The Biodiversity Finance Initiative (BIOFIN)

Cost of implementing national biodiversity strategies and actions in Thailand:
A Conceptual Approach

BIOFIN Workbook 2

By

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28 December 2015

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Contents

1. Introduction

The expected output

The expected output of the BIOFIN Workbook 2 which will focus on Biodiversity Finance Needs and Gap Assessment includes (i) an analysis of the costs for each set of strategies and actions within the NBSAP and (ii) a summary analysis and prioritization of all existing and future costs through 2020.

To refer back to the Inception Report, our entry point of analysis will start from the four ecosystems, namely (i) terrestrial ecosystem which includes forest ecosystem, desert ecosystem and mountain ecosystem (ii) wetland ecosystem which will include inland waters such as lakes and rivers, swamps and peat forests (iii) coastal and marine ecosystem which includes three of the main coastal ecosystem such as mangroves, sea grass and coral reefs and (iv) urban biodiversity.

The work to be accomplished is graphically presented in Figure 1 below. Starting from the public agencies, the project will obtain preliminary information to formulate a broader understanding of the existing resources – this representing the work to be accomplished for Workbook 1C. The resources gap in Figure 1 is basically the difference between existing resources and what is required. Analyzing this will be the output of Workbook 2. Beyond sources within the public and private sector, potential sources could be expected from civil societies, from national and international agencies as well as from the introduction of innovative financing mechanisms geared towards addressing market failures and better aligning prices with the true economic costs of goods and services –which will be covered in Workbook 3.
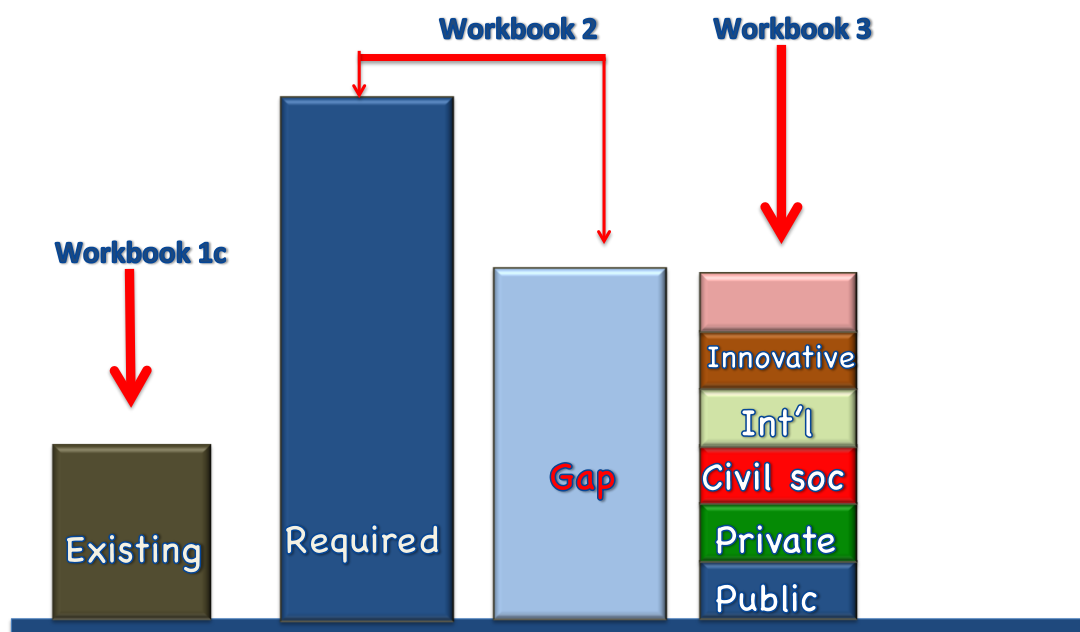

Figure 1: Expected output of Thailand's BIOFIN Project

As indicated in the Guideline, the expected output of Workbook 2 is the overall cost of implementing the strategies and actions as indicated in Thailand's NBSAP. The purpose of this conceptual paper is to provide a detailed plan of how Workbook 2 will be prepared. The contents of this report are organized in 3 parts. Following this introduction, Section 2 will provide an overview of the National Biodiversity Strategies and Action Plan (NBSAP), details of estimated budget for the year 2015 and 2016 and some preliminary observations of the contents of NBSAP. The approach for preparing Workbook 2 is discussed in Section 3 followed by the tentative schedule of the tasks that will be undertaken in Section 4.

2. National Biodiversity Strategies and Action Plan (NBSAP)

2.1 Strategies, proposed measures

The current NBSAP, covering the period 2015-2021, consists of 4 strategies and a total budget estimated for 2015-2016 of 11,048.59 Million Baht. Details of the strategies and budget are shown in the following Table.

Table 1: NBSAP Strategy and estimated budget

Strategy	Budget (Million Baht)
Strategy 1: **Integrating the value and management of biodiversity resources involving stakeholders at all levels through participatory processes**. Under this Strategy, there are two action plans: (i) Action Plan 1.1 is increasing awareness and providing knowledge about biodiversity resources and (ii) Action Plan 1.2 to integrate and promote participation in the management of biodiversity resources.	890.23
Strategy 2: Conservation and restoration of biodiversity resources. This Strategy comprises 5 Action Plans which are (i) Conservation, restoration and protection of biodiversity resources, (ii) Reducing the pressure and ensuring sustainable use of biodiversity resources, (iii) Management of Wetlands, (iv) Management of alien invasive species and (v) Biosafety.	7,538.46
Strategy 3: Protecting the national rights in terms of access and benefit sharing that is consistent with the concept of Green Economy. This strategy comprises two Action Plans. The first is to protect genetic resources, with an estimated budget of 51 million Baht. The second, with an estimated budget of 265.7 million Baht, covers Research and Development for the purpose of creating market values for biodiversity resources.	2,078.14
Strategy 4: Developing the knowledge and standardized database on biodiversity resources so that it is consistent with international standards. This strategy comprises two Action Plans with a combined budget of 541.76 million Baht. The first under this strategy is Knowledge Management and Database. The second is to Protect Local/Traditional Knowledge about Biodiversity Resources.	541.76
Total	11,048.59

In Figure 2 below, the largest share of the budget is proposed for Strategy 2, which is nearly 70% of the total proposed budget. There are altogether 456 proposed activities which can be roughly classified into 7 groups (i) activities related to policy and plan formulation, (ii) activities related to public relations, knowledge management and awareness creation, (iii) activities related to research, (iv) preparation and formulation of pilot projects, (v) activities related to restoration of degraded ecosystems (vi) activities related to promotion of people's participation and finally (vii) activities that are the actual implementation of conservation of biodiversity resources.   The number of agencies involved (on the basis of those that are indicated in the NBSAP Action Plan) is 47 public agencies.

Strategy 1 integrating the value and the management of biodiversity resources

Strategy 2 conservation and restoration of biodiversity resources

Strategy 3 protecting the national rights in terms of access and benefit sharing

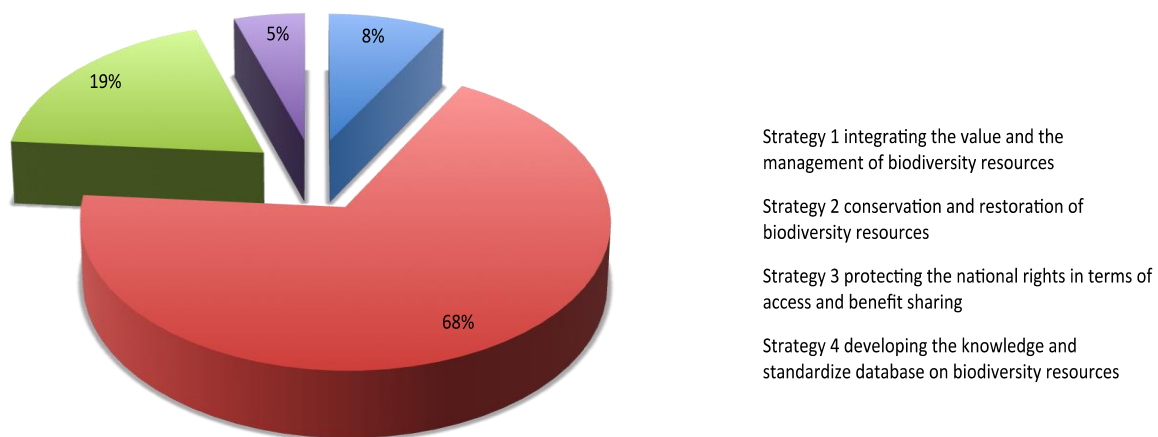Strategy 4 developing the knowledge and standardize database on biodiversity resources

Figure 2: Share of budget for the different strategies under the 2015-2016 NBSAP Action Plan

Figure 3 below shows a breakdown of the estimated budget for the Action Plan. The two types of activities with the largest share are 'Research' (32% of total estimated budget) and 'Knowledge creation' referring to activities related to the promotion of people's participation, knowledge management and awareness creation (22%). The category 'Other' are combinations of activities with a mixture of policy, promotion of people's participation and launching pilot projects. Around 13% of the estimated budget has been estimated for the actual implementation of natural resources conservation and restoration activities. It must be noted that these classifications are based purely on the title of the activities in the Action Plan. Additional information of the details of these proposed activities will be made after the meetings to be organized in the first few months of 2016.

Figure 3: Share of estimated budget under NBSAP Action Plan 2015-2016
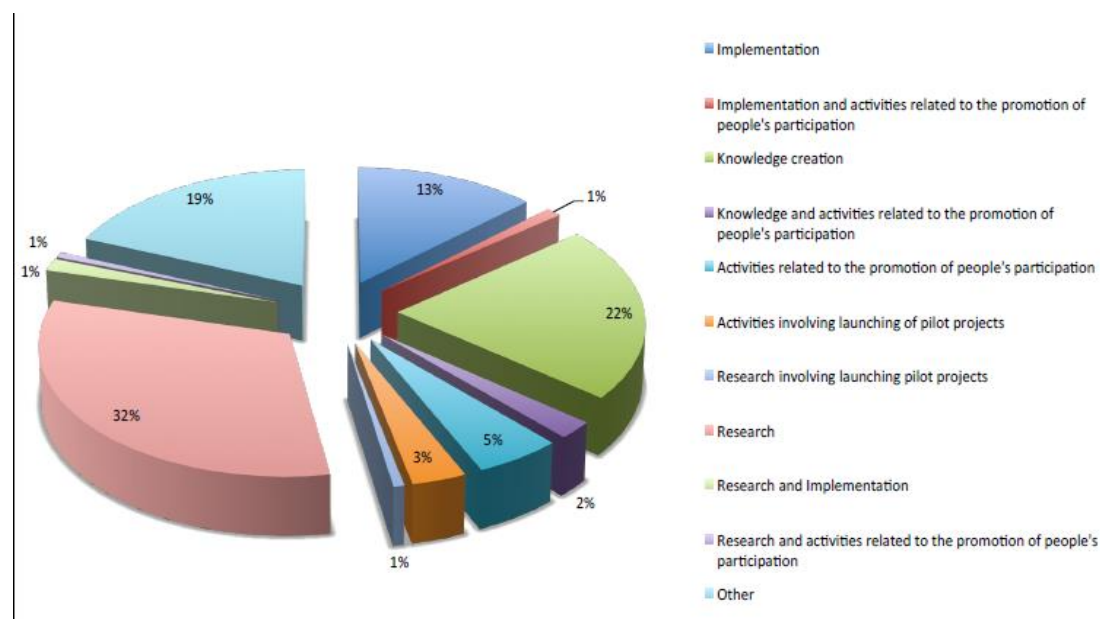
Of the four strategies, only details of Strategy 2 are shown below, as this will be the strategy where work on costing will start. This is followed by some preliminary observations of some of the features of the Action Plans of NBSAP, which covers the first 2-year period.

Table 2: Strategy 2: Conservation and Restoration of Biodiversity Resource

NBSAP code	Programs/projects	Estimated budget (Million Baht)
2.1	Conservation, restoration and protection of biodiversity resources	
2.1.1.1	Review the status of protected areas and analyse all possible impacts to ensure that there is general acceptance	3.1
2.1.1.2	Survey and establish protected areas where there is high diversity of biodiversity resources	15
2.1.1.3	Survey and update the database on the status of biodiversity resources in the various ecosystems (Gulf of Thailand; basin area, river outlets, coral reefs, sea grass beds and islands	113.5
	Survey, classification and overall assessment of diversity of plant species in Pas and create a database on endangered species	15
	Survey and create database of biodiversity resources in National Forest Reserves	8.5
2.1.1.4	Increase IT capacity for analysing the status of forestry coverage (?) and changes; create networks of partners to verify tenure rights in forest areas and developing a database	400
2.1.1.5	Capacity building to ensure that the manpower understands and is capable of enforcing the laws and regulations (Forestry law and law related to traditional medicine)	6
2.1.1.6	Stepping up protection measures and declaring ecologically fragile areas as Protected Areas alongside approaches to develop the corridors to	

NBSAP code	Programs/projects	Estimated budget (Million Baht)
	relink fragmented habitats	
2.1.1.7	Promote stakeholders' participation in formulating measures for the management of Protected Areas at the local level	6.5
2.1.1.8	Identify at least one target area per region where there is degraded biodiversity to use as a model	50
2.1.1.9	Develop a GIS database in the fisheries that can be linked with other agencies	10
2.1.2	Reduce the rate of loss of natural habitat and restore ecosystems to ensure the flow of goods and services	
2.1.2.1	Develop criteria and management guidelines as well as conditions for use	100
2.1.2.2	Climate change adaptation and preparedness for problems of desertification	
	Compile knowledge on the impacts of climate change on Biodiversity Resources and wetlands (why wetlands specifically?) and classify these into mitigation and adaptation	2
	Organize consultative meetings to set a working framework	5
	Appoint teams of experts to study and give policy recommendations on conservation of biodiversity resources to ensure sustainable water cycle	Traditional Thai medicine fund for each province
	Formulate a long term policy on adaptation and mitigation of climate change impact on biodiversity resources	4
2.1.2.3	Survey of (1) wetland areas (2) forest (3) agriculture (4) abandoned land for the purposes of identifying restoration strategies	20
2.1.3.1	Formulate action plans between public and private sectors for restoration of forests, rivers, swamps, abandoned farm lands (emphasizing the use of native species)	2
	Promote REDD+ pilot projects	No budget estimated
	Integrate restoration and protection measures for PAs within economic forest to increase carbon sequestration functions	515.56
	Royal Project "Plant Saplings in watershed forest"	5
2.1.3.1	Create mechanism for protection and restoration of native species. 30 Plans under this measure (budget indicated is combined budget for all). Among these is the conservation plan for *Capricornis, fresh water turtles, Antilope goral,* Kuhl's creek frog, Eld's deer, Asian toad, Spiny-breasted Giant Frog, *Sarcogyps calvus*, *G. bengalensis,* Crested wood partridge, reptiles of the varanidae group. There are also some area-based projects, for example habitats of fire flies	613.2
2.1.4	Conservation and protection of genetic resources in the agricultural sector	
2.1.5	Ensure that all parties follow the approaches for biodiversity conservation in ways that are consistent with global targets and strategies	14
2.2	Reduce the pressure and ensure sustainable use of biodiversity resources	
2.2.1.1-2.2.1.4	Define zoning of areas for agriculture, aquaculture and forests. This will involve setting standard practices that take into account the importance of biodiversity resources, including: • Traceability Like good practices for collecting NTFPs	No proposed budget indicated
2.2.2	Protecting coastal and marine resources, wetlands and other vulnerable ecosystems from the pressures from expansion of built up areas, increasing pollution (presumably from both land and sea-based activities),	

NBSAP code	Programs/projects	Estimated budget (Million Baht)
	over fishing and climate change	
2.2.2.1	Improved management in accordance with the CBD	186
2.2.2.2	Monitor the impact on biodiversity resources in vulnerable ecosystems	234.2
2.2.2.3	Reducing the impact from fisheries • Protecting spawning and nursery areas • Creating model fishing communities • Creating a Watch network to ensure that trawlers don't enter the 3 mile zone • Also included is an activity about monitoring changes in environmental quality in wetlands areas Part of this includes controlling land based pollution and activities such as power plants, mines, dams, etc.	
2.2.2.4	Put in place mechanisms for control and monitoring the impacts of pollution on the ecosystem. Altogether 6 proposed actions	
2.2.2.5	Review laws on regulations to set the tone and provide guidelines for reducing/stopping actions harmful to different ecosystems	
2.2.2.6	• Introducing the concept of 'compensating' or 'remedying' harm to biodiversity resource • Identifying alternative employment (like if people were engaged in destructive fishing)	
2.2.2.7	• Developing mechanisms for tapping money from the users	
2.2.3	• Controlling the population of plants and animals to prevent harm or contamination to wild populations and biodiversity resources (9 projects)	
2.2.4	• Promote sustainable use of biodiversity resources (12 projects) – note that this is consumptive use of biodiversity resources that is being promoted. Therefore, 77% covers compiling information and disseminating knowledge about the local uses of biodiversity resources	
2.3	Management of Wetlands	
2.3.1	Mainstreaming wetlands into policy and plans at the various levels (18 activities/projects). The nature of the projects include: • Formulating land use plans • Environmental impact valuation of 5 wetlands that are of national importance (21% of total budget) • Environmental impact valuation of dredging of wetlands for purpose of comparing the benefits of having natural water storage and the losses of other ecological functions of wetlands • Developing an inventory of wetlands in each province (25% of total budget) • Promoting local community participation in conservation efforts (32% of total budget) 1/	
	• Formulation of comprehensive Town Plan for wetland areas that will provide 'green' space or to represent conservation areas (16% of total budget) • Formulation of land use plan for wetland sites that are international (9% of total budget) • Study of impact on ecosystems and biodiversity of Bung Boraped • Study of migratory birds	

NBSAP code	Programs/projects	Estimated budget (Million Baht)
	• Study of birds in selected wetlands, namely Pasak dam, islands in the Southern Region, Mun river, Lower Mekong, Yom river, Weru river outlet and Kung Kraben dam (looking at impacts of climate change) 1/ *budget estimated for this seems to be high (100 million Baht) implying that it's about 50 million Baht/site and is equivalent to 16% of total budget*	
	• Creating and maintaining an inventory of wetlands at the local level • Verifying the physical boundary of the wetlands (16% of total budget)	
2.4	Management of alien invasive species	
2.4.1	Classification types of alien invasive species, the nature of the spread and the level of harm. Altogether 24 projects have been identified	360.2
2.5	Biosafety	
2.5.1	Reducing potential harm to biodiversity resources from adoption of new technology	402.5
2.5.2	Promote cooperation for protection of biodiversity resources and BIOSAFETY as part of the preparatory measures for the AEC	17

2.2   Preliminary observations on NBSAPs and the budget for 2015-2016

Based on what is presented in the NBSAP and attached Action Plan for 2015-2016, several observations can be made which will be discussed in the FGDs to be organized in the earlier months of 2016.

1. **The estimated budget as indicated in the NBSAP Action Plan may be underestimates on the part of the line agencies.** This may have been partly due to the communication between ONEP and line agencies and on the understanding of the latter as to what constitutes 'biodiversity' related activities. The issue came up during the FGD on December 22, 2015 when it was pointed out that some line agencies had not submitted their estimated budget while others have left some activities out due to uncertainty over biodiversity relevance. This issue will be partly resolved during the process of preparing and finalizing Workbook 1C. Certainly, in the case of the Department of Marine and Coastal Resources, there are a number of measures and planned activities which form the 'road map' of the agency and which will require additional resources if any of the planned activities are to go ahead. At this moment, a number of activities do not appear in the budget estimated for the NBSAP Action Plan.

2. **Detailed estimates exist only for wetland ecosystem.** The wetland ecosystem appears to be the only ecosystem where activities and budgets were laid out in details. Since, the Technical Team is proposing that Thailand uses the 4 ecosystems as the entry point. Thus, attempts will be made to estimate 'resources requirements' for the 3 remaining ecosystems, namely terrestrial, coastal & marine and urban biodiversity.

3. **The estimated budget for activities which line agencies are familiar with tend to be high and in contrast some activities are allocated unrealistically low budgets**. For example, the budget estimation for the R&D for local varieties of mushrooms in the Northeastern Region is set as high as 62.27 million Baht. There may be justifications for this, but the discrepancies of budget estimates may highlight an important issue, which is the need for some standard guidelines of costing. The Technical Team is aware that the line agencies are requested to prepare budget estimates for the period between 2017-2021 and we hope to be working closely together with them to understand the basis and the rationale for the budget estimation as well as to engage them in a consultative process on the measures, plans, activities that are aimed at meeting the relevant Aichi targets. The end result may result in some amendments of the Action Plan budget, which should be considered as a preliminary compilation of information submitted by the line agencies.

4. **The larger share of the budget allocation is for research activities.** This may be expected for the initial period of the NBSAP given the need to establish the baseline of biodiversity resources and assessment of the current status. It is the expectation that there should be a shift in the composition of the budget estimate for the remaining period between 2017-2021 with a greater share being allocated to the

actual restoration of ecosystems and conservation of biodiversity resources.

5. **Limited attention attached to the potential contribution of the use of economic instruments.** The orientation of NBSAP appears to give greater emphasis to Command and Control Measures with limited attention attached to the potential contribution of the use of economic instruments to reduce market distortions, create incentives for sustainable use and disincentives for non-compliance. As a number of proposed Activities will be to create new Protected Areas, the design of appropriate economic instruments will be of critical importance to avoid the situation whereby Protected Areas – due to limited resources – become nothing more than paper parks. Notably, for some of the proposed activities that involve 'creating incentives' or design of mechanisms for collecting appropriate user charges, no budget is identified. The importance of allocating resources for the design of economic instruments must be emphasized for the economic sector that directly benefits from biodiversity resources in all of the ecosystems such as tourism and fishery.

6. **It is not clear whether investments in economic assessment will automatically follow EIA.** A number of Environmental Impact Assessments are being proposed but going back to the roots of why biodiversity financing is needed, the results of EIA must be used for economic analysis (EAs) partly to ensure that all costs and gains of all stakeholders for any given project is taken into account and that mechanisms are put in place to ensure that users pay for the full costs of using and that polluters internalize all the costs of remedying the harm done.

3. Approach to the Preparation of BIOFIN Workbook 2

For Workbook 2, two major tasks that will be undertaken are (i) To make a preliminary assessment of the budget estimated by comparing this with the costs of similar measures/activities (ii) To make a preliminary assessment of the comprehensiveness of the coverage of the measures and projects proposed. This is due to the observation made above that some of the measures (which is deemed to be necessary from a technical point of view appear to be missing) (iii) To make an estimate of the total costing and to analyse the difference between what is required and what can realistically be expected from existing available resources.

The work to be undertaken in this component will draw upon the findings of the Policy and Institution Expert with respect to the drivers which have negative and positive impacts on biodiversity resources. This will be used as the basis for analyzing what can be done that is 'better' to improve the management of our biodiversity resources as well as the resources gaps in terms of financial, human and technical resources. The term 'resources gaps' is used because we believe that the solution does not necessarily lie in merely 'stepping up efforts' by increasing manpower and resources as there is no guarantee that additional resources will always improve management efficiency, particularly if the uses of available resources under the 'status quo' situation is inefficient. Additional resources may be made available by reallocating from other contending needs or from

addressing market failures to better realign the prices with the true costs of goods and services provided by biodiversity resources.

Referring to the diagrammatical representation of the work to be delivered by the Technical Team as shown in Figure 1, the preliminary ground work of the Public Finance Expert of the team will provide an understanding of the existing budgetary resources of the line agencies that are 'related' to biodiversity resources. One other source of information is the Master Plan itself, which does contain information of the biodiversity resources related 'budget' for the year 2015-2016.

Based on the discussion in the FGD on December 22, it would appear as though the Action Plan budget is only what line agencies report to be their estimates of what was deemed to be biodiversity related activities and that *the Action Plan budget does not represent the 'additional' resources that will be required to increase Thailand's capacity to meet the Aichi targets.* Thus in the Figure 4, the existing budget and the Action Plan budget for 2015-2016 may be more or less the same as depicted by the first two blue columns.

In the near future, line agencies will also be working on the estimation of the budget requirement for 2017-2021. Similarly, these estimations may not be made strictly by taking into consideration what needs to be done beyond the 'business as usual' scenario in order to meet the AICHI targets. Thus, the additional information is more likely to be the 3rd and 4th column of the diagram, or the budget estimate for biodiversity related activities for that period which will be more or less the same figures in the NBSAP. Since this has a direct bearing on the estimation of the resources gap, during the coming months, we will need to verify this with the line agencies.
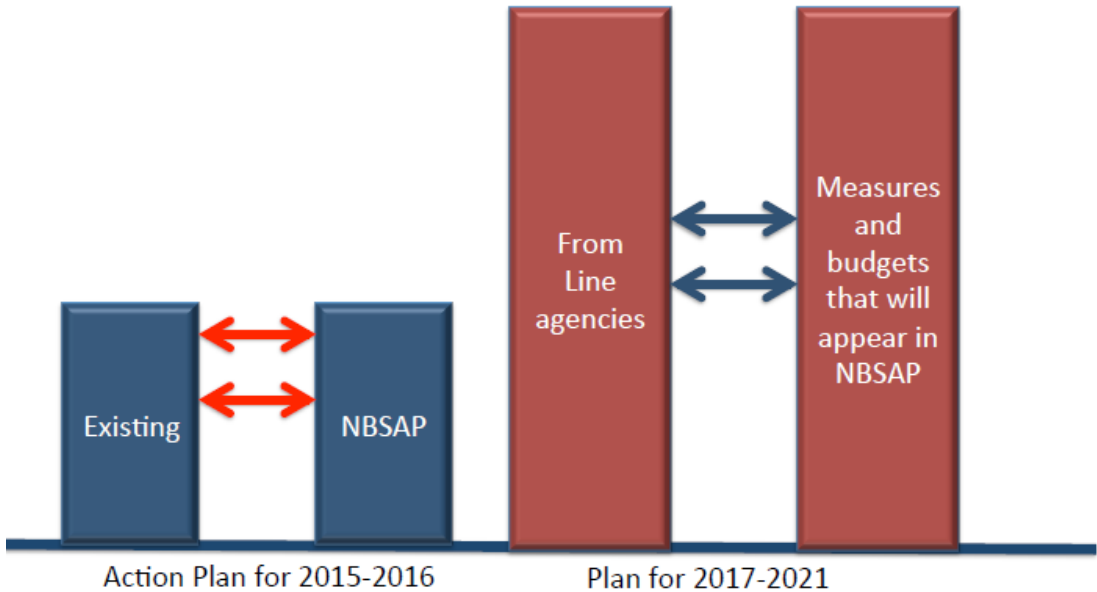

Figure 4: A visual representation of work to be undertaken for preparation of Workbook 2

Conceptually, if we assume that the budget estimate for the NBSAP Action Plan is the BAU budget then estimates are more or less the same; the 'resource gaps' will consist of two components, as shown in Figure 5. The first is area 'A' in the 3rd column, which is the difference between the proposed budget and the actual budget allocated. The second is area B, which is the 'additional' measures/activities required to step up biodiversity resources protection, conservation and restoration measures to meet the Aichi targets. The total resource gap is therefore column 4 in Figure 5. Technically, area B represents the 'additional' resources required which may consist of a variety of actions and measures. This will be the information that will be generated by desk researches of country experiences of programs, projects and associated costs depicted in Figure 5 by the last column.
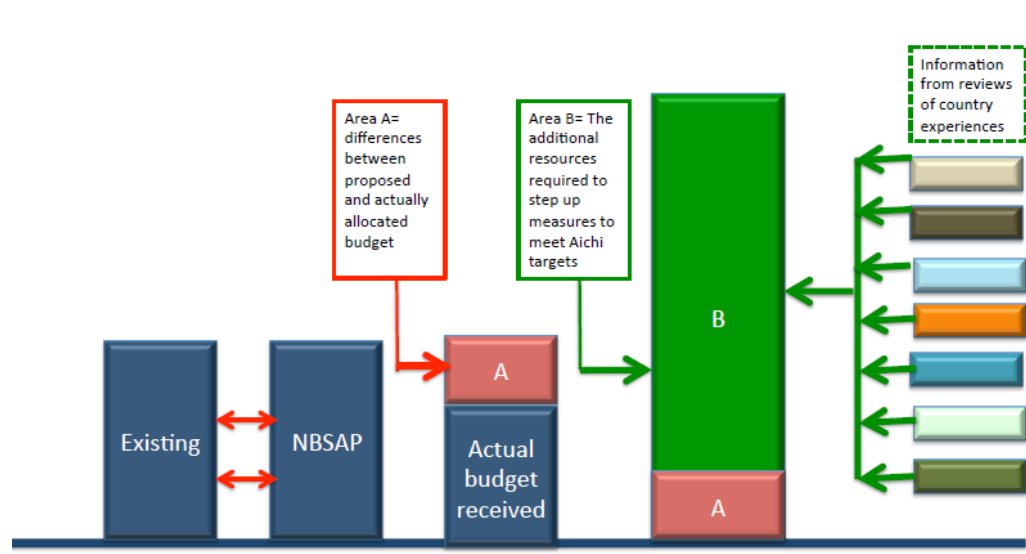

Figure 5: Areas defined as 'resource gaps'

4. Timeframe for the Preparation of BIOFIN Workbook 2

The remaining time period for the preparation of the Workbook 2 is approximately six months up to the middle of July 2016. The work process will closely follow the steps laid out in the BIOFIN Workbook and suggestions of the Senior Technical Advisor of Global BIOFIN. Some preliminary desk research has been done on compiling of costing data particularly on the costings related to conservation and restoration costs such as those for coral reefs and seagrass. This will continue into January and February 2016 during which period of work will start on designing cost templates. Some of the data on the unit costs will have already been collected by the Public Finance Review Expert such as personnel salaries of those who work in the public sector, consultancy fees, meeting costs, travel expense, labs, supplies and equipment. Some of this information will be verified and modified as new or additional information becomes available.

Starting from February 2016, at least four Focus Group Discussions (FGDs) will be organized with agencies as well as technical experts to discuss the cost assumptions as well as the activities which may be required in addition to those measures, projects and activities which currently appear in the NBSAP. One of the expected outputs of these FGDs will also be to obtain a level of agreement on the assumptions of "low" and "high" scenarios of investments. The FGDs will be organized by the four ecosystems that we have defined. That said, the first FDG will be on marine and costal ecosystems, followed by terrestrial, wetlands and urban biodiversity. It is the expectation that the results will be consolidated and submitted by the end of July 2016.

Timeframe for preparation of Workbook 2 in 2016

Activities in 2016	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Data collection for estimation of Area B and preparing cost spreadsheets												
FGDs and Consultation Costing related to coastal and marine ecosystems												
FGD on costing related to terrestrial ecosystems												
FGD on costing related to wetlands ecosystems												
FGD on costing related to urban biodiversity												
Completion of costing report												

5. Terms of Reference of the BIOFIN National Expert

The Environmental Economist and Team Leader

Ms. Orapan Nabangchang **PhD**. | Email: orapann@gmail.com

Responsibilities: Lead completion of BIOFIN parts 2 and 3**.** Act as the BIOFIN technical team leader for Thailand. Provide substantial technical expertise and inputs to other National Experts throughout the duration of BIOFIN project. Overall BIOFIN figurehead and spokesperson for technical area at national level - assuring horizontal integration and consistency of work streams/studies, quality assurance of national products and processes, outreach activities to national (Royal Thai Government, private sector, academia, NGOs, foundations, communities, etc.) and international stakeholders, press releases, project/UNDP/government briefing notes. Coordinate with the BIOFIN Project Coordinator, the BIOFIN Secretariat Team and the BIOFIN Project Board. Set up and work with the BIOFIN Working Group at national level. Report to UNDP Programme Specialist on Inclusive Green Growth and Sustainable Development. Ensure smooth coordination among technical team through BIOFIN in 9 steps (Policy and Institutional Review, Public & Private Expenditures Reviews, as well as the summary for Policy Makers). Provide input to the feedback on the methodological framework.
Deliverables: Costing and finance gap analysis, study and workbook part 2 (Finance Needs and Gap Assessment) and part 3 (Strategy for Mobilizing Public and Private Resources) completion with government.