

Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand



Abbreviations and Acronyms

BAAC	Bank for Agriculture and Agricultural Co-operatives
BEDO	Biodiversity-Based Economy Development Office
BIOFIN	Biodiversity Finance Initiative
BIOTEC	National Center for Genetic Engineering and Biotechnology
BOI	Thailand Board of Investment
BPP	Border Patrol Police
CBD	Convention on Biological Diversity
CPEIR	Climate Public Expenditure and Institutional Review
CSR	Corporate Social Responsibility
DLA	Department of Local Administration
DMCR	Department of Marine and Coastal Resources
DMS	Department of Medical Science
DNP	Department of National Parks, Wildlife and Plant Conservation
DOA	Department of Agriculture
DOL	Department of Lands
DOT	Department of Tourism
DTAM	Department of Thai Traditional and Complementary Medicine
FIO	Forest Industry Organization
GEF	Global Environmental Facility
HRDI	Highland Development Institute
IEAT	Industrial Estate Authority of Thailand
IUCN	International Union for Conservation of Nature and Natural Resources
LDD	Land Development Department
LSDD	Livestock Development Department
MOAC	Ministry of Agriculture and Cooperatives
MOC	Ministry of Commerce
MOD	Ministry of Defense
MOED	Ministry of Education
MOEG	Ministry of Energy
MOFF	Marketing Organization for Farmers
MOI	Ministry of Industry
MONRE	Ministry of Natural Resources and Environment
MOPH	Ministry of Public Health
MOST	Ministry of Science and Technology
NBSAP	National Biodiversity Strategies and Action Plan
NESDB	Office of National Economic and Social Development Board
NIA	National Innovation Agency
NRC	National Research Council
NSM	National Science Museum
NSTDA	National Science and Technology Development Agency
OAE	Office of Agricultural Economics
ODA	Official Development Assistance
ONEP	Office of National Resources and Environmental Policy and Planning
OPM	Office of Prime Minister of Thailand
PCD	Pollution Control Department
PES	Payment for Ecosystem Services
PWTP	Department of Public Works and Town & Country Planning
QSBG	The Botanical Garden Organization
RDPB	Royal Development Project Board
RFD	Royal Forest Department
RID	Royal Irrigation Department
RSPG	Plant Genetic Conservation Project
TAT	Tourism Authority of Thailand
UNDP	United Nations Development Programme
ZPO	The Zoological Park Organization

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Introduction

This report summarizes current findings from the budget expenditure review that was conducted as part of BIOFIN's overall assessment of Thailand's current biodiversity policy environment and investment status. BIOFIN's conceptual model views the integration of biodiversity investment and resource mobilization into public and private decision making and financing, as being based on a three-part process: 1) A review of current policy practice, biodiversity and ecosystem trends, relevant actors and current expenditures (Policy and Institutional Review in Workbook 1A, 1B and Expenditure Review in Workbook 1C); 2) Costing for the implementation of national biodiversity strategies and actions (Workbook 2); and 3) Identification of potential finance actors, mechanisms, revenue and feasibility (Workbook 3). The process evolves around national biodiversity strategies and action plans that aim to synthesize the root causes of biodiversity and ecosystem pressures, generate public awareness, and identify potential drivers of changes and financing solutions. The resource mobilization plans aim to achieve a better investment state by generating sufficient public and private responses in order to close the biodiversity financing gap.

The BIOFIN Workbook 1C consists of an overall and biodiversity-related expenditure review that will be used to estimate future funding baseline under a 'business-as-usual' scenario. The review determines major finance actors, assesses the relevancy of their expenditure programs to biodiversity and categorizes them according to the National Biodiversity Strategies and Action Plan (NBSAP's strategies) and BIOFIN Workbook's categories. Thus, the following aspects of biodiversity related expenditure are examined (BIOFIN Workbook 2014):

Expenditure types and priorities with regards to NBSAP's four strategies:

1. Participatory integration of biodiversity value and management;
2. Conservation and restoration of biodiversity resources;
3. Building capacity for utilization and sharing of benefits derived from biodiversity in accordance to the principles of green economy;
4. Biodiversity knowledge and database development consistent with internationally recognized standards,

Workbook strategic categories for the Aichi Biodiversity Targets:

1. Mainstreaming biodiversity across government and society;
2. Sustainable use and reduction of direct pressures on biodiversity;
3. Protection of ecosystems, species and genetic diversity;
4. Restoration and enhancement of benefits to all from biodiversity and ecosystem services;
5. Access and Benefits Sharing; and
6. Implementation enhancement through participatory planning, knowledge management and capacity building

In addition, direct and indirect expenditures that result in potential harm to biodiversity, that are in opposition to the national biodiversity objectives, and/or to the conservation, sustainable use and equitable sharing of the benefits of biodiversity are also explored based on available evidence from the Policy and Institutional Review.



Biodiversity-related expenditure is defined as any expenditure, whether by a public or private finance actor, that supports the conservation, sustainable use and/or equitable benefits sharing of biodiversity in a given year. The proportion of expenditures that are attributed to biodiversity is based on an overall assessment of the activities within each financial actor's work programs according to the BIOFIN attribution criteria, and also by comparison with the NBSAP whether these are included in the NBSAP or consistent with NBSAP's strategies. The discussion on the attribution methodology in the next section outlines the process of identifying actors that contribute directly to the conservation, sustainable use and/or equitable benefits sharing of biodiversity. The section also describes how biodiversity relevancy coefficients are assigned to the expenditure of other actors that indirectly support biodiversity within the national budgetary framework. The budget expenditure review in this report mainly concentrates on a detailed analysis of biodiversity relevancy attribution to the budget programs and their relation to the CBD's Strategic Plan as summarized by the BIOFIN's taxonomy that divides Aichi Biodiversity Targets into six strategic categories as mentioned above.

The report is divided into four related sections. Section 1 provides an overview of Thailand's budgetary process in which funding for each government agency is allocated, and a description of overall government budget and expenditure for fiscal years 2011-2015. The section also outlines the division of agencies with biodiversity related expenditures into seven main categories according to their relevancy and functions as discussed in the Policy and Institutional Review, as well as the methodology that will be used to estimate these expenditures. The baseline biodiversity expenditures of these agencies is presented in

Section 2 with an emphasis on expenditures by the core environmental agencies and organizations most directly related to biodiversity. Together with an outline of external development assistance from abroad, the section provides an overall picture of Thailand's major biodiversity funding sources. In addition, relevant budget programs for other mainstreaming agencies and items that may have negative impact on biodiversity are also discussed. Section 3 summarizes biodiversity expenditure by NBSAP strategies and BIOFIN Workbook's categories of the Aichi biodiversity targets, and projects the overall expenditure path under the 'business-as-usual' scenario into the future. A discussion on Thailand's biodiversity expenditure perspectives and recommendations on strengthening biodiversity finance coordination are given in Section 4.

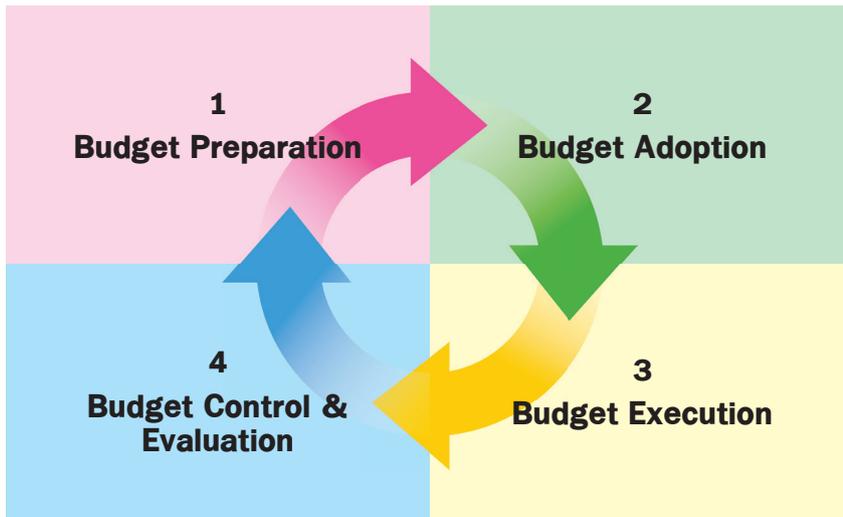
1. NATIONAL BUDGET AND BIODIVERSITY EXPENDITURE

1.1 Overview of national budgetary process

National budget represents almost the entire domestic public funding available for biodiversity in Thailand. Notwithstanding the significant role that the environment and natural resources have on the livelihood of majority of Thai population, funding for the conservation and management of natural resources has to compete with other budget priorities ranging from health and education to national security. Government funding allocation follows a budgetary cycle that identifies funding needs and

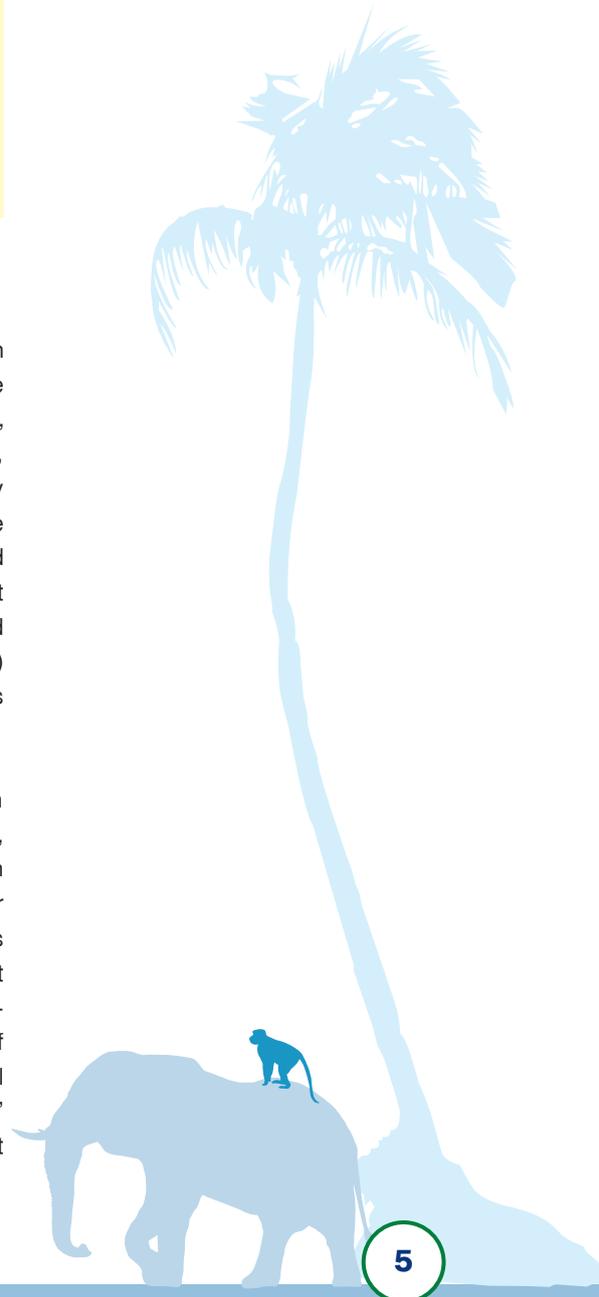
constraints, plans and manages expenditure programs in accordance with the overall budget strategies, as well as monitor expenditure progress under the Planning Program Budgeting System (PPBS). The cycle consists of four main stages: 1) Budget formulation and preparation; 2) Budget adoption; 3) Budget execution; and 4) Budget control and evaluation.

Figure 1. The budgetary cycle



1) Budget formulation and preparation During the budget formulation stage, the main planning agencies, namely the Bureau of the Budget, the National Economic and Social Development Board, the Ministry of Finance, and the Bank of Thailand, jointly determine the overall budget policy, total budget amount, annual budget structure and budget allocation strategy that are consistent with current economic and policy environments. The decision is based on overall economic and fiscal conditions, as summarized by consensus economic forecast, estimated receipts and public debt projection, in addition to the consideration of the National Economic and Social Development Plan, National Administration Plan (government policies) and government agencies' four-year action plans. The overall budget is submitted to the cabinet within a month.

Once the budget policy, allocation strategy and budget amount have been endorsed by the cabinet, government agencies will submit their budget requests, that have been approved by their respective ministers, to the Budget Bureau in order to draft detailed budget documents for consideration by the Prime Minister and the cabinet, prior to presentation to the parliament. Government agencies prepare their budget based on their work plans, outputs and projects that correspond to their own action plans, ministry level plans (such as the Environmental Quality Management Plan and four-year action plan for the Ministry of Natural Resources and Environment), national budget strategies, National Economic Development Plan, and government policies and strategies. Agencies' budget requests are subject to cuts according to their given budget ceilings that



correspond to the overall expenditure amount established. The parliament will rank projects of any agency with requested budget amount that goes beyond the ceiling corresponding to the strategies of the National Administration Plan. In practice, this mismatch between agencies' action plans and their budget allocation results in negotiations between the implementation agencies and the Budget Bureau that are often subject to severely constraining budget limits and priorities. Thus, project approvals tended to be given on an incremental basis. As a result, projects with more pressing issues such as drought, flood or disaster prevention, poverty alleviation and transport infrastructure investment undertaken by the main economic ministries were given higher priority than environmental and natural resources management. This budget preparation process takes around three months.²

Table 1. Budget Allocation Strategies for the Fiscal Year 2015

Budget Allocation Strategy	Budget	
	Amount	%
Total	2,575,000.0	100.0
1. Restoring confidence and mobilizing the establishment of good foundation for the country	183,806.8	7.1
2. National security	222,116.9	8.6
3. Development of economic growth with stability and sustainability	167,405.6	6.5
4. Education, health, virtue, ethics and quality of life	954,151.7	37.0
5. Management of natural resources and environment	133,093.5	5.2
6. Development of science, technology and innovation	24,632.9	1.0
7. Management of foreign policy and international economic affairs	9,367.8	0.4
8. Management with efficiency and good governance	352,780.8	13.7
9. Expenditures on general administration	527,644.0	20.5

Source: Table I-2 in "Thailand's Budget in Brief," Fiscal Year 2015. Bureau of the Budget.

2) Budget adoption

The Annual Expenditure Budget Act and its accompanying budget documents represent plans for disbursing the country's funds and managing monetary and fiscal policies that the government presents to the House of Representatives and the Senate for consideration and approval. The Act is scrutinized by the House of Representatives in three separate sessions:

1. Acceptance of the budget in principle and formation of the budget commission;
2. Consideration by the budget commission and by the parliament for each article, and 3. Voting for approval and presentation to the Senate. The Senate will in turn set up a commission and reach approval decision within 20 days.

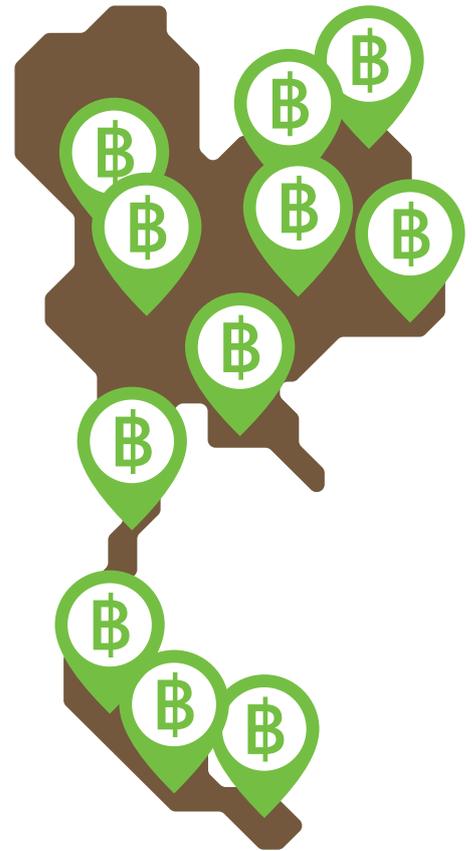
3) Budget execution

Government agencies, state enterprises and other public agencies align their action and expenditure plans in accordance with the ministry-level public service objectives and their program outputs or projects given the stated budget amount in the budget documents. The management of each agency's budget includes an approval of the budget allocation, transfer across items within a budget program, and encumbering a budget reservation across the year.

4) Budget control and evaluation

Government agencies report the disbursement of the allocated expenditure and outcome from the implementation of their action plans. As mentioned above, funding for natural resources conservation and management often has to compete with other budget priorities. The budget allocation mainly finances ongoing activities of line agencies according to their day-to-day responsibilities under strict evaluation criteria. Majority of the expenses are on necessary fixed costs such as personnel expenses, rents and utilities whilst the remaining portion has to be allocated first to debt repayment, commitment budget, subsidy to local authority and any activities that are essential for public services. Output and projects are prioritized based on the government policies and strategies, as well as agencies' ability to implement such plans. Coordination across related agencies is encouraged, including in area-based works which require involvement by several agencies and local authorities to resolve concerning issues. Regional and provincial development plans are used as the framework for area-based budget requests.

Agencies' expenses are monitored and reviewed by the Comptroller General's Department and the Bureau of the Budget based on their actual expenditure, past outcome/performance or the details of any changes and transfers across activities. Expenses for budget items or activities that have already been completed or becoming less important as a result of changing social or economic circumstances, will be removed or reduced and transfers to other operational items. The same consideration also applies to items or activities that have been transferred to local authority, or experienced delay in implementation or disbursement. Expenditure on activities with increasing shares in the budget for several years will also be reduced pending evaluation of their outcomes. Any budget requests which apply new technology or operational procedures, or involve private sector participation, community or volunteer engagements, that will likely reduce the costs of implementation for agencies will be subject to transfer to the supporting agencies and/or have other expenses for the activities reduced. Expenditure on such activities will be replaced with activities or projects that are deemed more important or urgent according to the government/ministry-level plans and policies, such as drug and crime prevention and national security, for example. It is therefore possible that any incremental increase in biodiversity related funding or efforts from other sources may result in a reduction in related budget, unless they are accompanied by or consistent with government policies and strategies in the same direction at the local and national level. Mainstreaming biodiversity expenditure with sustainable growth strategies is certainly an option. However, it has to come from conscious decision of the central government to prioritize and outline how government agencies and local authorities should incorporate biodiversity consideration into the planning of their activities,



projects and operations, preferably at the budget formulation stage. This also implies that the current NBSAP should be expanded to cover individual works of government agencies and local authorities (some of which are outlined in the baseline biodiversity expenditure review in Section 2 below) in addition to essential cross-agency coordination activities including interaction with civil societies and local communities, so as to make sure that they are inclusively and adequately financed.

1.2 Overall government budget and expenditure for FY 2011–2015

The overall national government budget and actual expenditure of Thailand for the five-year period from fiscal year 2011 to 2015 is shown in Figure 2. Table 2 also provides the expenditure numbers as percentage of nominal GDP over the same period. The annual national budget is around 20 percent of GDP with the actual disbursement rate of 90-95 percent. Thai economy experienced a slowdown over the period, despite recovering from the 10-year flood that occurred in the first quarter of fiscal year 2012 (or towards the end of 2011 as the fiscal year starts in October), and registered persistently low growth rates towards the end of the period due to the fall in exports and political crisis. The government therefore tried to improve the disbursement rate in response, in addition to continued running a budget deficit, in order to provide fiscal support to the slowing economy. Consequently, total budget only registered low single digit growth rates between 2013-2015 after rising 10 percent in 2012 and the disbursement rate improved from 90 percent for the period 2012 - 2014 to 92 percent in 2015.



Figure 2: Overall Government Budget 2011-2015

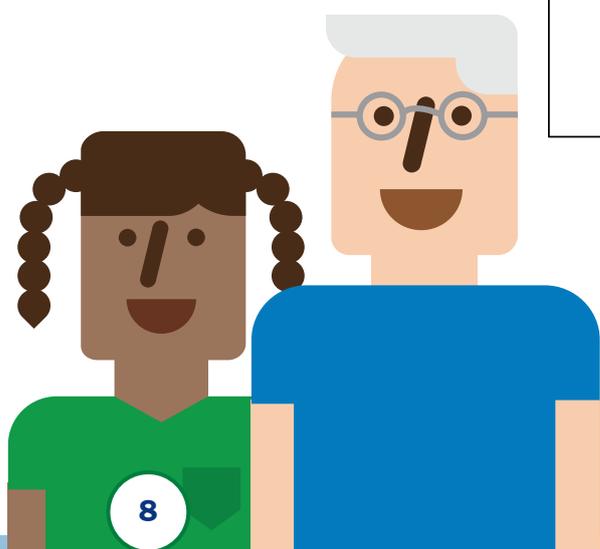
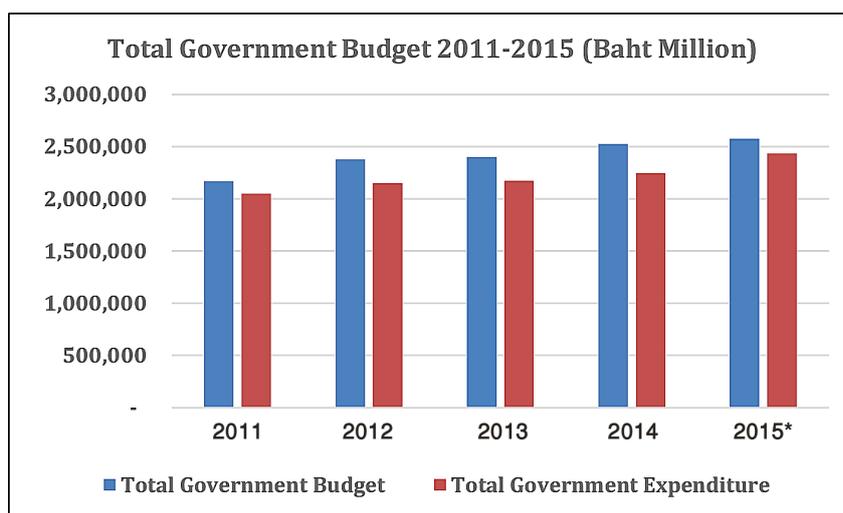


Table 2: Total Government Budget and Expenditure 2011-2015

	2011	2012	2013	2014	2015*
(Million Baht)					
Total Government Budget	2,169,967	2,380,000	2,400,000	2,525,000	2,575,000
Total Government Expenditure	2,050,539	2,148,475	2,171,460	2,246,307	2,378,114
(% of Budget)	94%	90%	90%	89%	92%
Nominal GDP	10,523,080	11,243,980	11,938,250	12,061,090	13,368,450
Inflation (CPI %yoy)	3.8%	3.0%	2.2%	1.9%	-0.9%
(% of GDP)					
Total Government Budget	20.6%	21.2%	20.1%	20.9%	19.3%
Total Government Expenditure	19.5%	19.1%	18.2%	18.6%	17.8%

* New chained-volume measure of GDP in 2015 is not comparable with previous years' values.

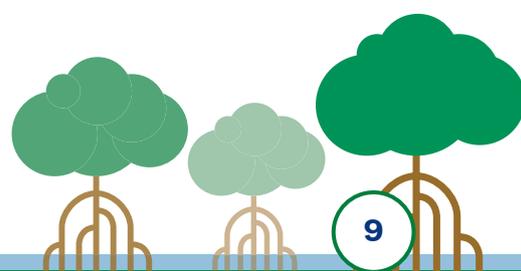
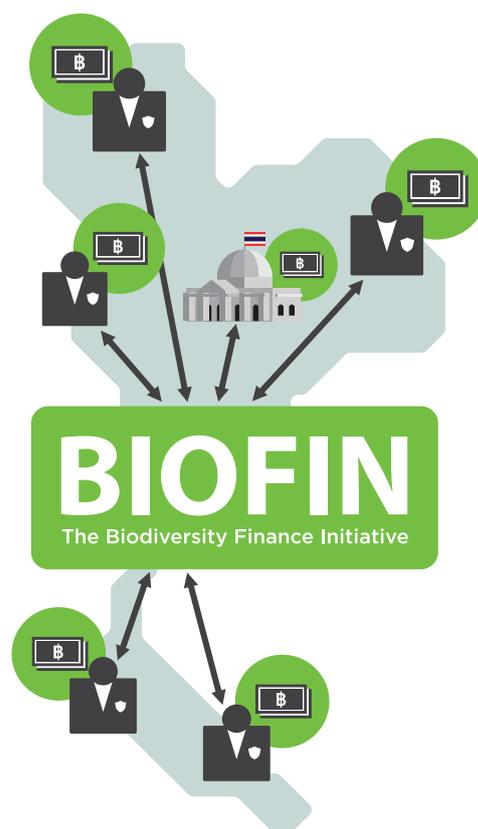
Source: Fiscal Policy Office, Public Debt Management Office

Total national budget mostly covers for direct expenditures of the Prime Minister's Office and other ministries (around 65 percent of total expenditure) and the central fund (around 15 percent of total expenditure) while the rest of the budget goes to subsidizing local authorities, independent public agencies, state enterprises and revolving funds, as well as for the replenishment of the treasury account balance. Large infrastructure and agricultural projects such as transportation, water management and price subsidies on the other hand are partly financed off-budget through domestic and foreign borrowings, specialized financial institutions, state enterprises or extra budgetary funds.

1.3 Budget data and methodology

The budget and expenditure review along the line of BIOFIN Workbook 1C consists of three main components: 1) An overall national budgetary and expenditure snapshot as presented in the previous section; 2) Baseline expenditures and expenditure effectiveness review in the next section; and 3) Estimated future funding baseline under a 'business-as-usual' scenario (Section 3). Reviews in the first two components utilize information from the national budget documents and database for the five-year period from 2011 to 2015 (Thailand's Annual Budget Expenditure Acts B.E. 2554-2558) in addition to actual expenditure figures, budget disbursement rates and an overall assessment of program outcomes achieved from the relevant government agencies and authorities. The information includes annual budgetary allocation for the government agencies organized according to their corresponding ministries, programs' functional goals/objectives and expenditure types (personnel, operations, capital, subsidy and other expenditures). The budget information is supplemented with relevant data, subject to their availability, from other non-budgetary agencies and institutions such as the environmental fund, state-owned enterprises, implementing agencies, research institutions and external financing (foreign Official Development Assistance).

The current NBSAP (Thailand's Integrated Master Plan on Biodiversity Management 2013-2021 and the National Action Plan on Biodiversity Management 2015-2016) is used to identify the finance actors and categorize expenditures



Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

according to the NBSAP strategies. In particular, main government agencies and public institutions included in the National Action Plan on Biodiversity Management 2015-2016 (a two-year action plan to coincide with the conclusion of the Eleventh National Social and Development Plan 2012-2016) are initially identified as finance actors. This list corresponds to the core environmental and sustainable use agencies outlined in the Policy and Institutional Review. Other domestic and foreign financial actors and donors such as public and private agencies and institutions are also chosen, as far as information is available, based on the relevancy of their activities for the (positive or negative) ecosystem trends and drivers identified in Workbook 1A and 1B, and their inclusion in the group of mainstreaming, implementation agencies in the Policy and Institutional Review.

Table 3: Agencies in the Expenditure Database

Source	Level of details	Institutions included
Government Budget		
A. Core Environmental agencies	<ul style="list-style-type: none"> Detailed budget amount and expenditure, NBSAP and Aichi Categories, Program OPDC/SEPO score where available 	Department of National Parks, Wildlife and Plant Conservation Royal Forestry Department Department of Marine and Coastal Resources Biodiversity-Based Economy Development Office The Botanical Garden Organization The Forestry Industry Organization The Zoological Park Organization Plant Genetic Conservation Project Office of Natural Resources and Environmental Policy and Planning Pollution Control Department Department of Water Resources Department of Environmental Quality Promotion
B. Sustainable use and ABS agencies	<ul style="list-style-type: none"> Detailed budget amount 	Ministry of Agriculture and Cooperatives Ministry of Public Health Ministry of Interior Office of the Royal Development Projects Board
C. Mainstreaming agencies/ Economic sectors	<ul style="list-style-type: none"> Detailed budget amount 	Ministry of Education (excluding universities) Ministry of Industry Ministry of Tourism Ministry of Transportation Ministry of Defense Ministry of Commerce Ministry of Energy Marketing Organization for Farmers
D. Implementation agencies/ Research institutes	<ul style="list-style-type: none"> Detailed budget amount 	Ministry of Science and Technology Universities National Science Museum
E. Local authorities and communities	<ul style="list-style-type: none"> Budget for Provinces and Clusters of provinces only 	Provinces and Clusters of provinces
Outside Government Budget		
F. Non-government organization	<ul style="list-style-type: none"> Examples 	Earth Net Foundation
G. Private sector, State-owned Enterprise and Specialized Financial Institution	<ul style="list-style-type: none"> Examples 	Bangchak Petroleum

Major biodiversity finance actors are divided into seven categories based on their broad roles in biodiversity conservation and sustainable uses. The list of agencies and their corresponding categories are shown in Table 3. Apart from the Plant Genetic Conservation Project which serves as the focal point for royal initiated projects implemented across several ministries, finance actors in the first category form the core environmental agencies within the Ministry of Natural Resources and Environment that receives most of the biodiversity budget. Government agencies in other ministries are organized according to their biodiversity relevancy as sustainable use, mainstreaming, implementation and research agencies, and local authorities. In addition, other institutions outside the government budget such as Earth Net Foundation and Bangchak Petroleum are included as examples for further analysis. Thus, the main results of the study will come from government funding which, among other expenditure items and projects, mainly provides the necessary financing to maintain ongoing biodiversity conservation and research efforts.



Table 4: Biodiversity Relevancy Coefficient Attribution

Coefficient / Attribution to Biodiversity Expenditure	"Complete" 100%	"Very High" 75-90% (Target 80%)	"Medium" 25-75% (Target 50%)	"Low but significant" 5 - 25% (20%)	"marginal" 1 - 5% (2%)	"none or immeasurable" 0%
Definitions	Principal Intent of Organisation / Activity is to accomplish one of three CBD objectives: Biodiversity Conservation, Sustainable Use, Access and Benefit Sharing	Main intent of Organisation / Activity is at least one of the CBD objectives coupled to a lesser degree with other related / supportive intents (i.e. climate change, watershed maintenance, fisheries production sustainability)	One intent of Organisation / Activity is at least one of the CBD Objectives or Aichi Targets coupled with other - non biodiversity related intents / actions in balanced proportion	Intent primarily for non-biodiversity related activities but have a stated intent for positive BD impacts	small BD impacts expected from much larger non-BD programs with at least safeguards in place.	None or immeasurable intent or positive impact on BD
Relation to RIO Markers	RIO Marker 2	RIO Marker 1				RIO Marker 0

Source: Global BIOFIN, March 2016

For the core environmental agencies, their expenditures are derived from the budget allocation amounts using the actual spending figures obtained directly from the agencies, or based on the agencies' overall disbursement rates. For other agencies within the budget, the budgeted amounts are used if the expenditure cannot be obtained directly. For each agency's expenditure at the output and project level, a biodiversity relevancy coefficient is generally applied according to the BIOFIN attribution methodology as shown in Table 4 based on the agency's intent and its activities as stated in the budget document. In specific cases where an activity within the budget is deemed directly relevant to





biodiversity conservation, sustainable use and/or equitable benefits sharing, its entire expenditure amount is attributed to biodiversity, as is the case for activities of the Biodiversity-based Economy Development Office, for example. Other expenditure items that are related to infrastructure investment such as coastal protection or water works that occur in community lands and biodiversity sensitive/protected areas, or the promotion of ecosystem-friendly investment e.g. organic agriculture, green industrial/agriculture zone, for example, are assigned “low” to “marginal” indirect relevancy to biodiversity. The current configuration used in this study is that 80% of total budget output/project amount is attributed to biodiversity if the expenditure relevancy is specified as being “Very High”, 50% if the relevancy is “Medium”, 5% if the relevancy is “Low but significant”, and 1% if “Marginal”.

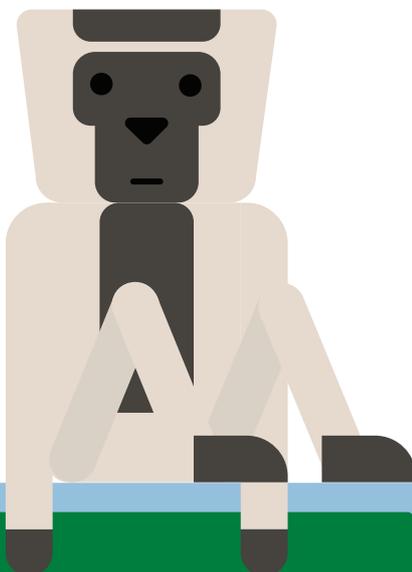
The expenditure review process is undertaken through the following steps:

1. Select major finance actors based on their activities and inclusion in the NBSAP.
2. Screen the budget for the actors and biodiversity-related expenditure at the program, output/project and activity level.
3. Organize the data into a database with a Workbook category/NBSAP strategy expenditure tagging system.
4. Conduct a preliminary budget analysis to identify the proportion of each program’s expenditure that is attributable to biodiversity based on their activities that are classified according to the NBSAP strategies and Workbook categories.
5. Conduct meetings with the core agencies for actual expenditure data from budgetary and non-budgetary (including external) sources, determination of relevancy and effectiveness (based on information on performance indicators and any issues/obstacles that may arise), any negative impacts on biodiversity, current financing situation and likely future trends.
6. Obtain information for non-budgetary actors from annual/project reports, studies, consultation and focus group discussions.
7. Completion of Workbook 1C to estimate the future funding baseline under a ‘business-as-usual’ scenario.
8. Presentation and confirmation of findings and recommendations with the BIOFIN National Steering Committee, the BIOFIN working group, and representatives from concerning agencies and stakeholders.

2. THAILAND’S BIODIVERSITY EXPENDITURE AND MAJOR FUNDING SOURCES

2.1 Public sector and its main sources of funding for biodiversity in Thailand

As mentioned in Thailand Fifth National Convention on Biological Diversity (CBD) Report (Thailand Fifth National Report on the Implementation of CBD, 2014), the main sources of funding for biodiversity in Thailand at present are from two official sources: government’s budget allocation and foreign Official Development Assistance (ODA) (see Figure 3). External



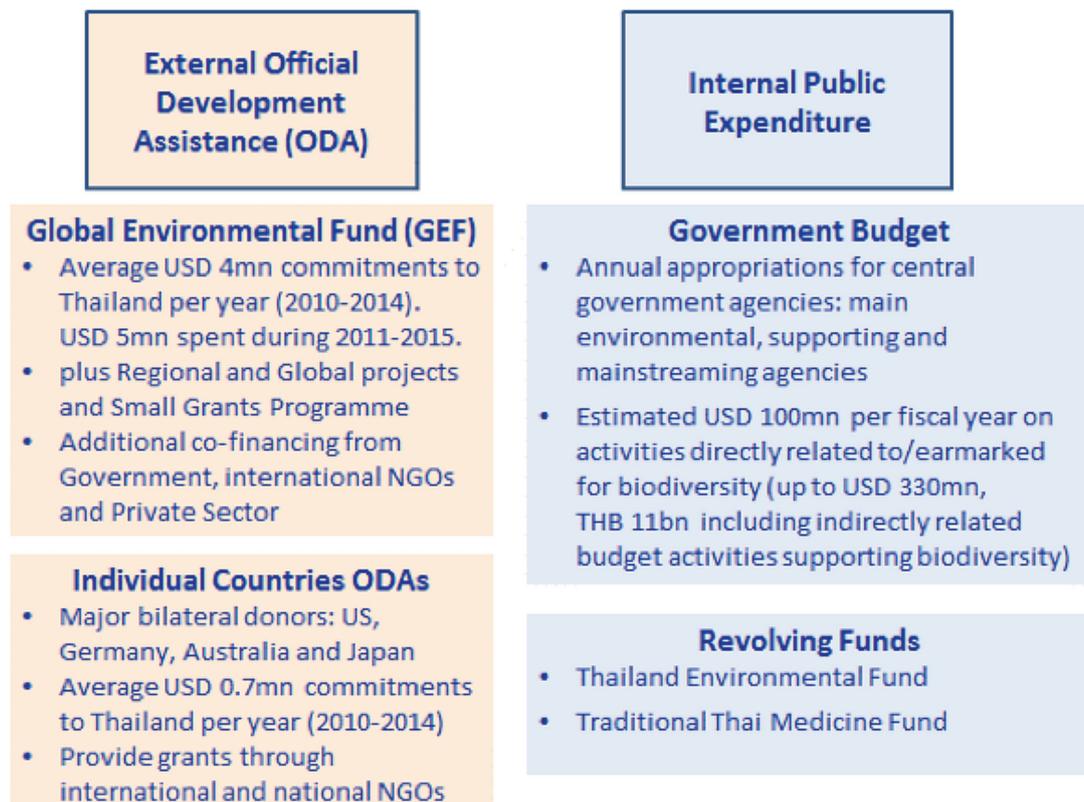
ODA funding are channeled through targeted biodiversity and environmental conservation programs implemented by government agencies and NGOs. Most of the government's budget allocation goes to the operations of the main environmental agencies such as those listed in Table 3 above.

There are also two revolving funds that are associated with the conservation and utilization of biodiversity resources. The environmental fund, administered through the Office of National Resources and Environmental Policy and Planning (ONEP) under the Ministry of National Resources and Environment, provides grants and loans to local projects related to environmental management including biodiversity conservation and restoration activities with local participation. The fund, with an initial capital of THB 5 billion (US\$ 150 million), serves as an alternative source of funds for local projects by the private sector or government agencies, state enterprise and local administration that have not received budget allocation.

The Traditional Thai Medicine Fund, managed by Department of Thai Traditional and Complementary Medicine (DTAM), Ministry of Public Health, supports the preservation and development of traditional medical knowledge and local herbs. The fund promotes in situ and ex situ conservation, research, and utilization activities with an annual budget of around THB 120 million (US\$ 3.5 million).



Figure 3. Public Sources of Fund for Biodiversity in Thailand 2011-2015



Source: Estimation from OECD Creditor Reporting System, UNDP and Thailand's Budget for Fiscal Year 2015

For external financing, major bilateral ODA donor countries are the United States, Germany, Australia and Japan, which provide grants through international and national NGOs and the government on issues ranging from wildlife protection, forest conservation and sustainable use of biodiversity resources. The principal external funding channel comes from multilateral arrangement through the Global Environmental Facility (GEF) which is the primary financial mechanism for several international environmental conventions including the CBD.

According to the OECD's Creditor Reporting System (CRS), biodiversity sector (code 41030) ODA flows to Thailand in terms of commitment funding between 2011 and 2014 totaled US\$ 16.48 million, of which US\$ 14.34 million (87 percent) come through the GEF (see Figure 4).

Figure 4. Biodiversity ODA flows to Thailand 2011-2014

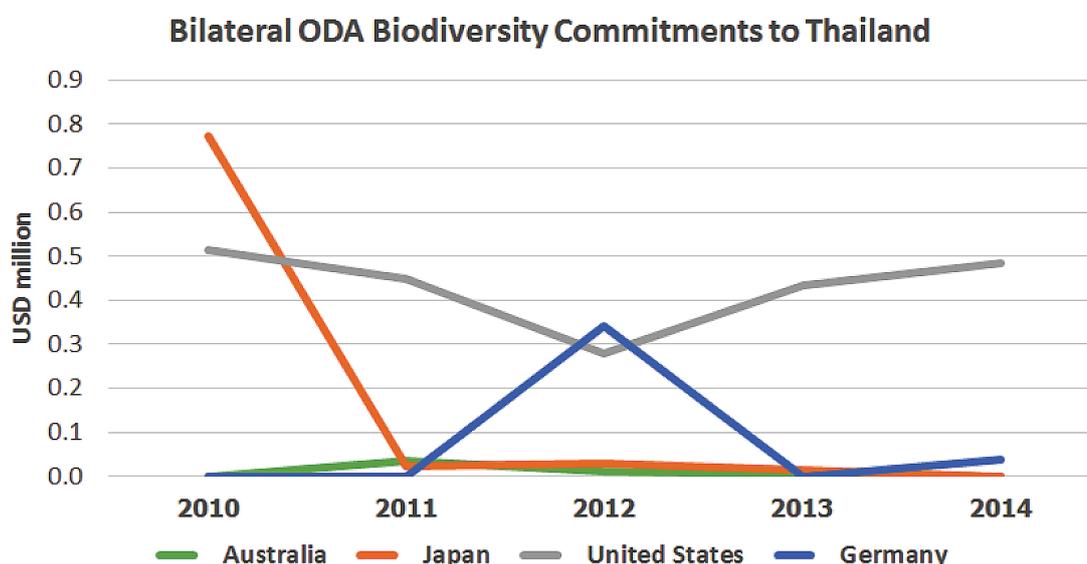
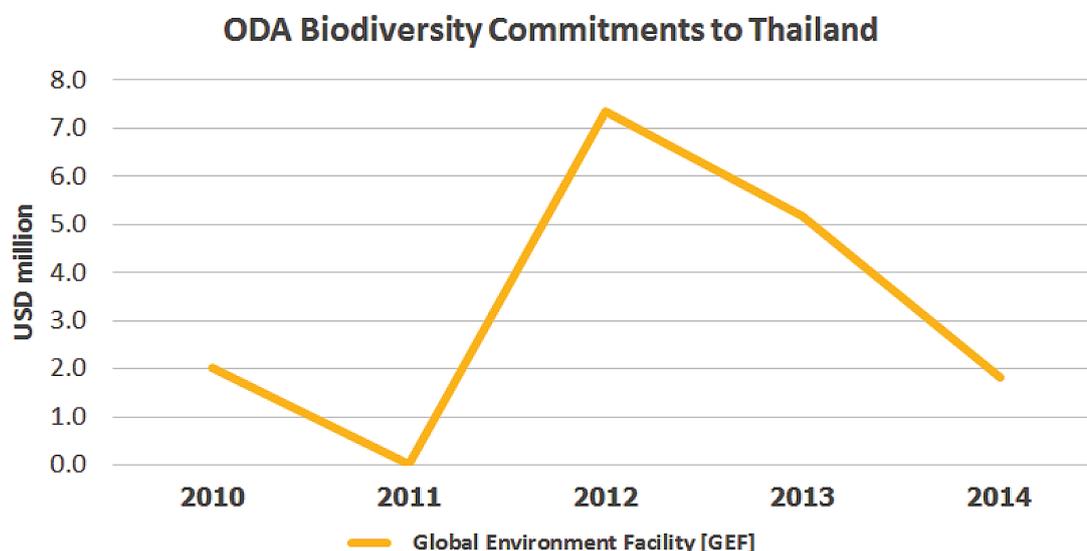


Figure 3. Biodiversity ODA flows to Thailand 2011-2014 (contd.)



Source: OECD Creditor Reporting System (CRS)

Table 5 lists current GEF-approved biodiversity projects for Thailand (through UNDP) and the corresponding executing agencies. In addition, Thailand also receives funds from regional and global projects within the biodiversity focal area (through UNDP and UNEP) as shown in Table 6.

Table 5. GEF-approved biodiversity projects for Thailand

Unit: USD						
GEF ID	Project Name	GEF Grant	Cofinancing	Project Cost	Cofinancing Source	Executing Agency
3307	Support to Alignment of NBSAP with CBD Obligations and Development of CHM	359,090	520,000	879,090	Government	ONEP
3517	Catalyzing Sustainability of Thailand's Protected Area System	3,364,545	14,200,000	17,654,545	Government, NGO, Private Sector, Others	ONEP and National Park, Wildlife and Plant Conservation Department
3940	Sustainable Management of Biodiversity in Thailand's Production Landscape	1,940,000	5,518,000	7,523,000	Government, Private Sector, NGO, Others	BEDO and the Thailand Environment Institute (TEI)
5512	Conserving Habitats for Globally Important Flora and Fauna in Production Landscapes	1,758,904	11,137,233	12,963,717	Government, UNDP, NGO (WWF)	ONEP and Zoological Park Organization (ZPO) under MONRE
5726	Sustainable Management Models for Local Government Organisations to Enhance Biodiversity Protection and Utilization in Selected Eco-regions of Thailand	1,758,904	7,560,000	9,386,484	Local and National Government, UNDP	BEDO
Subtotal		9,181,443	38,935,233	48,406,836		

Source: Global Environmental Facility's (GEF) project documents

Table 6. GEF global and regional biodiversity projects involving Thailand

Unit: USD						
GEF ID	Project Name	GEF Grant	Cofinancing	Executing Agency	Status	
145	Biodiversity Data Management Capacitation in Developing Countries and Networking Biodiversity Information	4,000,000	1,390,000	UNEP	Project Closure	
1490	Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Program	4,110,000	9,360,000	UNDP	Project Completion	
2430	Conservation and Sustainable Use of Cultivated and Wild Tropical Fruit Diversity: Promoting Sustainable Livelihoods, Food Security and Ecosystem Services	3,649,994	6,714,074	UNEP	Under Implementation	
3853	Building Capacity for Regionally Harmonized National Processes for Implementing CBD Provisions on Access to Genetic Resources and Sharing of Benefits	750,000	750,000	UNEP	Under Implementation	
9120	Support to Preparation of the Third National Biosafety Reports to the Cartagena Protocol on Biosafety - Asia Pacific Region	1,099,050	995,000	UNEP	CEO Approved	
Subtotal		13,609,044	19,209,074			

Source: Global Environmental Facility's (GEF) project documents

In terms of expenditure by implementing agencies, the total country project funding for biodiversity programs in Thailand for the GEF-4 (July 2006 – June 2010) and GEF-5 (July 2010 – June 2014) replenishment periods was around US\$ 24.8 million, of which around US\$ 5.3 million has been spent during 2011–2015 (Figure 5) on projects aimed at protecting critical ecosystems, reducing pressures on natural habitats and mobilizing financial resources for sustainable use and management (CBD's strategic goals A-E).

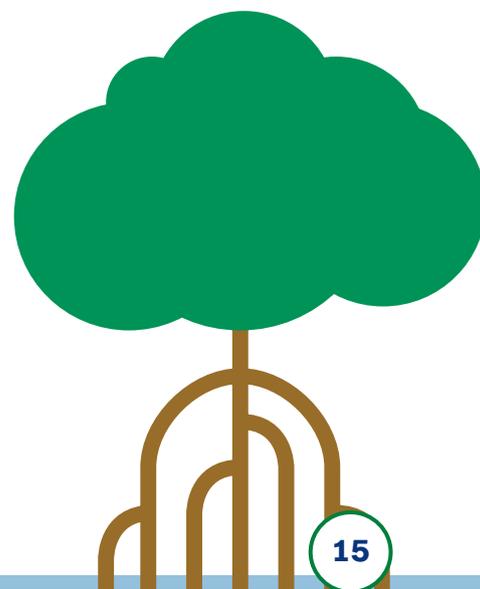
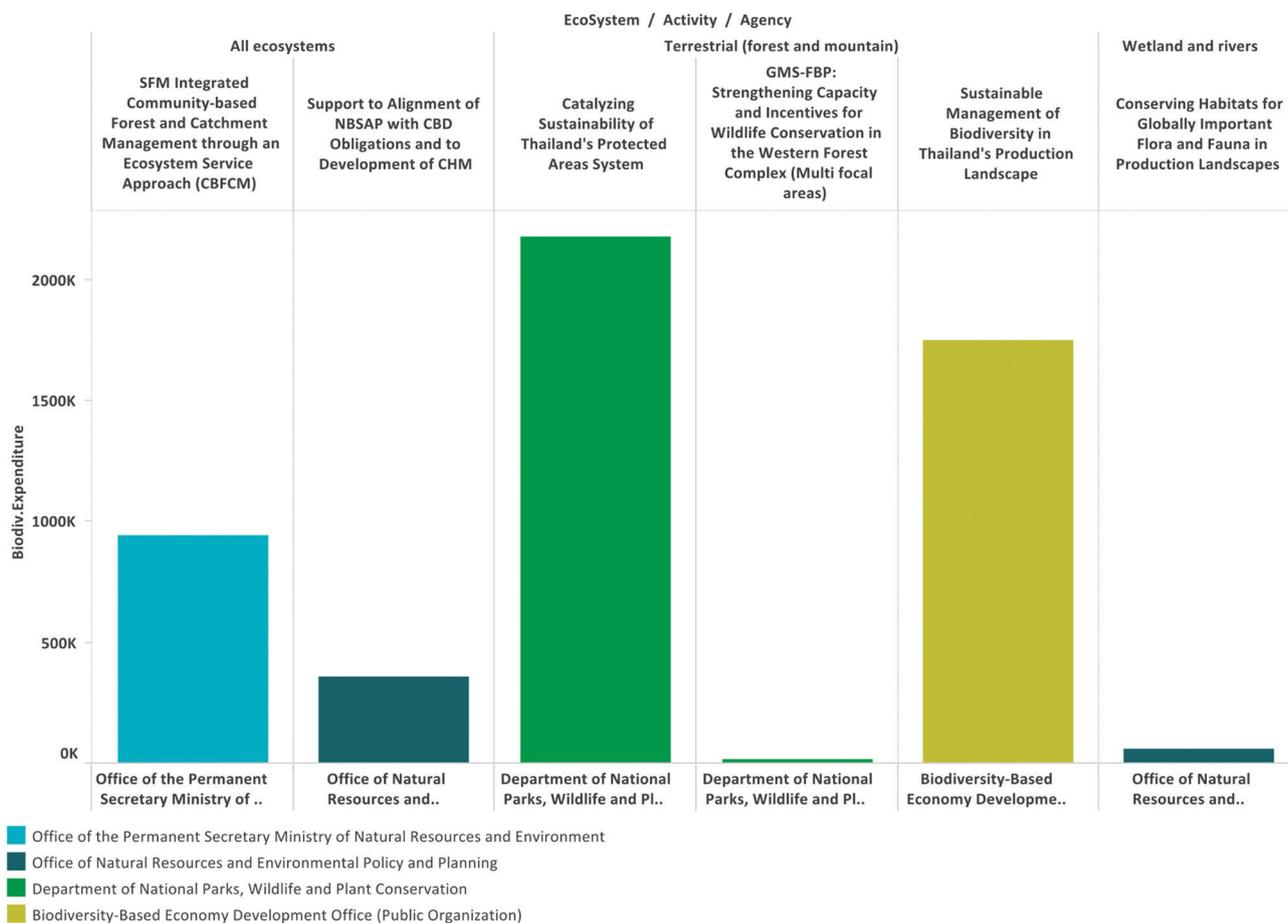


Figure 5. Thailand Biodiversity ODA Expenditure by Implementing Agencies 2011-2015 (Unit: USD)

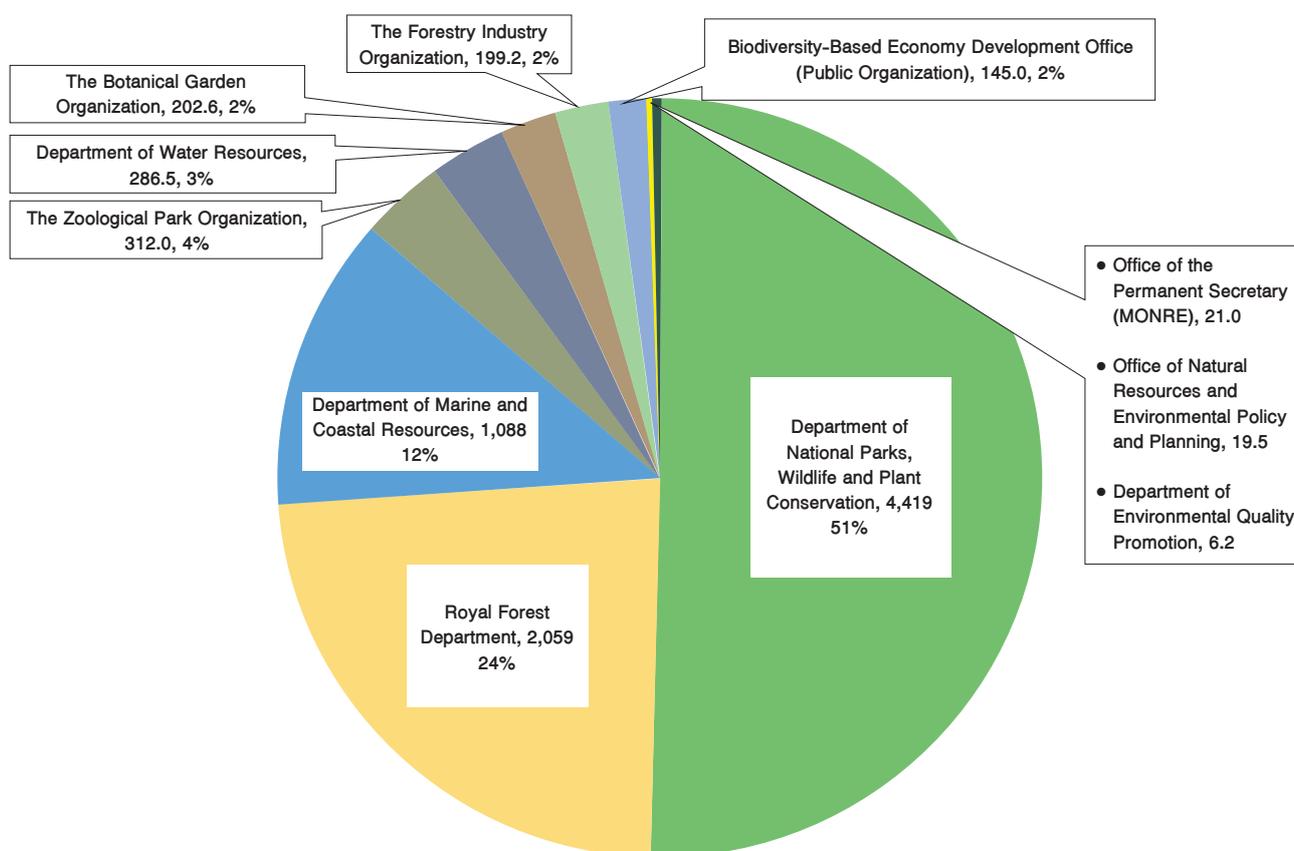


Source: UNDP and Office of the Permanent Secretary, Ministry of Natural Resources and Environment

As mentioned above, the main domestic source of biodiversity funding in Thailand is from the government's budget allocation which mostly pays for the operations of the core environmental agencies. The total expenditure for these agencies accounted for around 80% of the overall biodiversity related budget in 2015. Top 3 agencies with largest amounts of biodiversity spending are the Department of National Parks, Wildlife and Plant Conservation (DNP), the Royal Forest Department (RFD), and the Department of Marine and Coastal Resources (DMCR) as shown in Figure 6 and 7. The three agencies, with total biodiversity-related expenditure of THB 7,566 million (US\$226 million) effectively cover the majority of Terrestrial and Coastal and Marine ecosystem conservation expenditure in Thailand. Table 7 outlines biodiversity expenditure of these main agencies by expenditure types. On average, around one-quarter of the expenditure is personnel costs and around one-third to one-half is operational expenses while investment (including replacement investment and equipment) is around 20-40%. The ratios are relatively stable throughout the period suggesting how the restricted funding are being allocated. In addition, state-owned

enterprises such as the Botanical Garden Organization, the Zoological Park Organization and the Forest Industry Organization undertake sustainable use, research and mainstreaming activities with total expenditure of THB 713.7 million (US\$21.3 million). Public institutions under the royal initiatives such as the Plant Genetic Conservation Project and the Office of Royal Development Projects Board (see biodiversity expenditure in Table 11 and 12 below) also help coordinate targeted biodiversity related programs by these and other mainstreaming agencies with supplementary funding from the public and private sector.

Figure 6. Biodiversity Related Expenditure by Core Environmental Agencies in 2015 (Unit: THB million)



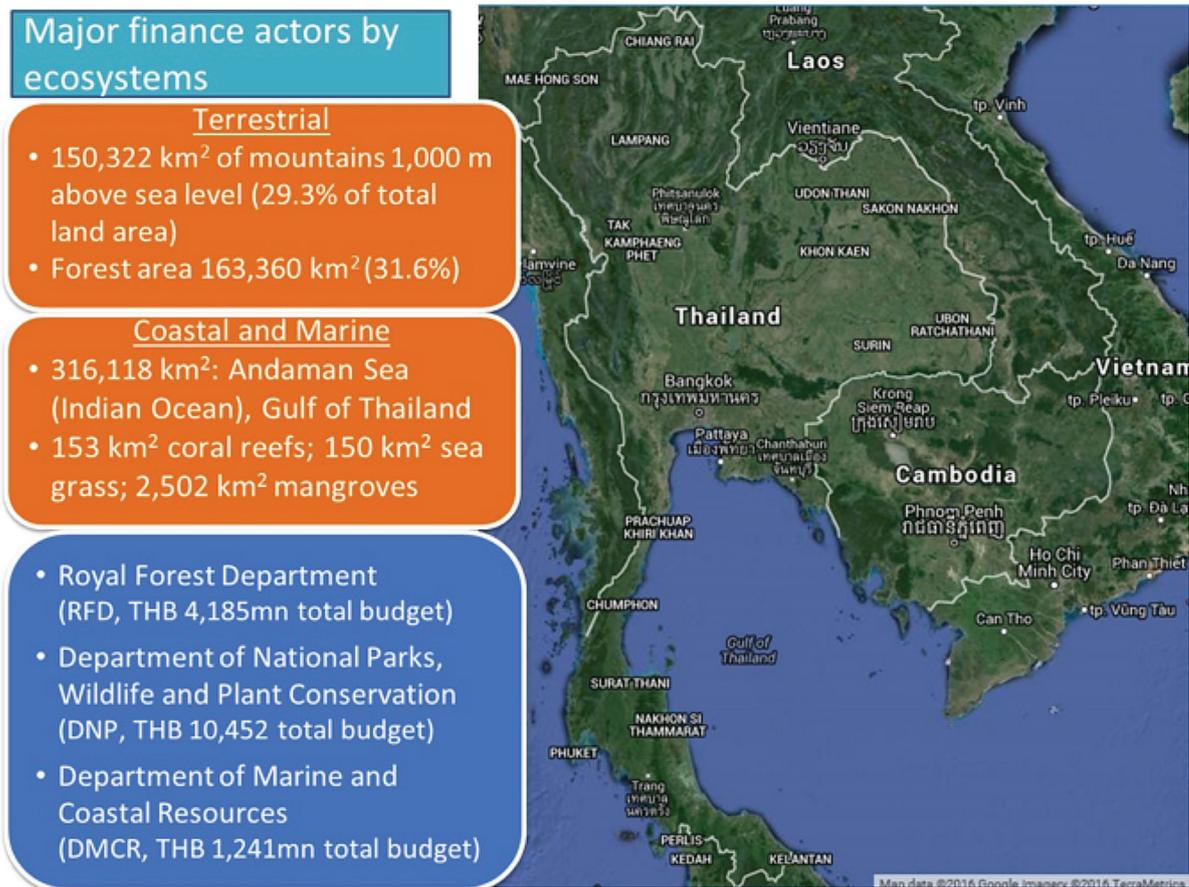
Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Table 7. Biodiversity expenditure of top 3 agencies in 2015 by expenditure types (THB million)

Ministry of the Environment	Investments	Operations	Others	Personnel	Subsidies	Total
Department of Marine and Coastal Resources	217.7	444.6	144.0	280.4	1.0	1,087.8
Department of National Parks, Wildlife and Plant Conservation	1,062.0	2,202.8	23.4	1,106.4	24.2	4,418.8
Royal Forest Department	794.1	692.4	3.1	515.2	54.2	2,058.9

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Figure 7. Ecosystems and Overall Budget of Top 3 Environmental Agencies in 2015



Source: Thailand's National Budget for the Fiscal Year 2015 and National CBD Implementation Report'

Marine and coastal ecosystem in Thailand

With regards to the marine ecosystem, the main implementation agencies are 1) the Department of Marine and Coastal Resources (DMCR), 2) the Department of National Parks, Wildlife and Plant Conservation (DNP) within Ministry of Natural Resources and Environment (MONRE), 3) Marine Department of the Ministry of Transport (MOT), and 4) Department of Fisheries within Ministry of Agriculture and Cooperatives (MOAC). The biodiversity-related expenditure for fiscal year 2015 (October 2014 – September 2015) for these agencies are provided in Table 8 along with estimated expenditure trends in Figure 8. Their budget programs correspond to the NBSAP strategies on the Conservation and Restoration of Biodiversity (Strategy 2) and Developing Knowledge and Database System on Biodiversity (Strategy 4). The DMCR has the role of managing marine and coastal resources as well as planning and policies formulation. A recent legislation on marine and coastal resources management enacted in 2015 (Marine and Coastal Resources Management Act, B.E. 2558) gives DMCR the authority to designate Mangrove Conservation Areas and Coastal Resources Protected Areas overseen by local and national committees with the representa-

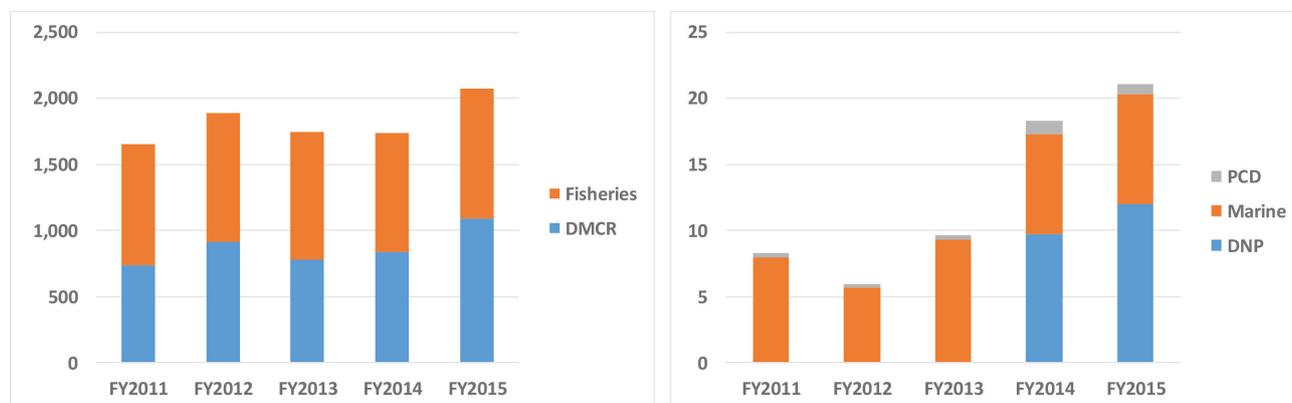
tion of local coastal communities. DMCR's current conservation and restoration programs for the 2015 budget include the management of mangrove forest, survey and evaluation of marine and coastal resources, and improve marine and coastal resources management efficiency. In addition, the DNP whose primary responsibility is to manage the protected area system in general, has programs on the management of coral reefs and coastal areas, and on ecotourism management as part of its work plan on climate change prevention and mitigation. The Pollution Control Department (PCD) and the Department of Environmental Quality Promotion also have programs on coastal and sea quality monitoring and the conservation of southern coastal lake area.

Table 8. 2015 Expenditure of the main government agencies related to Marine Ecosystem

Agency	NBSAP Strategy	BIOFIN Category	Program	2015 Expenditure
DMCR	2. Conservation & Restoration	Protection, Restoration Implementation, Protection	• Environmental Protection and Management	426.3
			• Climate change mitigation (Coastal protection)	26.4
		Restoration Implementation	• Environmental Protection and Management (Marine resources management and monitoring)	579.5
			• Asean Economic Community (Training course development)	7.2
		Protection	• Integrated water management (Mangroves restoration)	20.9
			• Climate change adaptation (Marine and coastal resource management)	14.1
4. Knowledge and Database System	Implementation	• Research and Development	13.3	
DNP	2. Conservation & Restoration	Restoration	• Climate change mitigation (Coral reefs and coastal management)	12.0
PCD	2. Conservation & Restoration	Sustainable Use	• Coastal and sea water quality monitoring and evaluation	0.7
Marine	2. Conservation & Restoration	Mainstreaming	• Infrastructure and logistics development (Coastal erosion prevention)	8.4
Fisheries	2. Conservation & Restoration	Sustainable Use	• Environmental Protection and Management (Fishery management and control)	330.1
		Restoration	• Environmental Protection and Management (Nusery, coral reefs, coastal and lake resources)	656.8
				2,095.7

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Figure 8. Expenditure of the main government agencies related to Marine Ecosystem (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting

Government agencies whose work programs in the budget may have adverse effects on biodiversity of the marine and coastal ecosystem are the Fisheries Department and the Marine Department. Potential harmful expenditures relate to the usage of marine resource and environmental impacts from infrastructure construction. Nonetheless these two agencies also have budgetary programs that promote sustainable use of biodiversity resource as well as protection and restoration as outlined in Table 8. A new Fisheries Act has also recently been enacted in 2015 with a restriction on aquaculture activities to areas designated by the MOAC or the Provincial Fisheries Committee. The Fisheries Department is responsible for the management of fishery resources for sustainable use and diversity conservation with the participation from local communities. The department's work plan on environmental conservation and management covers programs on the management and control of fisheries as well as the cultivation and restoration of marine species through marine nursery and artificial coral reefs. On the infrastructure side, the Marine Department of the MOT has work programs related to water transportation infrastructure development as well as maritime training.

Terrestrial ecosystem in Thailand

The main agencies concerning biodiversity conservation and restoration of the terrestrial ecosystem are the Royal Forest Department (RFD) and the DNP, with 2015 biodiversity-related expenditure of THB 2.1 billion (US\$ 60 million) and THB 3.9 billion (US\$ 117 million) respectively. Both agencies belong to MONRE and have their work programs on Strategies 1, 2 and 4 of the NBSAP as shown in Table 9. A significant amount of DNP budget is devoted to protection programs that also includes a smaller amount on coral reefs and coastal management for the coastal ecosystem as mentioned earlier. In 2015, DNP was also involved resolving protected area land use issues with related expenditure of THB 66.5 million in 2015. Major expenditure programs for the RFD, on the other hand, relate to sustainable use of forest resource including community forest management and protection and restoration programs.

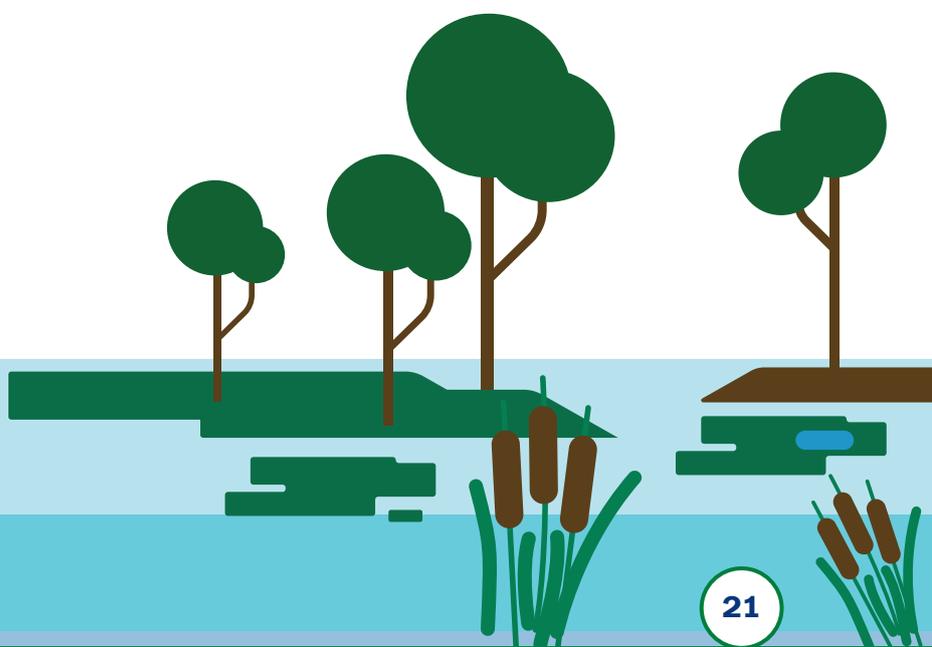
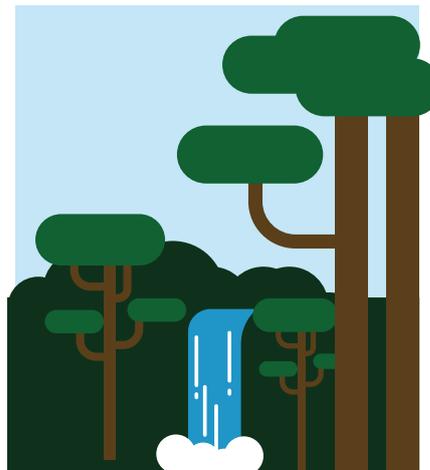
Apart from the traditional work on conservation and restoration, other main agencies (see Table 11 below) that promote sustainable use and development of biodiversity-based economy (NBSAP Strategy 3) include the Biodiversity-Based Economy Development Office (BEDO) and Department of Thai Traditional and Complementary Medicine (DTAM) under the MOPH. BEDO, a GEF funding recipient with 2015 government budget allocation of THB 161.1 million (US\$ 4.9 million), is a public organization under MONRE that was established in 2007 to empower local communities through sustainable use of biodiversity resources for business development, in addition to implement mechanisms and measures for biodiversity-based economic development. DTAM synthesizes, develops, and transfer local knowledge that leads to the development of traditional and herbal products, medicines, treatments and therapies that are based on the country's biodiversity resources. Its annual budget allocation for 2015 was THB 300.7 million (US\$ 9.1 million). It also has revenues from treatments and therapies of around THB 8.63 million (US\$ 0.25 million) per year that contribute to the Traditional Thai Medicine Fund which supports biodiversity conservation, utilization and research. Other mainstreaming agencies whose budget is not directly re-

lated to biodiversity but may have negative and/or positive biodiversity impacts through their economic and environmental policies include agencies and state-owned enterprises such as the Electricity Generating Authority of Thailand (EGAT), Industrial Estate Authority of Thailand (IEAT), Thailand Board of Investment (BOI), the Bank for Agriculture and Agricultural Co-operatives (BAAC), and the Tourism Authority of Thailand (TAT) for example.

Wetland and rivers ecosystem in Thailand

Government agencies within the Ministry of Natural Resources and Environment (MONRE) and Ministry of Agriculture and Cooperatives (MOAC) have expenditure items related to the conservation and sustainable uses of land and water resources within the wetland and rivers ecosystem (Table 10). In addition to the protection of forest complexes, the DNP also has water management programs in watershed areas (with total expenditure of THB 497.8 million, or US\$ 15 million in 2015) that provide significant ecosystem services downstream. The programs aim to restore and sustainably manage small watershed areas, and involve local community networks in conservation activities. These programs supplement the works of the Department of Water Resources within MONRE that invests in the conservation and restoration of local water resource areas throughout the country (THB 286.5 million or US\$ 9.0 million estimated biodiversity related expenditure in 2015).

In addition, the Pollution Control Department (PCD) has an inland water quality monitoring and evaluation program (with an estimated biodiversity related expenditure in 2015 of THB 1.0 million or US\$ 0.03 million) to maintain biodiversity in the inland water areas. Within MOAC, the Land Development Department (LDD) has a workplan to develop agriculture land and water resource for sustainable use while the Rice Department promotes the production and conservation of organic and local rice varieties. In addition, the Royal Irrigation Department (RID) has programs that support biodiversity by protecting and restoring the local environment in large water catchment projects. The estimated biodiversity related budget for the three departments totaled THB 67.8 million or US\$ 2.0 million in 2015.



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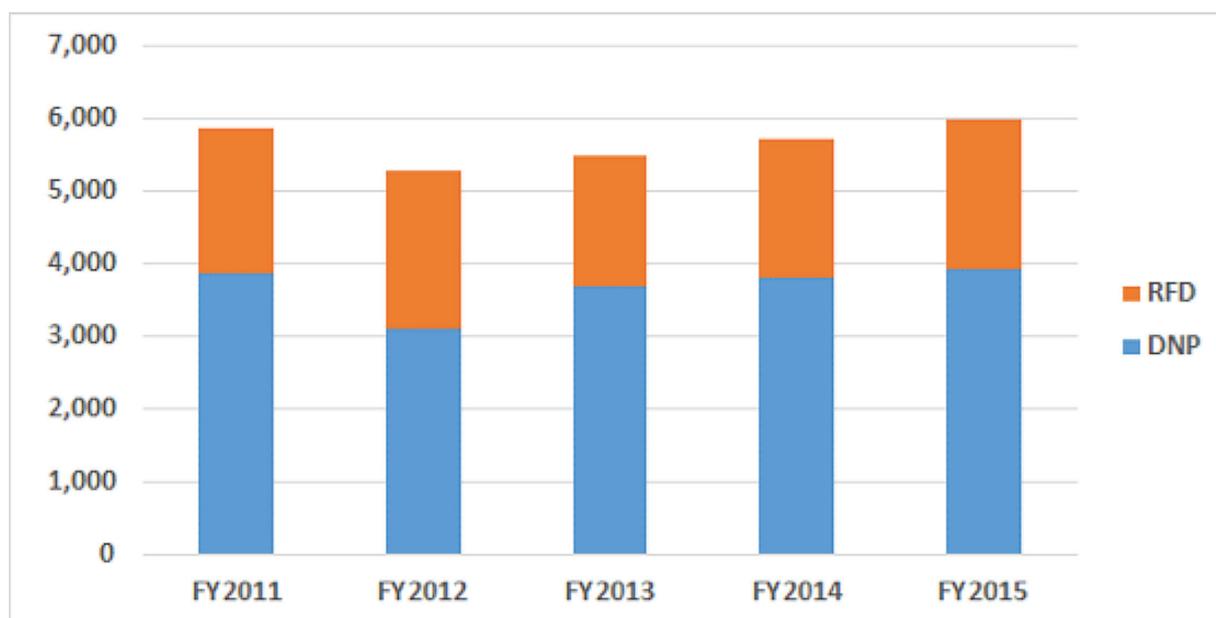
Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

Table 9. Expenditure of the main government agencies related to Terrestrial Ecosystems, 2015

				Unit: THB million
Agency	NBSAP Strategy	BIOFIN Category	Program	2015 Expenditure
RFD	1. Integration of Biodiversity Value and Management	Mainstreaming Sustainable Use	• Asean Economic Community (Timber and product certification, seedling and knowledge sharing center)	16.0
		Sustainable Use	• Environmental Protection and Management (Community forest management)	45.5
	2. Conservation & Restoration	Mainstreaming Sustainable Use Protection	• Environmental Protection and Management (Forestry management and development)	502.9
			• Climate change mitigation (Forest fire and smoke prevention)	154.7
		Restoration	• Environmental Protection and Management (Forest protection)	566.6
			• Integrated water management (Forest planting)	80.8
	4. Knowledge and Database System	Implementation	• Environmental Protection and Management (Forest restoration)	629.2
			• Environmental Protection and Management (Biodiversity database)	3.0
			• Research and Development (Forestry research)	55.2
			• Climate change mitigation (Forestry climate change research)	5.1
DNP	1. Integration of Biodiversity Value and Management	Mainstreaming	• Environmental Protection and Management (Ecotourism in protected forest area)	158.8
		Protection	• Asean Economic Community (Border area and heritage site management, forest fire and smoke cooperation)	70.3
	2. Conservation & Restoration	Restoration Protection	• Climate change mitigation (REDD+ enhancement)	8.1
			• Environmental Protection and Management (Forest conservation and protection, Participatory protected area management)	3,368.5
		Restoration Sustainable Use	• Climate change mitigation (REDD+ communities)	4.4
			• Environmental Protection and Management (Resolve land issue in protected areas)	66.5
		Restoration	• Climate change mitigation (Study change in ecosystem and forest carbon sink)	1.6
		Protection	• Environmental Protection and Management (Develop CIT system)	46.0
	Protection	• Disaster recovery and prevention (Information center in forest conservation area)	8.7	
	4. Knowledge and Database System	Implementation	• Environmental Protection and Management (Develop database and geographical information system)	24.6
• Research and Development (Forestry, flora and fauna)			151.5	
				5,968.0

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Figure 9. Expenditure of the main government agencies related to Terrestrial Ecosystem (Unit: THB million)



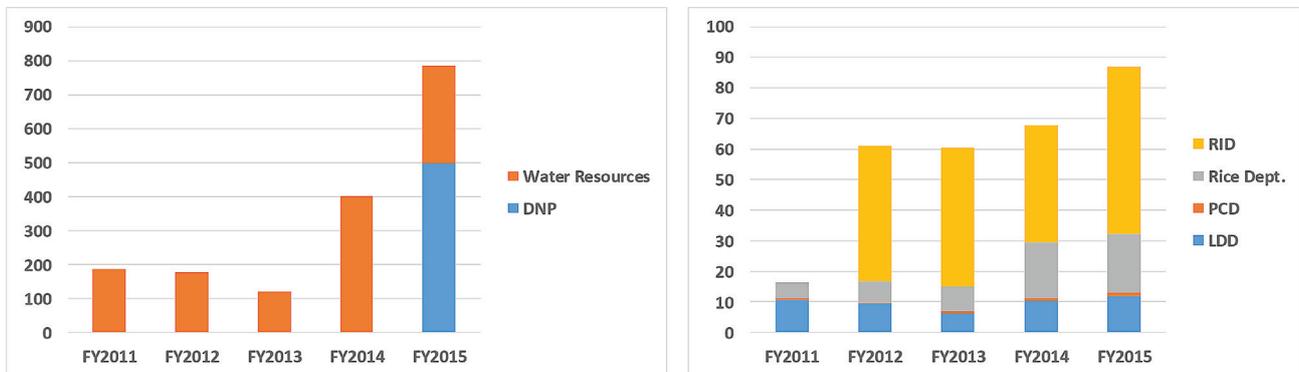
Source: Estimation from Thailand's National Budget and agencies' reporting

Table 10. Expenditure of the main government agencies related to Wetland and Rivers Ecosystems, 2015

Agency	NBSAP Strategy	BIOFIN Category	Program	2015 Expenditure
DNP	2. Conservation & Restoration	Restoration	• Integrated water management (Watershed area)	497.8
Water Resources	2. Conservation & Restoration	Restoration	• Water area protection, restoration and management	286.5
PCD	2. Conservation & Restoration	Sustainable Use	• Inland water quality monitoring and evaluation	1.0
LDD	2. Conservation & Restoration	Sustainable Use	• Agriculture land and water conservation. Promotion of organic agriculture and reduction in the use of chemical fertilizer and pesticides.	12.0
Rice Dept.	2. Conservation & Restoration	Protection	• Local rice variety conservation and research	2.3
	3. Capacity building for utilization and benefits sharing	Sustainable Use	• Promote sustainable local rice production in southern borderareas	0.8
			• Royal project sustainable community development	7.4
			• Promotion of intl. standards in rice production	8.5
RID	2. Conservation & Restoration	Sustainable Use	• Environmental protection and restoration in water reservoir projects	55.0
				871.4

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Figure 10. Expenditure of government agencies related to Wetland and Rivers Ecosystem (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting

Other public sector agencies

Table 11 and 12 summarize main biodiversity related activities undertaken by other agencies in the core environment and sustainable use sectors. As mentioned earlier, the works of the Plant Genetic Conservation Project (RSPG) are supported by government agencies and local authorities. The project also spent around on THB 8.7 million (US\$ 0.26 million) on conservation and research activities from its own funding in 2015. Agencies within the sustainable use sector are associated with the Ministry of Agriculture and Cooperatives, Ministry of Science and Technology (National Center for Genetic Engineering and Biotechnology, BIOTEC) and the Ministry of Public Health (Department of Traditional and Alternative Medicine, DTAM). In 2015, the total biodiversity related expenditure by these agencies, which are also the main implementation agencies for the NBSAP, are around THB 914.0 million (US\$ 27.3 million) and THB 916.5 million (US\$ 26.5 million) respectively.

Table 11. Biodiversity related expenditure of other core environmental agencies, 2015

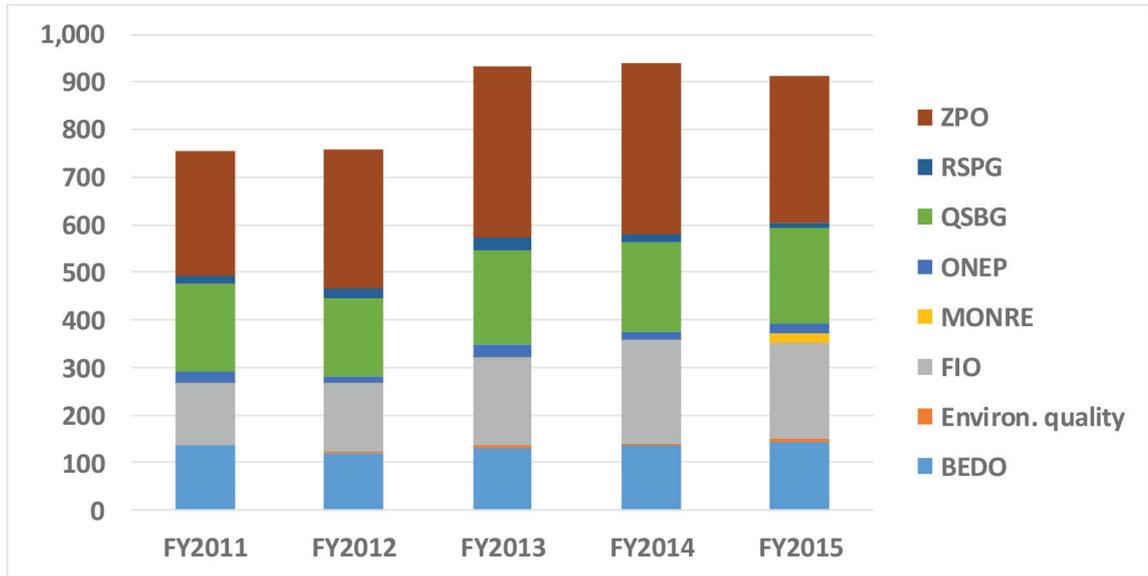
				Unit: THB million
Agency	NBSAP Strategy	BIOFIN Category	Program	2015 Expenditure
A. Other Core Environmental Agencies				
RSPG	1. Integration of Biodiversity Value and Management	Mainstreaming	• Creating local awareness and supporting plant genetic conservation	3.27
	2. Conservation & Restoration	Protection	• Protection, collection, planting and presevation of plant genetic	3.51
	3. Capacity building for utilization and benefits sharing	Implementation	• Research on conservation and utilization of plant genetic • Plant Varieties Development Planning	1.89
	4. Knowledge and Database System			
ONEP	1. Integration of Biodiversity Value and Management	Mainstreaming ABS	• Biodiversity, natural resource and climate change adaptation management mechanisms	19.5
MONRE	2. Conservation & Restoration	Implementation		
	1. Integration of Biodiversity Value and Management	Protection	• Asean Economic Community (Forest fire & smoke cooperation)	0.2
Environ. quality promotion department	2. Conservation & Restoration	Implementation	• GEF Contribution	0.4
	1. Integration of Biodiversity Value and Management	Protection	• Environmental resource protection (land & air surveillance) • Provincial forest protection and enforcement	6.0 14.4
BEDO	1. Integration of Biodiversity Value and Management	Mainstreaming	• Youth & community awareness on environmental resource protection and sustainable production	4.1
	2. Conservation & Restoration	Protection	• Environmental protection and restoration by protection network & green community development	2.1
Botanical Garden Org.	3. Capacity building for utilization and benefits sharing	Implementation	• Genetic resources database	27.0
			• Bioeconomy development policy implementation	4.9
		Mainstreaming Sustainable Use	• Database and knowledge management for bioeconomy	13.2
			• Organization management for bioeconomy development	46.2
Forest Indust.Org.	3. Capacity building for utilization and benefits sharing	Sustainable Use	• Bioeconomy development stakeholder engagement	24.2
			• Promotion of bio-business development	9.7
Zoological Park org.	4. Knowledge and Database System	Implementation	• Community support for bioeconomy development	19.8
			• Research network on plant genetic resources in S.E. Asia	14.3
Forest Indust.Org.	3. Capacity building for utilization and benefits sharing	Sustainable Use	• Biodiversity research and knowledge dissemination	163.5
			• Botanical tourism site enhancement	24.8
Zoological Park org.	3. Capacity building for utilization and benefits sharing	Mainstreaming	• Sustainable forest management for Asean Economic Commur	14.3
			• Technology transfer center for teak production (Sustainable Forest Garden Management)	3.1
Forest Indust.Org.	3. Capacity building for utilization and benefits sharing	Sustainable Use	• Management of commercial forest area (biodiversity database, knowledge center, forest planting occupation)	36.6
			• Conservation of domestic elephants	129.3
Zoological Park org.	4. Knowledge and Database System	Implementation	• Forest reserve area for conservation	16.0
			• Promotion and development of zoos for tourism	184.7
Zoological Park org.	3. Capacity building for utilization and benefits sharing	Mainstreaming	• Promotion of research for integrated zoo development	26.3
			• Education, conservation and breeding of rare and endangered wild animals	100.9
				914.0

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

Figure 11. Biodiversity expenditure of other core environmental agencies (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting

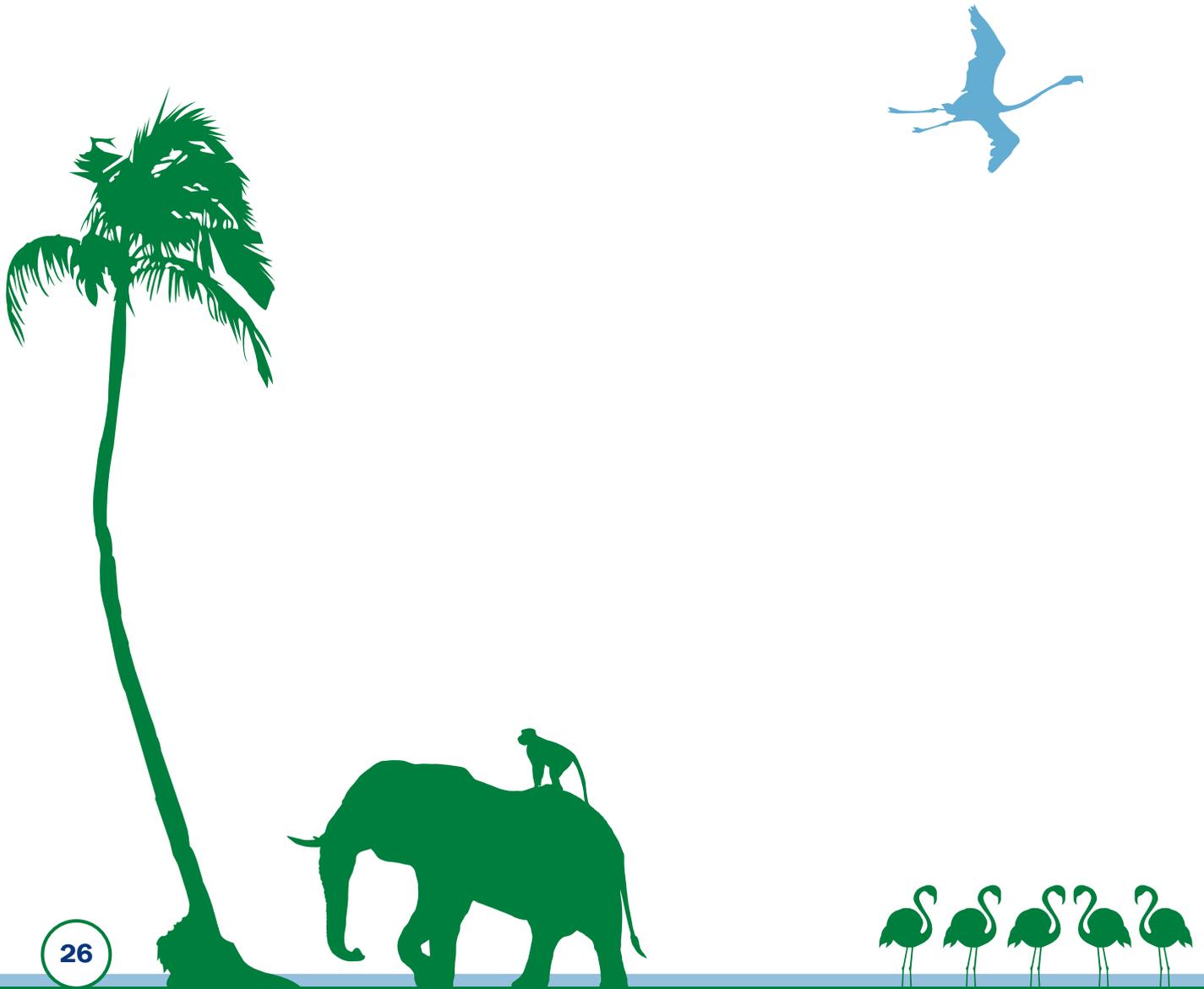


Table 12. Biodiversity related expenditure of sustainable use and ABS agencies, 2015

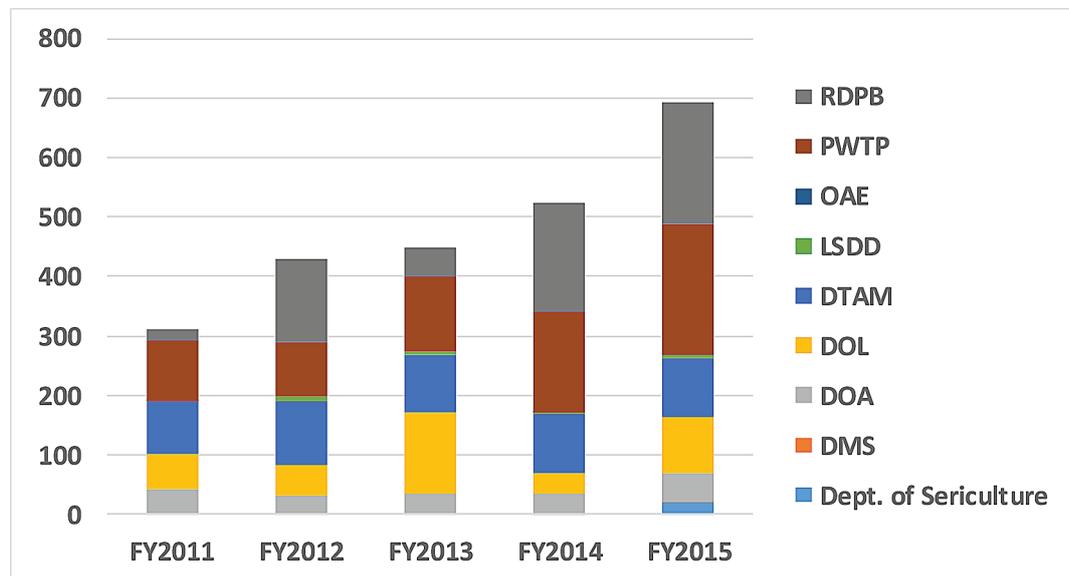
				Unit: THB million
Agency	NBSAP Strategy	BIOFIN Category	Program	2015 Expenditure
B. Other sustainable Use and ABS Agencies				
Dept. of Agriculture	3. Capacity building for utilization and benefits sharing	Implementation	<ul style="list-style-type: none"> • Research on biodiversity genetic resource conservation • Support for Royal Initiated Projects on Plant Genetic 	40.6 7.7
Office of Agricultural Economics	3. Capacity building for utilization and benefits sharing	Sustainable Use	Environmental friendly agriculture products and tourism (Green Agriculture Town Project)	0.5
Dept. of Sericulture	3. Capacity building for utilization and benefits sharing	Sustainable Use	• Sericulture conservation/technology research and development	21.7
Livestock	2. Conservation & Restoration	Protection	• Conservation and use of livestock diversity	0.4
Dev. Dept	3. Capacity building for utilization and benefits sharing		• Plant species diversity conservation and use for animal feeds	3.0
	4. Knowledge and Database System	Implementation	• Cattle genetic conservation and sustainable use (biotech)	0.5
			• Registration of local breeds	0.4
			• Climate change research on livestock	0.2
Dept. of Medical Science	4. Knowledge and Database System	Implementation	• Diseases, bacteria and viruses research and registration	0.2
DTAM	4. Knowledge and Database System	Implementation	<ul style="list-style-type: none"> • Development of traditional medicine, massage and herbal products for ASEAN and global markets • Traditional Thai Medicine Fund • Traditional medicine and herbal R&D and knowledge transfer • Traditional and alternative medicine R&D and innovation • Management of land rights and national map data center 	0.2 96.0 2.4 0.3 93.3
Dept. of Lands	2. Conservation & Restoration	Protection	• Infrastructure for coastal and river erosion prevention	127.8
Public Works	2. Conservation & Restoration	Protection	• Support sustainable urban planning by local authorities	93.2
Town & Country Planning Dept.	1. Integration of Biodiversity Value and Management	Mainstreaming		
Dept. of Local Admin.	2. Conservation & Restoration	Implementation	<ul style="list-style-type: none"> • Mangrove ecosystem study station • Support RSPG royal initiated projects 	10.1
Provinces	2. Conservation & Restoration	Implementation	• Biodiversity conservation and utilization projects	213.9
	3. Capacity building for utilization and benefits sharing	Protection		
		Restoration		
		Sustainable Use		
Royal Dev. Project Board	2. Conservation & Restoration	Mainstreaming	• Royal initiated projects supported by government agencies	203.9
		Protection	• Forest, wetland and marine conservation and restoration	
	3. Capacity building for utilization and benefits sharing	Restoration		
		Implementation	• Sustainable livelihood development and knowledge centers	
				916.5

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

Figure 12. Biodiversity expenditure of sustainable use and ABS agencies (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting

Biodiversity related expenditure for mainstreaming agencies whose main functions are not directly related to biodiversity conservation but nevertheless have some intended impacts are listed in Table 13. Figure 13 shows estimated expenditure trends over 2011-2016 period. For comparison, the trends in budgetary expenditure with possible adverse effects on biodiversity are shown in Figure 14. These trends include expenditure on the promotion of polluting mining industry, and the distribution of land rights to citizens that may include those in forest areas.

In terms of budget size, the Ministry of Defense receives most of the funding for its role in supporting biodiversity conservation efforts across the main environmental agencies.

The Department of Tourism has also invested in the development of eco-tourism sites across the country. To a lesser degree than these and other core environmental agencies, agencies such as the Ministry of Commerce and Marketing Organisation for Farmers have expenditure programs to promote green products. At the local level, these conservation and mainstreaming activities are supported through the budget of provincial and local authorities. Although the full extent of local expenditure has not been covered at this stage, pending information collection from the local authorities, estimated budgetary spending by the provinces and local administration department has substantially increased over the year as shown in Figure 13.

Biodiversity related revenue, still relatively small compared with the expenditure required to protect ecosystems from which the benefits are derived, also displays a rising trend. Figure 15 summarizes annual revenues generated by three agen-

cies in the forest, coastal and wetland ecosystems. Despite much larger government spending in other areas such as border area industrialization and transportation infrastructure investment that also affected biodiversity conservation efforts, sustainable development at the local level has the potential to be given greater priority by the relevant authorities. The challenge of mainstreaming local development and biodiversity conservation has become more viable with growing realization of its impact and significance on the livelihood of local communities. Thus, many programs for the agencies in all categories discussed above also include activities that involve local participation which also helps alleviate funding constraints and improve their effectiveness. In addition, the application of research results by various agencies and institutions, as outlined in Table 14, will help to ensure positive biodiversity conservation outcomes and more sustainable livelihoods in the communities which rely on biodiversity resources and their ecosystems. Annual expenditure on research activities of just over THB 170 million (US\$ 5 million) in 2015 is about the same size as those of mainstreaming agencies in Table 13.

Table 13. Biodiversity related expenditure of other mainstreaming agencies, 2015

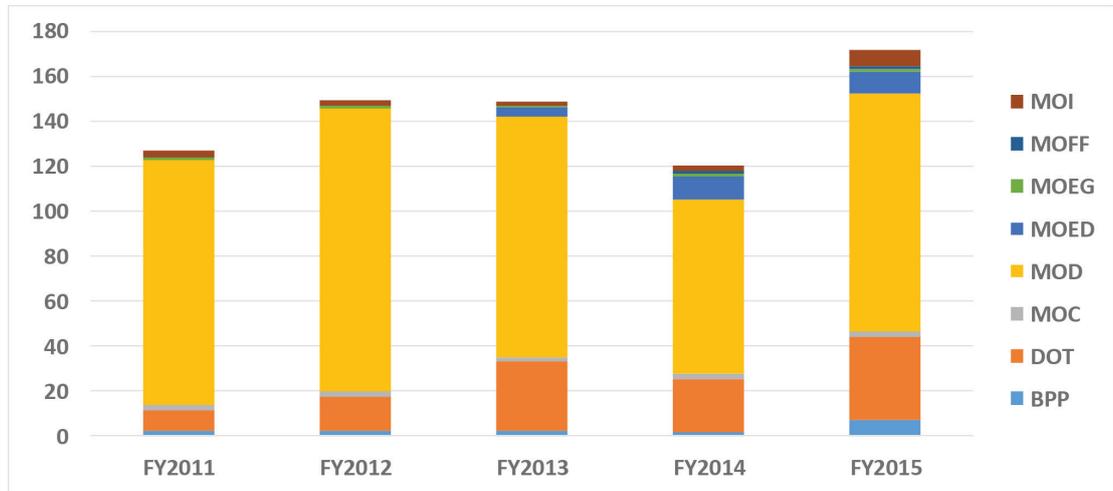
Agency	NBSAP Strategy	BIOFIN Category	Program	Unit: THB million 2015 Expenditure
C. Other Mainstreaming Agencies / Economic sectors				
Ministry of Education	1. Integration of Biodiversity Value and Management	Implementation	• Support RSPG royal initiated projects (School botanical garden training, education network and workplan development)	9.8
Ministry of Industry	1. Integration of Biodiversity Value and Management	Mainstreaming	• Eco-friendly industrial town development, Safety and environmental standards for mining and primary industry	7.0
Dept. of Tourism	3. Capacity building for utilization and benefits sharing	Mainstreaming	• Green/Eco-tourism site development	37.0
Ministry of Defense	2. Conservation & Restoration	Protection	• Natural resource and environment conservation programs • Public infrastructure works supporting conservation and royal initiated projects	105.9
Border Patrol Police	2. Conservation & Restoration	Protection	• Supporting RSPG survey and restoration works	7.2
Ministry of Commerce	3. Capacity building for utilization and benefits sharing	Mainstreaming	• Organic/fragrance rice product promotion and marketing	1.9
Ministry of Energy	2. Conservation & Restoration	Protection	• Environmentally friendly product development consultation	0.1
Marketing Org. for Farmers	3. Capacity building for utilization and benefits sharing	Mainstreaming	• Petroleum operations environmental impact assessment and • Local alternative energy development projects	0.6
			• Green agriculture products promotion and marketing	1.1
				171.4

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Biodiversity Finance Initiative (BIOFIN)

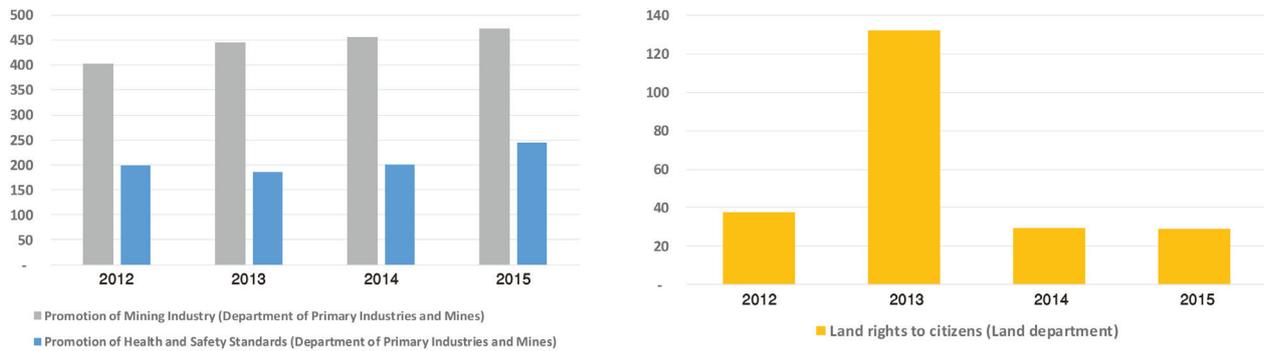
Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

Figure 13. Biodiversity expenditure of other mainstreaming agencies (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting

Figure 14. Budget items with possible adverse impact on biodiversity (Unit: THB million)



Source: Thailand's National Budget

Figure 15. Biodiversity revenues of selected agencies (Unit: THB million)



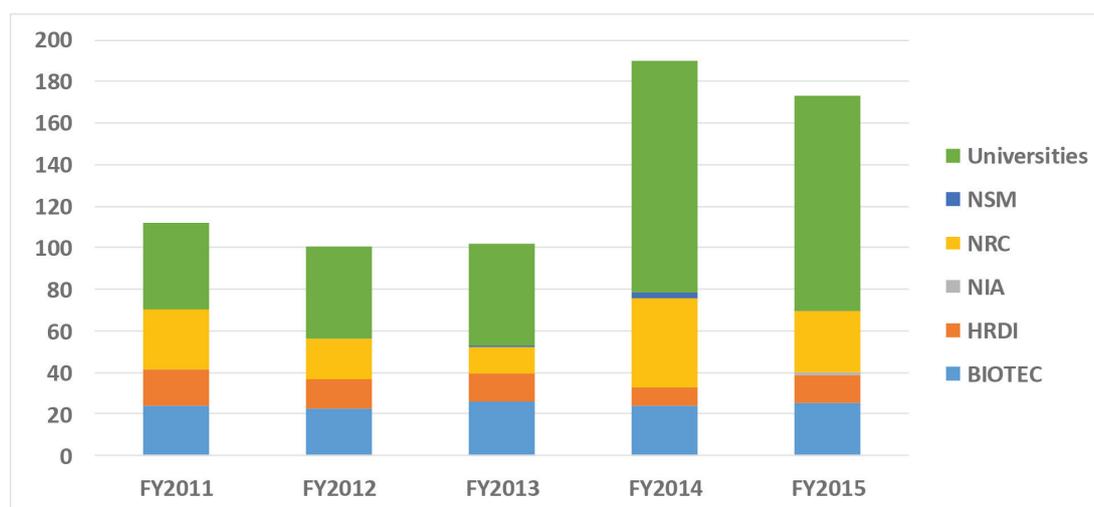
Source: Agencies' reporting

Table 14. Biodiversity related expenditure of other agencies and research institutes, 2015

Agency	NBSAP Strategy	BIOFIN Category	Program	Unit: THB million 2015 Expenditure
D. Other Implementation Agencies / Research Institutes				
National Science Museum	4. Knowledge and Database System	Implementation	• Survey and collect plant and animal genetics (for RSPG)	0.1
BIOTEC	4. Knowledge and Database System	Protection	• Biodiversity research and database on the utilization of genetic resource, microorganism and biosafety	25.3
National Innovation Agency	3. Capacity building for utilization and benefits sharing	Implementation	• Innovation in organic agriculture	1.1
National Research Council	3. Capacity building for utilization and benefits sharing	Implementation Mainstreaming	• Research programs on biodiversity, ecosystem and bioeconomy in rural and urban communities	29.6
Highland R&D Institute	4. Knowledge and Database System	Implementation	• R&D on the restoration of highland community food and biodiversity resource	1.5
			• Research on the commercial utilization of local knowledge and highland biodiversity resource	3.5
			• Development of agricultural bioproducts to reduce the use of pesticides on highland	4.6
			• R&D on highland bamboo and rattan production	1.5
			• Value addition of local herbs and medicine	2.4
Universities	2. Conservation & Restoration	Implementation	• Biodiversity conservation and utilization related research	103.4
	4. Knowledge and Database System		• Research support for RSPG projects	
				173.1

Source: Estimation from Thailand's National Budget for the Fiscal Year 2015 and agencies' reporting

Figure 16. Biodiversity expenditure of other agencies and research institutes (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting

Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

In total, biodiversity related expenditure for all agencies is estimated to be around THB 11 billion (US\$ 330 million) or 0.5% of the overall budget and 0.1% of GDP. The ratios with respect to the overall budget and GDP are stable over the years and the biodiversity related budget gradually rises under both measures as shown in Table 15.

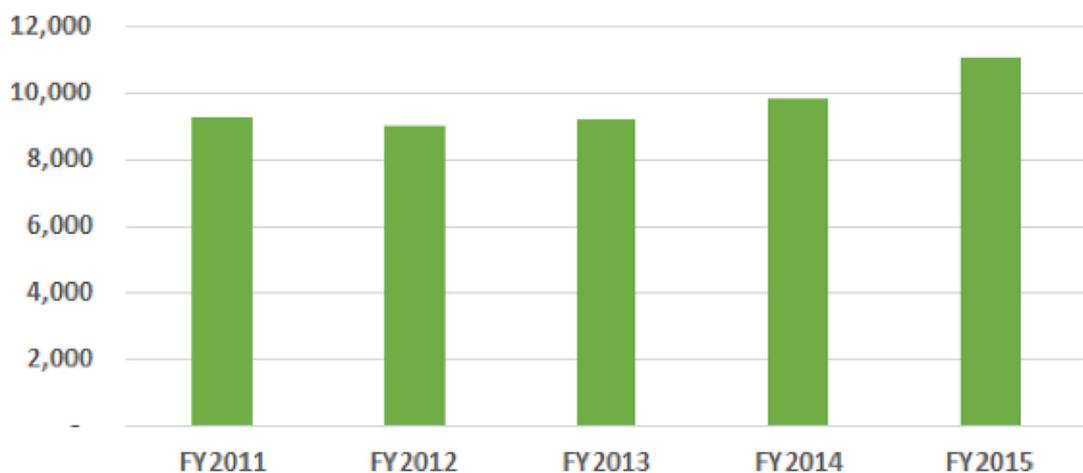
Table 15. Biodiversity expenditure as a percentage of total government expenditure and nominal GDP

Unit: THB million

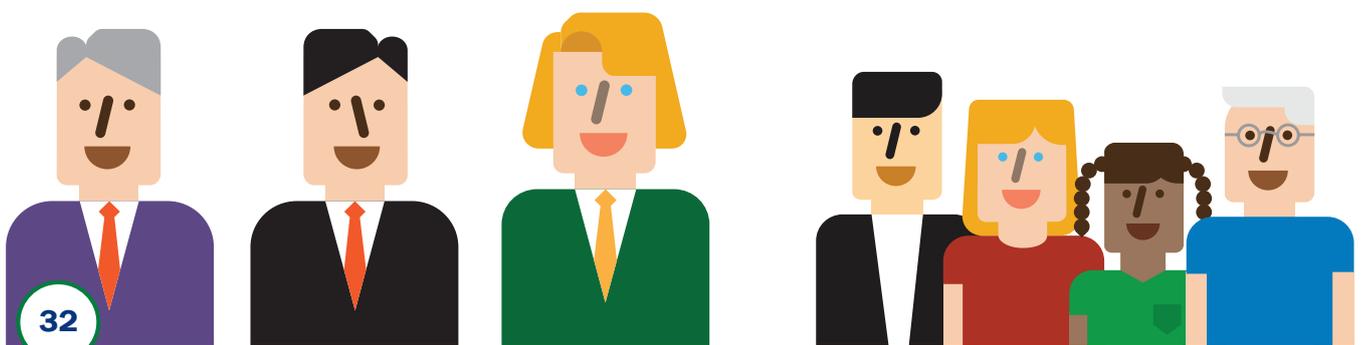
	FY2011	FY2012	FY2013	FY2014	FY2015
Nominal GDP	10,523,080	11,243,980	11,938,250	12,061,090	13,368,450
Total Government Expenditure	2,050,539	2,148,475	2,171,460	2,246,307	2,378,114
Biodiversity Budget	9,257	9,042	9,244	9,829	11,110
% of GDP	0.09%	0.08%	0.08%	0.08%	0.08%
% of Total Expenditure	0.45%	0.42%	0.43%	0.44%	0.47%

Source: Estimation from Thailand's National Budget and agencies' reporting

Figure 17. Total biodiversity expenditure estimates (Unit: THB million)



Source: Estimation from Thailand's National Budget and agencies' reporting



2.2 Private sector and civil society

On the private sector side, the financial channel benefiting biodiversity that has been widely practiced is corporate donation through Corporate Social Responsibility (CSR) programs by major companies, notably in the construction, mineral and petrochemical sectors. Major users of biodiversity resources are in bio-industry including the pharmaceutical sector that conducts substantial research and development. Other companies that are members of Thailand Business Council for Sustainable Development (TBCSD) include those in the financial services, agriculture and consumer product industries. Several companies issue their sustainability disclosure reports and Thailand Stock Exchange has also published a “Thailand Sustainability Investment” list of 51 listed companies that satisfied economic, social and environmental criteria for investment purposes in accordance with international practices. Public and private companies that invest in green projects are eligible for tax incentives by Thailand Board of Investment’s (BOI) for economic forest plantation and green biotechnology. Another current biodiversity financing vehicle that the private sector may be able to contribute is the Environmental Fund under Thailand’s National Environmental Quality Act B.E.2535 (1992) mentioned in the previous section.

Table 16 short listed some of the private sector and civil society organizations that are actively involved in CSR and conservation activities. Example of activities by some of the organizations that have participated in the discussion with BIOFIN program in Thailand are outlined in Table 17. Private sector also helps funded biodiversity conservation activities of the environmental agencies. Private sector funding for the Royal Forest Department (RFD) and Plant Genetic Conservation Project (RSPG) are shown in Table 18. Regular private funding for these and local nongovernmental agencies would help to further private sector’s understanding on biodiversity conservation issues and ensure that CSR expenditure are relevant and effective.



Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

Table 16. Related Private sector and Non-governmental organizations

Organization	Sector
Private Sector	
PTT Plc., RCPG Plc., Electricity Generating Authority of Thailand, Metropolitan Electricity Authority, Ratchaburi Electricity Generating Holding Plc., Electricity Generating Plc., Bangchak Petroleum Plc., Thai Oil Plc., Banpu Plc., Siam Cement Plc., Siam City Cement Plc.	Energy and Petrochemical: Terrestrial coastal and marine exploration, Generation and chemical plants
Charoen Pokphand Foods Plc., Mitr Phol Group, United Palm Oil Industry Plc.	Agribusiness: Animal feeds, Plantation
SCG Packaging, Double A Plc.	Forestry, Pulp and paper
Bank for Agriculture and Agricultural Cooperatives	Agricultural lending
Non-governmental Organization	
Thailand Environment Institute Foundation, Green World Foundation	Environmental knowledge dissemination
Bird Conservation Society of Thailand	Environmental conservation
Earth Net Foundation, BioThai Foundation, Sustainable Agriculture Foundation of Thailand, Federation of Thai Fisher Folk Association	Sustainable agriculture
Thai Wetlands Foundation, Thai Water Partnership	Wetlands and water resource

Source: BIOFIN Thailand



Table 17. Activities by Private Sector and Public Enterprises

Unit: THB million

Activities	Estimated budget in 2015
Bangchak Petroleum Plc.	411.0
• Ecosystem restoration	1.3
• Environmental Impact Assessment and Mitigation	409.7
Earth Net Foundation	12.7
• Organic agriculture (knowledge dissemination, sustainable small holder fishery,	9.8
• Community support for climate change adaption (resiliency training, impact assessment, seed bank)	2.9
PTT Plc.	n/a
• Biodiversity impact assessment for exploration, production, pipeline and fuel station projects	
• Forests, mangroves planting, protection and restoration, forest fire protection, green city project	
• Marine species release, coastal and mangrove restoration, knowledge center and community engagement	
• Integration of biodiversity assessment and management policy	
• Cooperation with Biodiversity Research and Training (BRT) Program	
Charoen Pokphand Foods Plc.	16.6
• Mangrove forest planting, protection, restoration and research (with community revolving fund and knowledge centers)	16.6
• Watershed forest conservation and restoration	
• Onsite biodiversity impact assesment (Business & Biodiversity Check with BEDO, Mangrove forest area survey with DMCR)	
• Conservation and sustainable use of native buffalos and cattles	
Electricity Generating Authority of Thailand	6.30
• Fish genetic conservation in reservoir area with local community	0.8
• Plant genetic conservation with RSPG	4.5
• Community network for environmental quality assessment of power plants	1.0
• Site environmental management under ISO14001 standard	
Bank for Agriculture and Agricultural Co-operatives	85.50
• Community organic agriculture training (eligible for Green credit) and consumer network development (Community Supported Agriculture)	8.0
• Lending credit for corncob burning reduction	0.5
• Agricultural burning reduction community program	6.0
• Creation of community check dam in northern water basin area	31.0
• Tree bank program and fund in northern water basin community	40.0

Source: Company survey reporting and documents; n/a = awaiting survey response

For a financial mechanism that directly addresses biodiversity-related incentives, the implementation of Payment for Ecosystem Services (PES) in Thailand has been promoted by international organizations through external funding, including those from the GEF and UNDP for their supported programs, and the EU and GIZ (German government) for the ECOBEST project. The main PES implementation agencies include BEDO, DNP and the RFD. The Bank for Agriculture and Agricultural Co-operatives (BAAC, a state-owned specialized financial institution) also manages the Tree bank program whereby communities can plant trees on their own or public lands for sustainable use, and receive interest payment for the ecosystem services generated. Planted trees can also be used as collateral for certain types of loan such as Green agricultural credit with a subsidized rate of interest. The program receives public support from the Ministry of Finance, RFD and BEDO.

Table 18. Examples of Private Sector Funding for Public Agencies

		Unit: THB million
Supported Program	Private funding in 2015	
Royal Forest Department		15.9
Support from <i>Ratchaburi Electricity Generating Holding Plc.</i>		
• Community forest plant genetic conservation		11.1
• Study on carbon capture and community forest biodiversity		4.4
Support from <i>Techno-Sell (Frey) Co., Ltd. (distributor for CP Films Inc.)</i>		
• Forest planting and restoration program		0.4
Plant Genetic Conservation Project		13.2
• <i>Provincial Electricity Authority</i>		2.0
• <i>Electricity Generating Authority of Thailand</i>		0.4
• <i>Revenue from telecom operators</i>		0.9
• <i>MP B5 Thailand, Ltd. (Petroleum)</i> for coral research and development		1.2
• Other corporate and public donations		8.7

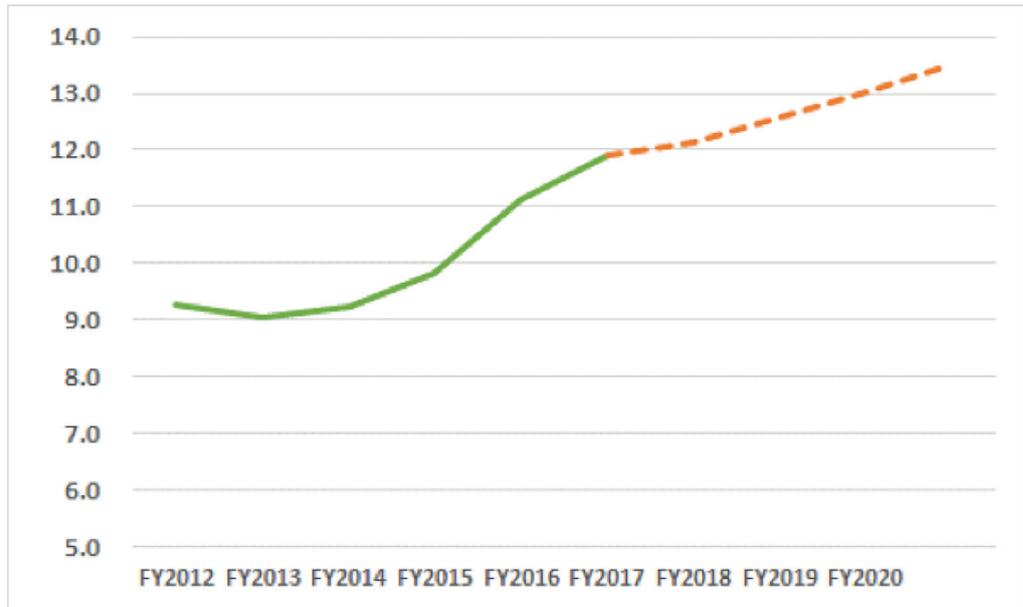
Source: Agencies' reporting

3. BIODIVERSITY EXPENDITURE CATEGORIES AND BASELINE PROJECTION

Figure 18 shows the baseline projection of total biodiversity expenditure under a 'business-as-usual' assumption. The estimated expenditure over FY2011–2015 was individually derived for each program/activity according to the criteria described in Section 1.3 and the relevancy coefficient attribution scheme in Table 4. The data are extended to FY2017 by using the annual budget structure and allocation to each agency. Expenditure data are then extended further to FY2020 using average nominal growth rates over the last two fiscal years (FY2016 and

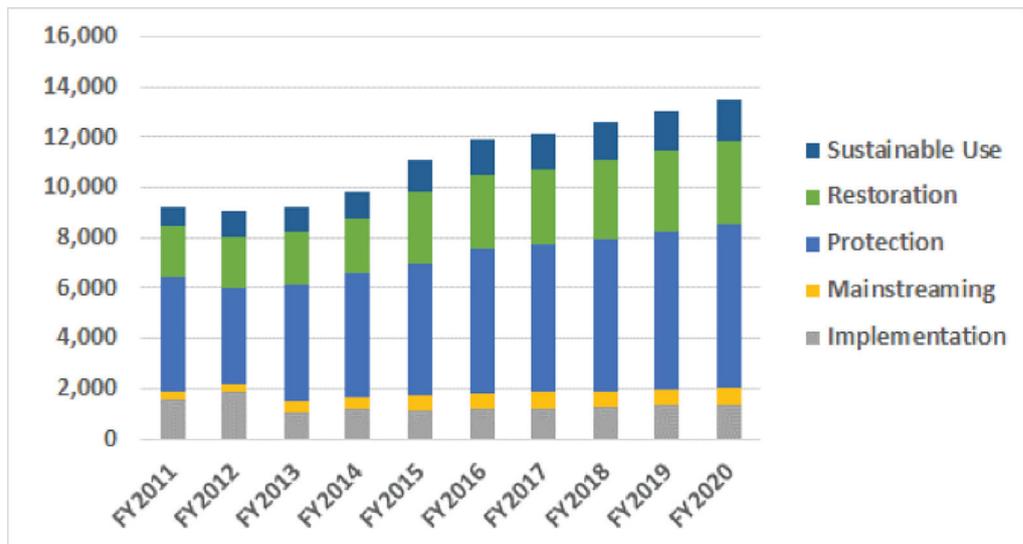
2017). This is equivalent to assuming the same spending rate and biodiversity relevancy coefficients for each program into the future. The implied biodiversity relevancy coefficients at the agencies level (Table 19) are calculated from estimated and overall expenditure for each agency or relevant programs in 2015.

Figure 18. Total biodiversity expenditure trend and projection (Unit: nominal THB million)



Source: Estimation and projection from Thailand's National Budget and agencies' reporting

Figure 18. Total biodiversity expenditure across categories (Unit: nominal THB million)



Source: Estimation and projection from Thailand's National Budget and agencies' reporting

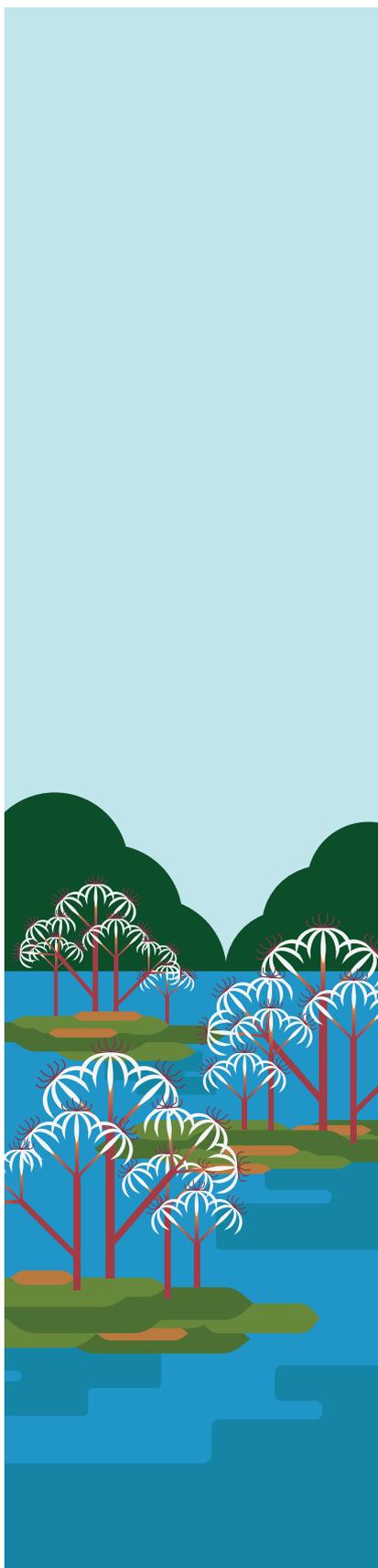
Biodiversity Finance Initiative (BIOFIN)

Public, Private and Civil Society Biodiversity Expenditure Review in Thailand

Table 19. Implied biodiversity relevancy coefficients

	Implied Biodiversity Relevancy Coefficient (%)	Basis of calculation (% of)	Biodiversity Expenditure (FY2015)	Expenditure or Budget (FY2015)
A. Core Environmental agencies				
BEDO	100.00%	total agency's expenditure	145.0	145.0
DMCR	92.24%	total agency's expenditure	1,087.8	1,179.3
DNP	43.50%	total agency's expenditure	4,418.8	10,158.0
Environ. quality	5.00%	relevant programs	6.2	123.4
FIO	72.33%	relevant programs	199.2	275.4
MONRE	67.31%	relevant programs	21.0	31.2
ONEP	7.35%	relevant programs	19.5	264.8
PCD	0.36%	relevant programs	1.7	488.0
QSBG	90.27%	total agency's expenditure	202.6	224.4
RFD	48.41%	total agency's expenditure	2,058.9	4,253.3
RSPG	100.00%	expenditure on projects	8.7	8.7
Water Resources	4.50%	relevant programs	286.5	6,371.6
ZPO	34.51%	relevant programs	312.0	904.1
B. Sustainable use and ABS agencies				
Dept. of Sericulture	4.01%	total agency's budget	21.7	541.6
DMS	0.01%	total agency's budget	0.2	1,192.4
DOA	1.20%	total agency's budget	48.3	4,013.3
DOL	1.44%	total agency's budget	93.3	6,491.4
DTAM	23.51%	total agency's budget	98.9	420.7
Fisheries	25.96%	total agency's budget	986.9	3,801.6
LDD	0.23%	total agency's budget	12.0	5,301.6
LSDD	0.54%	relevant programs	4.5	837.4
OAE	0.05%	total agency's budget	0.5	1,001.2
PWTP	0.95%	total agency's budget	221.0	23,210.6
RDPB	30.34%	total agency's budget	203.9	672.0
Rice Dept.	4.43%	relevant programs	19.0	430.3
RID	0.13%	total agency's budget	55.0	43,324.8
C. Mainstreaming agencies/ Economic sectors				
BPP	0.01%	total agency's budget	7.2	90,938.4
DOT	1.31%	total agency's budget	37.0	2,817.4
Marine	0.18%	total agency's budget	8.4	4,742.1
MOC	0.07%	total agency's budget	2.0	2,782.2
MOD	0.06%	total agency's budget	105.9	183,487.7
MOED	0.01%	total agency's budget	9.8	82,528.9
MOEG	0.07%	total agency's budget	1.5	1,976.1
MOFF	0.05%	total agency's budget	1.1	2,302.5
MOI	0.11%	total agency's budget	7.0	6,478.1
D. Implementation Agencies / Research Institutes				
BIOTEC	57.05%	relevant programs	25.3	44.4
HRDI	2.51%	total agency's budget	13.5	537.3
NIA	0.36%	total agency's budget	1.1	316.8
NRC	100.00%	relevant programs	29.6	29.6
NSM	0.01%	total agency's budget	0.1	687.7
Universities	55.59%	relevant programs	103.4	186.1
E. Local authorities and communities				
DLA	50.50%	relevant programs	10.1	20.0
Provinces	36.81%	relevant programs	213.9	581.1

Source: Estimation and projection from Thailand's National Budget and agencies' reporting

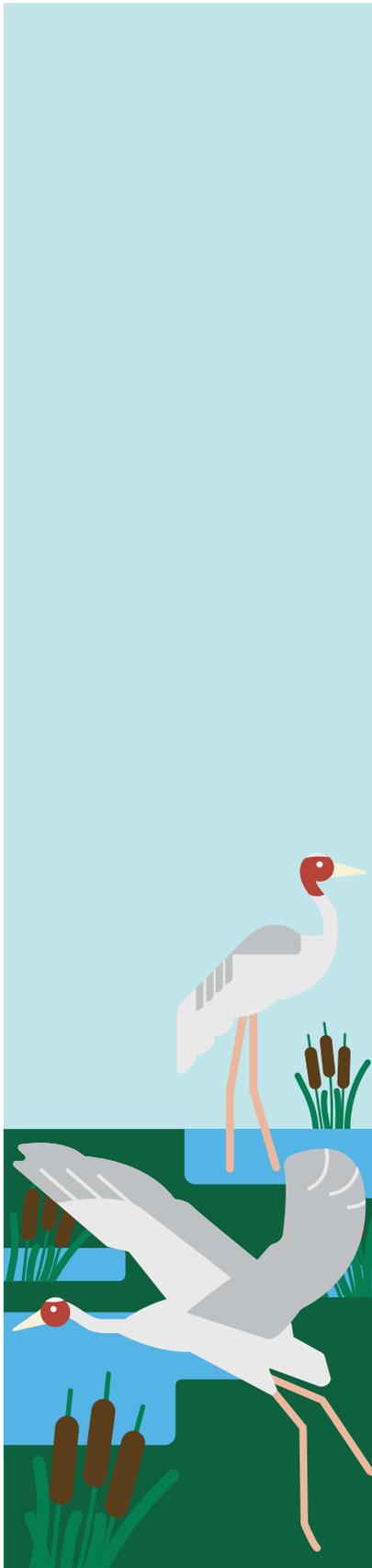


Agencies with double-digit implied biodiversity relevancy coefficients are those with activities most directly related with the criteria for conservation, sustainable use and equitable benefits sharing of biodiversity resources. These agencies are also among the main contributors to the NBSAP. Agencies with single-digit or below 1 percent implied biodiversity relevancy coefficients, are mostly sustainable use and mainstreaming agencies which nevertheless have sizeable biodiversity related expenditure, especially if they belong to the main economic ministries in the infrastructure and agriculture sectors, or the Ministry of Defense which provides support for conservation activities of the main environmental agencies as mentioned in the previous section. Figure 19 compares expenditure trends for different workbook categories. The total biodiversity expenditure is dominated by expenditure on protection and restoration activities of the core environmental agencies that accounted for around 70% of the total in 2015.

4. CONCLUSION AND RECOMMENDATIONS

This report has reviewed main components of biodiversity expenditure in Thailand within the context of national budget and technical assistance from abroad. The main sources of external funding are from the Global Environmental Fund (GEF) and bilateral grants from individual countries that are implemented by the main government agencies in the environmental sector. These external development assistances, co-financed by the government and international NGOs, are spent on projects that aim to provide a framework and mobilize agencies' effort for conservation and sustainable management of biodiversity resources at the national and community levels. As such, available funding is highly targeted towards the protection of critical ecosystems, reduction of pressures on natural habitats and mobilizing financial resources for sustainable use and management in line with the CBD's strategic objectives.

The main domestic source of funding is from the government's budget allocation for operations of the core environmental agencies whose biodiversity related activities are mostly concerned with the protection and restoration of vital ecosystems which, despite their national strategic significance, have been under threat from trends in urbanization, public policy, and the unintended consequences of economic development as reported in the Policy and Institution Review. The current National Biodiversity Strategies and Action Plan (NBSAP) similarly emphasizes cross-agency coordination among national agencies in the environmental, agriculture, science and technology, and public health sectors along with area-specific research and implementation efforts at the local level. However, an expansion of the NBSAP to cover a broader range of agencies in the economic sectors such as industry, energy, finance, commerce, tourism, urban planning and transportation (that represent over 60% of the country's GDP; biodiversity expenditure for mainstreaming agencies are listed in Table 13 of the previous section), and realignment of funding away from declining heavily polluting industries (mining and quarrying sector is around 4% of GDP) or unregulated/monopolistic policies, would increase the funding universe for biodiversity and raise its strategic importance in the budget allocation process. Mainstreaming biodiversity expenditure with sustainable growth strategies is certainly an



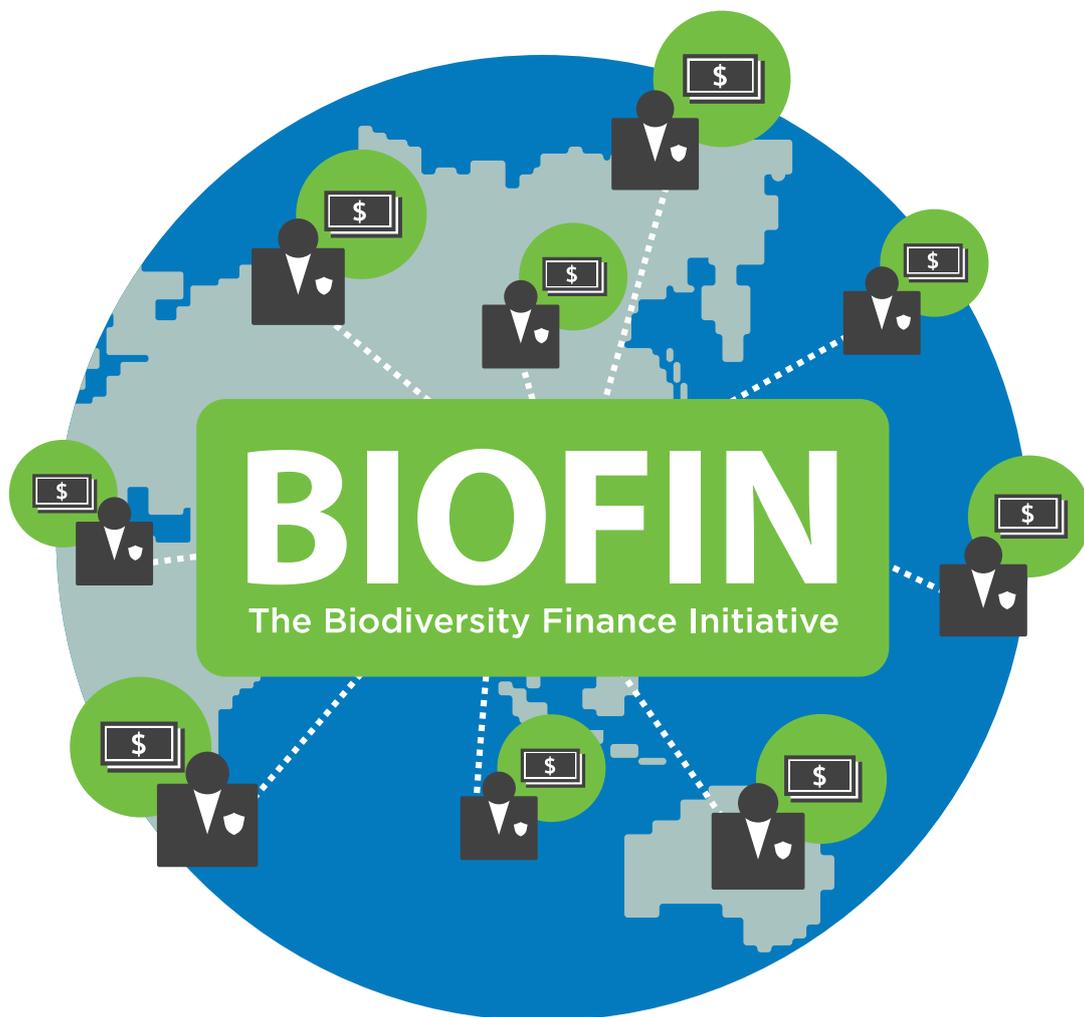
option. However, it should come from conscious decision of the central government to prioritize and outline how government agencies and local authorities should incorporate biodiversity consideration into the planning of their activities, projects, and operations, preferably at the budget formulation stage. This approach is also in line with the government's budget policy towards securing greater, more focused, and more effective funding from the decentralized local administration that is anchored by thematic and strategic plans of provinces and clusters of provinces. Consistent with the government's public and private partnership strategy, the broader action plan can be extended to include private sector and community support.

A comprehensive and broad-based biodiversity strategies and action plan would help to focus the attention of the government and key players in budget formulation and preparation, on the strategic importance of biodiversity and ecosystem services, and on cost effectiveness of sustainable development. Human and financial resource in the public sector for knowledge, equipment and infrastructure investment remains limited. As mentioned in the previous section, about one-half of total expenditure for the top three government agencies in terms of biodiversity conservation, is personnel costs, and investment in equipment and infrastructure (Table 7) while expenditure on knowledge dissemination, research and development (Table 14) is even much less. Individual agencies and state enterprises in the environmental sector (Table 11) have limited funding and human resource for research and implementation. Hence the cooperation and support from community, civil society, national defense agencies and private sector (Table 13, 17 and 18), that can be garnered further on a more regular basis through a coherent plan with appropriate fiscal, economic, and political incentives. Many environmental agencies have reached out to, or rely on local communities and their networks for essential support to protect biodiversity and local environmental resources. For over four decades, royal initiated projects (expenditure in Table 12) with biodiversity conservation visions have trained local personnel and established learning centers throughout the country. The application of sustainable development, notably through the practice of sufficient economy principle which has long been incorporated into national development plan, would raise community support and further private sector's understanding on biodiversity conservation issues. This will provide an opportunity for the implementation of alternative financing mechanisms such as PES, green bonds, green credit or tree bank programs with the participation and support from the community and private sector. In order to mobilize efforts and resources towards planning and implementation, it is essential that

1. Ownership of the NBSAP process is strengthened and broadened to include all stakeholders including prime minister's office agencies, royal initiated projects, communities, local government, civil societies, economic and business institutions, with appropriate financial capacity and incentives to engage.
2. Biodiversity policy and finance information is collected and utilized so that stakeholders can make informed budget and investment decisions. Examples include information on green GDP, water management and watershed area restoration, industrial zone impact assessment, ecotourism and sustainable forestry, that can be used for budget formulation at the

central, local and community levels. Other types of information include regulatory, reputation and political risks associated with activities of significant direct and indirect biodiversity impacts, such as use of fertilizer, GMOs and forest encroachment, so that the private sector can make informed business and investment decisions.

3. Decision makers at the budget formulation stage and mainstreaming economic agencies are well informed of the strategic significance of biodiversity and agree to consider sustainable policy alternatives for budget formulation and realignment so that the country knows how much public funding can be allocated for biodiversity and how future investment can be financed.



Please visit: www.biodiversityfinance.net

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