP WCMC

Executive Summary

The 'Costs and Benefits Analysis of REDD+ Implementation in Cambodia' workshop was held on the 21 October 2014 in Phnom Penh, Cambodia. The workshop was part of a project that supports the implementation of the UN-REDD Cambodia National Programme, through helping to develop and trial REDD+ cost-benefits and spatial analyses to inform REDD+ planning.

The workshop involved more than thirty participants from government agencies, international organizations and non-government organizations involved in REDD+ readiness and implementation in Cambodia. The participants examined components of a cost-benefit spreadsheet tool being developed to support the exploration of the costs and benefits of REDD+ implementation in Cambodia. The tool considers opportunity costs, implementation costs and transaction costs of REDD+ options, as well as the benefits that REDD+ may generate.

Through group work and discussion, the workshop participants made recommendations for changes to the spreadsheet tool, and highlighted a number of challenges, such as translating costs and benefits into values per hectare. The key recommendations, which will guide further revision of the spreadsheet, include the following:

- More data on specific tasks and costs should be collected from relevant institutions, and multiple institutions where possible (to triangulate).
- Costs related to specific tasks should be more detailed.
- Citations and datain the spreadsheet should be updated.
- Costs for some specific tasks can be calculated per hectare, while not for others.
- Calculation of costs shouldtake into account different management structures/requirements.
- The methodology of the calculations should be further clarified/defined.

In general, the participants considered the spreadsheet to be a valuable resource. A final draft of the spreadsheet tool is expected to be ready for further review in the first quarter of 2015.

1. Introduction

The 'Costs and Benefits Analysis of REDD+ Implementation in Cambodia' workshop was held on 21 October 2014 in Phnom Penh, Cambodia. The workshop was chaired by H.E Dr Chea Sam Ang, Deputy Director of the Forestry Administration and Director of the Cambodia National REDD+ Programme, and facilitated by Khun Vathana, Head of Cambodia's REDD+ Taskforce Secretariat (RTS), Charlotte Hicks (United Nations Environment Programme World Conservation Monitoring Centre, UNEP-WCMC) and Mr Hong Kimhean, a national consultant. Thirty-two participants (six female, not including facilitator) attended the workshop (See Annex 1 for a list of participants).

The workshop was part of a project that supports the implementation of the UN-REDD Cambodia National Programme, through helping to develop and trial REDD+ cost-benefits and spatial analyses to inform REDD+ planning. This project involves presenting the values of forests under different management regimes, along with estimates of the costs of implementing REDD+ options versus other land use options. This information will also be used to develop and trial a REDD+ costs and benefits GIS spatial analysis tool for Cambodia.

The workshop participants examined components of a cost-benefit spreadsheet tool being developed to support the exploration of the costs and benefits of REDD+ implementation in Cambodia. The tool considers opportunity costs, implementation costs and transaction costs of REDD+ options, as well as the benefits that REDD+ may generate (see Box 1 below for more detail). The data within the tool has been gathered from available sources and tailored to circumstances in Cambodia. The specific strategies considered to date in the tool include community-based sustainable management of forest, management of protected areas, forest restoration and reforestation and sustainable management of forests for forestry.

The workshoppresented progress made on the tool, and with the participants then identified recommendations for changes, including improved sources for cost data. Discussion also highlighted a number of challenges, such as translating costs and benefits into values per hectare – some tasks translate better to such calculations than others. Next steps include refining the cost-benefit spreadsheet tool on the basis of the workshop recommendations.

2. Workshop objectives

1. Present the spreadsheet tool for assessing costs and benefits of REDD+ implementationin Cambodia.
2. Elicit feedback on the spreadsheet tool, the REDD+ strategy options included, and the preliminary data used.
3. Raise awareness on the utility of cost-benefit analysis for REDD+ planning.

3. Summary of workshop topics

3.1 Presentations

The workshop began with an opening speech from the Chair, H.E Dr Chea Sam Ang, Deputy Director of the Forestry Administration and Director of the National REDD+ Programme, welcoming participants to the meeting.

Box 1: What are the costs and benefits of REDD+ implementation and why consider them in REDD+ planning?

There are different types of economic costs associated with REDD+ implementation. These include:

- **Opportunity costs:** Income from alternative land uses to REDD+ not realized
- **Implementation costs:** Expenses for REDD+ actions (e.g. investment at the beginning, annual expenses)
- **Transaction costs:** Costs of starting and maintaining a REDD+ programme (E.g. development costs, costs of administrative processes)

REDD+ also has the potential to delivermultiple benefits. For example, it can promote biodiversity conservation and secure ecosystem services from forests, such as water regulation, erosion control and non-timber forest products, as well as generate income from emissions reductions.

The costs and benefits associated with REDD+ will vary across the country, as well as between areas of different ecological, economic and social conditions. The effectiveness of measures to reduce deforestation also varies across the landscape. There will be areas in which REDD+ may not be economically viable based onthe likely payments per ton of emission reduction, but there will also be areas in which even minimal payments may make REDD+ interventions attractive.

An enhanced understanding of the costs and benefits of different REDD+ options, as well as of the distribution of costs and benefits across a landscape, can help prioritize options and provide a valuable input for discussions on benefit sharing. Combining information on benefits and risks with cost assessments can help decision makers locate REDD+ actions in a cost-effective manner that helps to achieve environmental and socio-economic benefits.

A presentation by Mr. Khun Vathana, Head of the RTS, followed. In his presentation on the "Overview of Workshop Objectives", Mr. Khun Vathana outlined the objectives of the workshop and presented the workshop agenda.

The second presentation on "Costs and Benefits of REDD+" was delivered by Mr. Hong Kimhean, a national consultant. Mr HongKimhean gave an overview on the costs and benefits associated with REDD+ implementation (see Box 1), followed by a question and answer session.

Ms. Charlotte Hicks, Programme Officer at the UNEP-WCMC, then presented on "REDD+ Cost and Benefit Project and Spreadsheet Development", introducing participants to the draft spreadsheet tool and highlighting areas where their feedback would be sought.

Copies of H.E. Dr Chea Sam Ang's speech and the presentations are provided in Annex 2.

3.2 Outputs from the interactive session

In order to elicit expert feedback from the participants, an interactive session involving group work was held. Divided into six groups, the participants were given specific areas of the draft cost-benefit spreadsheet tool to focus on.

Group 1, consisting of policy-makers from a number of different sectors, was tasked to consider the most significant drivers of deforestation as well as the national REDD+ strategy options included in the spreadsheet. They were asked whether there wereany further options from the Cambodia national REDD+ strategy that should be included in the spreadsheet tool.

Group 2, that included participants with knowledge on data availability, were asked to review implementation costs, transaction costs, opportunity costs and benefits in the spreadsheet. The group was to assess the accuracy of the spreadsheet figures, identify any missing figures, and recommend further data sources.

Group 3 focused on community-based sustainable forestry, one of the strategy options included in the spreadsheet tool. The group considered the inclusion of specific interventions and tasks within this option and their corresponding benefits and implementation costs.

Group 4 considered protected area management, another of the tool's strategy options, and the need for revisions in the interventions and tasks included as well as in the preliminary cost and benefit data for the intervention.

Group 5 was tasked with examining the third strategy option within the tool, that of forest restoration and reforestation, and the potential for revisions in interventions, tasks and the preliminary cost and benefit data.

The results and recommendations from the break-out groups are presented below, organised thematically.

A) Strategy options for REDD+

In general, there were few revisions proposed for the strategy options included in the spreadsheet tool. The participants commented on the following aspects related to the specific interventions, and drivers of land-use change:

- The importance of including relevant risks associated with interventions or specific tasks in the spreadsheet tool was highlighted.
- Economic growth, population growth and agricultural expansion were deemed the most significant drivers of deforestation in the past 25 years.

B) Opportunity costs

- More specific tasks for opportunity costs should be added in the spreadsheet:
    - Oil palm and cashew nuts data, from the Department of Industrial Crops of the Ministry of Agriculture, Forestry and Fisheries (MAFF);
    - Rice data, from the Department of Rice Crops (MAFF), agricultural census statistics;
    - Charcoal data, from Ministry of Industry and Handicrafts/Ministry of Mines and Energy.
- More crops, including cassava, pepper and coffee, should be added to the opportunity costs.

- Planting costs in the opportunity costs section seem to be very low, and should be updated to the costsfor the year 2014.
- Costs of equipment and technology should be includedto the opportunity costs.

C) Implementation costs:

C.1. Community-based sustainable management of forest (forestry)

- Recommendations for re-categorising specific tasks were given in relation to the strategy option:
  - Specific tasks from "initial preparation of data collection" to "preparation and approval of CF agreement" should be categorised to an intervention of community forestry (CF) formulation.
  - Specific tasks from "Blocking-division on map" till "Submission of CFMP (Community Forestry Management Plan) to FAC(Forestry Administration Cantonment)"should be categorised to the intervention of CFMP
- The cost of specific task of submission of CFMP to FAC is too high.
- The cost of intervention of Business development in community management forest with sustainable productive management is too high. It should be verified with officers of FA and MoE.
- The interventions listed underestablishing community-based nurseries, community forestry and demarcation overlap.
- Thecost of training should not be divided according to land area, but be calculated as the number (times) of training.
- The strategy option of 'community-based sustainable management of forest' should be re-categorised into 4 different interventions, following 3 different jurisdictions of forest management (CF, CPA,CFi, meaning community managed forests, community managed protected areas and community managed fisheries). The 4 sub-categories should be:
  - Formulation;
  - Management Plan Development;
  - Implementation and Business Development (The specific task of "patrolling" should be incorporated with this);
  - Capacity Building and Training.

C.2. Protected area management

- Revisions of some of the interventions and specific tasks were suggested:
  - There should be more focus on protection rather than reforestation interventions, as costs of protection are normally lower.
  - The specific task of "allocation of areas for firewood plantations (wood lots)" should be added.

  - Zoning (identification of) the potential areas in PAs for management should be mentioned in the spreadsheet.
  - The specific task of "support monitoring on court judgment over forest crimes" should be mentioned.
  - The costs for patrolling is very low (US$2.88/ha). It should be increased to $10-$20/ha/year.
- Data for costs and elements of developing management plans may be available from the Central Cardamom Protected Forest (CCPF), and for the Seima and Oddar Meanchey projects.

C.3. Forest Restoration and reforestation

- Revisions of some of the interventions and specific tasks were suggested:
  - The spreadsheet should be revised for the specific task of "seedling production". This normally requires 1,700 seedlings per hectare, with a cost of US$0.5/seedling (in the case of afforestation, with no possibility for assisted natural regeneration).
  - The frequency of "production of television spot on forest restoration" (one of the specific tasks included in project documents that were examined for the tool), should still be included, but revised to 2 times over 5 years, instead of every year.
  - The costsfor reforestation in the spreadsheet is very low (US$800/ha). Currently, the cost of reforestation for indigenous species is US$1,450/ha (from seedling production to completion of planting).
  - Costsfor maintenance of planted seedling should be mentioned in the spreadsheet (under the reforestation intervention). The costs are normally calculated at least for 5 years after plantation.

C.4. Sustainable management of forests (forestry)

- Recommendations for some of the interventions and specific tasks included:
  - For the intervention of improved silvicultural techniques, more specific tasks should be added, including reforestation and "integrated crab-shrimp aquaculture".
  - Two more interventions should be added under this strategy option. One is public awareness, in which several specifics tasks, such as training, extension, campaigns, signboards and billboards should be included. Another is co-management, in which management tasks of the three agencies (FA, Fisheries Administration (FiA) and Ministry of Environment (MoE)), should be mentioned.
  - For the intervention of demarcation, registration of forest land titling, a specific task of "demarcation for mangrove forest" should be added, in which the cost of around 400 poles is required.
  - The costsfor certification of forest products might be available from the Ministry of Commerce.
- Citations/sources of data for the spreadsheet should be updated. Some references date back to 2005, meaning that costs for specific tasks are probably inappropriate for the present.
- Cost for different communities are often different. As costs depend on management structures (e.g. CF, CPA, CFi), the calculation should be focused on different styles of management of communities.

3.3 Discussion

Each group presented the results of their examination of the spreadsheet back to the whole workshop, allowing further discussion or of priority issues.Based on the results of the group work and this discussion, priorityissues to be addressed in the costs and benefits spreadsheet tool are as follows:

- More data on specific tasks and costs should be collected from relevant institutions.
- Items (specific tasks) for costs should be more detailed.
- References in the spreadsheet should be updated.
- Costs for some specific tasks can be calculated per hectare, while not for others. For example, the cost of training should be calculated by the number of training sessions, rather than per hectare.
- Calculation of costs shouldtake into account different management structures/requirements.
- The method of calculations should be further clarified/defined.

In general, the spreadsheet was seen as a valuable resource. The comments and suggestions provided by the participants over the course of the workshop are to be compiled and revisions made to the spreadsheet tool. A final draft of the tool is expected to be ready for further review in the first quarter of 2015.

Annex 1:Participants list

Name	Organisation
H.E. Chea Sam Ang	Chair of RTS/ Deputy Director, Forestry Administration (FA)
Khun Vathana	Head of RTS
Uon Sam Ol	Deputy Director, (Dept. of Forest Plantation Development and Private Forest (DPP), FA
Lim Bunna	Deputy Head, Dept. of Administration, Planning and Finance (DAP), FA
Long Ratannakoma	Deputy Director, Dept. of Forestry and Community Forestry (DFC), FA
Ches Sopheap	Office Manager, FA (F)
Chouth Titsophea	Dept. of Wildlife Protection and Biodiversity Conservation, FA
Ly Suthea	Officer, Fisheries Administration (FiA)
Touch Srey Pou Pisey	Officer, FiA (F)
Seng Leang	Dept. of Fisheries Conservation (DFC), FiA
Kim Sokha	Head of Division, DFC, FiA
Sokha Sophorn	General Department of Administration for Nature Protection and Conservation (GDANCP), Ministry of Environment (MoE)
Seng Rattanak	Deputy Chief Office, GDANCP/MoE
Tan Chan Tara	Head Office, General Dept. of Agriculture/MAFF
Sok They	Deputy Director, Ministry of Economics and Finance (MEF)
Seab Kimsrim	Officer, Institute of Forest and Wildlife Research and Development
Oum Rackmony	Officer, Ministry of Land Management, Urban Planning and Construction
Man Buntharith	Chief Officer, Ministry of Industry (MoI)
Sum Clual	Officer, MoI
Hang Kimleang	Director, Ministry of Mines and Energy (MME)
Alex Diment	Technical Advisor, Wildlife Conservation Society (WCS)
Hort Sokun	Manager, Wildlife Alliance
Naomi Matsue	Technical Advisor, FA/JICA (F)
Moeko Saito-Jensen	Programme Analyst, UNDP/UN-REDD (F)
Anupam Bhatia	Technical Advisor, UNDP/UN-REDD
Lun Kimhy	Programme Coordinator, RTS
Bun Racy	FiA/RTS
Pan Thida	Finance & Procurement Officer, RTS (F)
La Veha	National Consultant, FAO/UN-REDD
Teng Huort	Project Assistant, FCPF/UNDP
Duk Sireivathana	Administrative Assistant, RTS (F)
Hong Kimhean	National Consultant, FA

Charlotte Hicks	Programme Officer, UNEP-WCMC (F)

Annex 2: Presentations

2.A.

Opening Speech
by
H.E. Dr Chea Sam Ang

-Distinguished Participants
-Resource person from UNEP-WCMC
-Ladies and Gentlemen

It gives me great pleasure to welcome you to the Workshop on the analysis ofcosts and benefits of REDD+ implementation in Cambodia.This is a unique event as it will help us understand the potential gains from REDD+ and issues related to analyzing the costs and benefits of REDD+ implementation in Cambodia.

The benefits of REDD+ include financial benefits associated with payments for emission reductions, as well as other potential benefits, such as improved biodiversity conservation and natural resource management. The financial benefit derived from REDD+ is the difference between the paymentsreceived for the emission reductions resulting from REDD+, and the costs toachieve those emission reductions.

The cost of REDD+ will vary betweenagro-ecological, economic and social conditions, as will the effectiveness ofmeasures to reduce deforestation. There will be areas in which REDD+ wouldnot be viable by any realistic payment per ton of emission reduction and therewill also be areas in which relatively minimal payments for avoided emissionswould be attractive.

The costs of REDD+ include opportunity costs, implementation costs,transaction costs, administrative costs, stabilization costs, as well as socialcosts. Opportunity costs are the foregone benefits; preserving forests under a REDD+ mechanism means foregoing the benefits that may have been generated by alternative land uses that would have replaced forests. Thedifference between the benefits provided by the forest and those that wouldhave been provided by the alternative use is the opportunity cost of avoiding deforestation.

Opportunity costs will vary from area to area, depending on the nature of the forest, the agronomic suitability to different alternatives, the distance from markets, and many other factors. However, today we shall be looking at average opportunity costs.

Two other types of costs are examined in the spreadsheet – implementation cost and transaction cost. The implementation costs are those associated with running a REDD+ activity on the ground, and include tasks such as demarcation, forest patrols, awareness raising with local communities, tree planting, monitoring results, and enhancing livelihoods that avoid deforestation. The implementation costs will vary between different REDD+ options.

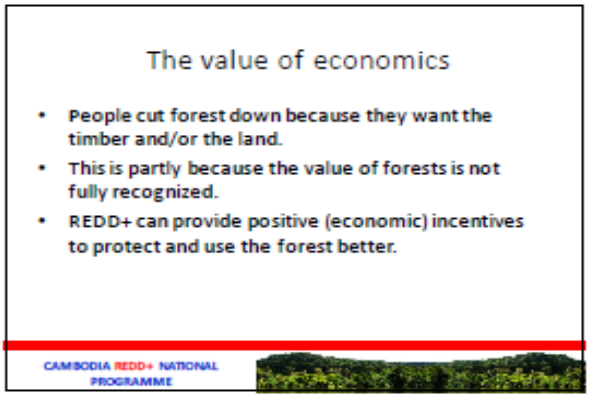
Transaction costs are the costs of running REDD+ in Cambodia. For the spreadsheet model the administrative costs have also been included as part of the transaction costs. They include national verification and reporting, the administration of a national REDD+ programme, including payments, and coordinating with buyers. As REDD+ is in the early stages of implementation across the globe, there are few reliable figures available to estimate these costs. Therefore, experience from REDD+ pilot projects, or other environmental schemes will have to be drawn upon in order to estimate these costs at a national level.

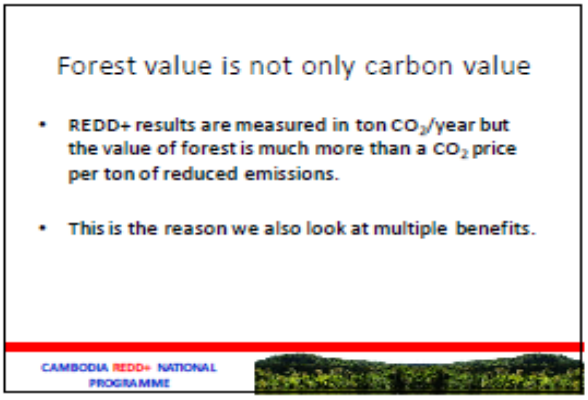
This workshop is the first phase of the final product – a GIS spatial planning tool that will support improved decision making for REDD+ planning in Cambodia. The outcome of today's deliberations will be a spreadsheet tool that has been developed based on identified priorities and on certain assumptions that need to be validated by you. Once the spreadsheet has been finalized the second phase will be the preparation of the GIS planning tool.

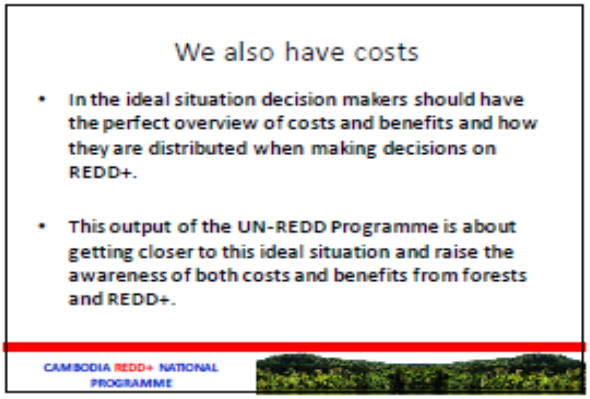
I am confident that this workshop will make an important contribution to our understanding of the costs and benefits of REDD+ planning and contribute to the development a cost-effective and sustainable REDD+ program in Cambodia.

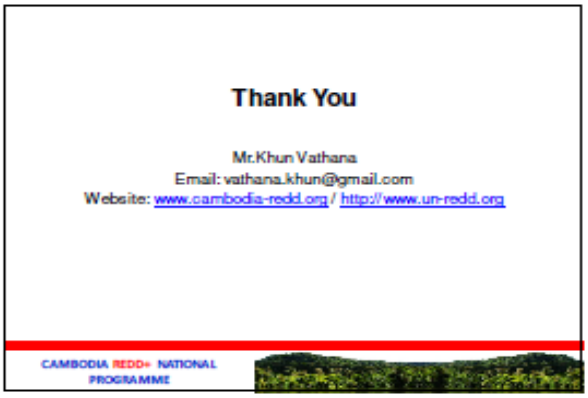
Thank you, and I wish you productive discussions.

2.B. Overview of workshop objectives, Mr Khun Vathana









2.B. Costs and benefits of REDD+, Mr Hong Kimhean

UN-REDD PROGRAMME

Costs and Benefits of REDD+

Workshop on "Analysis of Costs and Benefits for REDD+ Implementation in Cambodia"
Phnom Penh, 21st October 2014

Organised by: REDD+ Secretariat
Presented by: Hong Kimhean

UN-REDD PROGRAMME

Contents

UN-REDD PROGRAMME

1. What is the role of economics?

Identify benefits and compare with costs

UN-REDD PROGRAMME

2. Getting started

Before beginning economic analyses of REDD+ it makes sense to:

- Ensure capacities for data collection and analysis
- Conduct a review of existing relevant literature
- Identify data gaps

Then...

Determine the questions that economic analyses will help answer

UN-REDD PROGRAMME

3. Quantifying the costs

Types of costs:

- Opportunity
- Transaction & Institutional
- Implementation

Add these together...= Total cost

UN-REDD PROGRAMME

3. Quantifying the costs

Types of costs:

3.1. Opportunity costs

- timber
- alternative land uses
- $ per ton CO2 equivalent
- large variation

3.2. Transaction & Institutional

3.3. Implementation


UN-REDD
3. Quantifying the costs
Types of costs:
3.1. Opportunity
3.2. Transaction & Institutional
• national consultation
• reference levels
• scheme planning
• feasibility assessment
3.3. Implementation

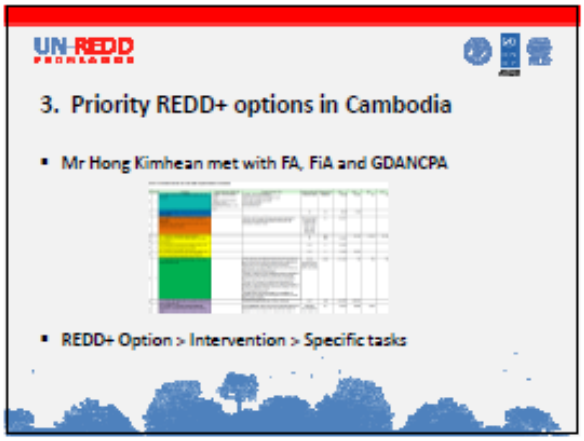

UN-REDD
3. Quantifying the costs
Types of costs:
3.1 Opportunity
3.2 Transaction & Institutional
3.3. Implementation
• monitoring
• reforestation,
• land use planning
• forest protection
• administration....

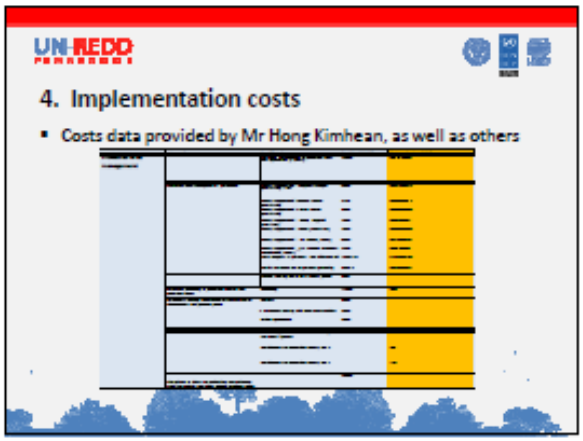

UN-REDD
4. REDD+... why think beyond carbon?
Multiple benefits from forests:
Water purification = clean drinking water
Wild foods = vegetable, fruits, seeds, animals, honey...
Sites for nature-based tourism = source of income/employment
Soil erosion prevention = reduced sedimentation of dams
Improved crop productions = bigger yield for crops bordering forests
Local climate improvement = shade from sun, shelter from winds
Traditional healing plants = alternative source of medicines
Cultural and spiritual values = preservation of special places
Water flow regulation = reduced downstream flooding
Selective harvesting of biomass = leaves/fibres, resins, brushwood
etc...

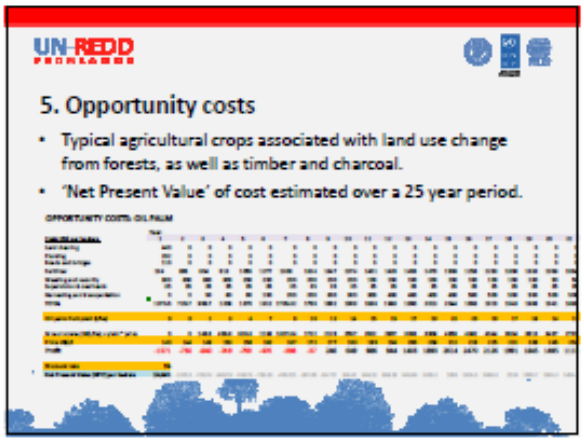

UN-REDD
5. Distributional analysis
Benefit to who?
Land users
Government
Economy

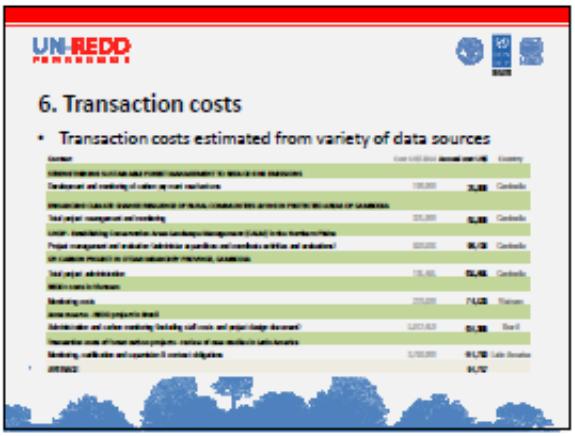

UN-REDD
Thank you very much

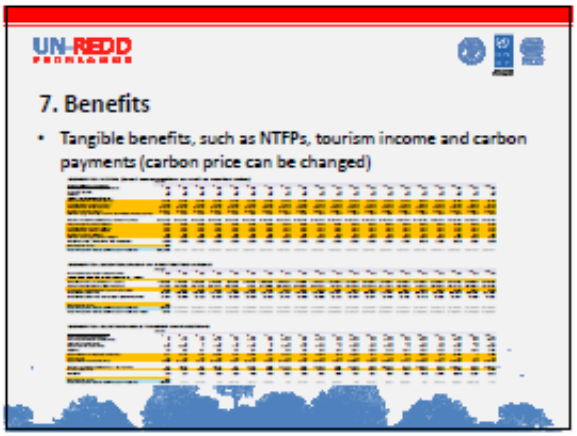
2.D. Introduction to REDD+ costs and benefits project, and spreadsheet, Ms Charlotte Hicks








UN-REDD
6. Transaction costs
• Transaction costs estimated from variety of data sources


UN-REDD
7. Benefits
• Tangible benefits, such as NTFPs, tourism income and carbon payments (carbon price can be changed)


UN-REDD
8. Costs and benefits comparison
• Compare the costs with the benefits to see in what circumstances there is a net gain.


UN-REDD
9. Next steps
• Input required today to refine the model.
• Final spreadsheet and accompanying report to be presented by December.


UN-REDD
Thank you!
ralph.blaney@unep-wcmc.org
charlotte.hicks@unep-wcmc.org
Key question for report-back:
What is the most important issue to be addressed in the spreadsheet that your group looked at?