Public Environmental Expenditure Review
10th Five Year Plan
Bhutan

2008/09 and 2009/10

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Preface

The *Public Environmental Expenditure Review* (PEER) for Bhutan is an activity led by the Department of Public Accounts of the Ministry of Finance (DPA/MoF). The PEER is part of the Danida and UNPD/UNEP PEI assisted *Joint Support Programme* (JSP) for mainstreaming environment in development and enhancing capacity for environmental management in Bhutan.

A *Joint Task Force* (JTF) has been established for the PEER preparation. The JTF is chaired by DPA/MoF with members from the Gross National Happiness Commission (GNHC), National Environment Commission Secretariat (NECS) and the National Statistics Bureau (NSB). The PEER concept paper prepared by the JTF has guided the preparation of the PEER.

Sonam Wangdi (DPA/MOF) was the focal person for the preparation of the PEER. The Danida Liaison Office (LOD) of Bhutan contracted two consultants to support the preparation of the PEER.

Thimphu, September 13, 2011

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Abbreviations

ADB	:	Asian Development Bank
AFS	:	Annual Financial Statement
AU	:	Administrative Unit code in CEBA
BAS	:	Budget and Accounting System
BEO	:	Bhutan Environment Outlook
CDM	:	Clean Development Mechanism
CEBA	:	Central Budget and Accounting System
COFOG	:	Classification Of Functions Of Government
Danida	:	Danish International Development Assistance
DPA	:	Department of Public Accounts
DRR	:	Disaster Risk Reduction
EFRC	:	Environmentally Friendly Road Construction
EUSPS	:	Environment and Urban Sector Programme Support (Danida)
FIC	:	Finance Item Code
FY	:	Financial Year
FYP	:	Five-Year Plan
GEF	:	Global Environmental Facility
GNH	:	Gross National Happiness
GNHC	:	Gross National Happiness Commission
JSP	:	Joint Support Programme (Danida and UNDP/UNEP)
JTF	:	Joint Task Force
LOD	:	Liaison Office of Denmark (in Bhutan)
MoAF	:	Ministry of Agriculture and Forests
MoEA	:	Ministry of Economic Affairs
MoHCA	:	Ministry of Home and Cultural Affairs
MoWHS	:	Ministry of Works and Human Settlement
MYRB	:	Multi-Year Rolling Budget
NEC	:	National Environment Commission
NECS	:	National Environment Commission Secretariat
NGO	:	Non-Government Organisation
NSB	:	National Statistics Bureau
Nu	:	Ngultrum (currency of Bhutan)
OBC	:	Object Codes in CEBA
PAC	:	Pollution Abatement and Control
PE	:	Public Expenditure
PEE	:	Public Environmental Expenditure
PEER	:	Public Environmental Expenditure Review
PEI	:	Poverty and Environment Initiative (UNDP/UNEP)
PEMS	:	Public Expenditure Management System
PER	:	Public Expenditure Review
R&D	:	Research and Development
RGoB	:	Royal Government of Bhutan
RSPN	:	Royal Society for Protection of Nature

Executive Summary

Introduction

Conservation of the environment is the second of the four pillars of *Gross National Happiness* (GNH) development for Bhutan. Through plans and policies the *Royal Government of Bhutan* (RGoB) has made protection of the environment and natural resources a priority for development in Bhutan in pursuit of the environmental objectives of GNH.

The *Public Environmental Expenditure Review* (PEER) will determine the size and composition of the *Public Environmental Expenditures* (PEE). The public expenditures are among the means to achieve the environmental objectives of GNH. The PEER therefore provides a basis for RGoB to determine how the public expenditures are reflecting the development objectives for environment and natural resources

The PEER covers the first two financial years of the 10th Five Year Plan (FYP) (2008/09 and 2009/2010) and also draws on the experience from the 2009 PEER covering the 9th FYP.

Methodology

A PEER methodology has been developed including. The methodology includes an environmental classification with nine environmental clusters and 40 sub-clusters of PEE. Public environmental expenditure data for the first two years of the 10th FYP are screened, classified and analysed to estimate the PEE. The data are retrieved from the *Central Budget and Accounting System* (CEBA) with a screening done of all budget codes at activity and sub-activity level for autonomous agencies, 10 ministries, 20 districts (Dzongkhags) and 205 Geogs.

The budget lines classified as PEE are compiled in the PEE data base. The PEE data base is in MS Excel and has 4,450 entries for the two years. It includes the budget codes by programme and activity/sub-activity level, the spending agencies, current and capital budgets and expenditures, and sources of finance for 2008/09 and 2009/10. Each budget code is also assigned to an environmental cluster and sub-cluster.

The *total PEE* including all nine environmental clusters captures the wider public environmental expenditures in pursuit of the GNH objectives. A narrow estimate referred to as *core PEE* is based on four clusters of public environmental expenditures. The core PEE is according to an international definition of environmental expenditures including *'pollution abatement and control (PAC) expenditure plus protection of biodiversity and landscape, and research and development (R&D) in environment'*. The core PEE is comparable with results from PEERs in other countries using a similar definition.

Findings

1) The PEER reveals that RGoB allocates and utilises substantial public funding for environmental expenditures. About 6 % of the public expenditures are related to the fulfilment of policy objectives on environment in pursuit of GNH. The public environmental expenditure has reached almost Nu. 2.0 billion in 2009/10.
2) The *total* PEE for the financial year 2009/10 is Nu. 1,966 million, which is equal to 6.5 % of the total public expenditure and 2.9 % of the GDP. The total PEE for 2008/09 is Nu. 1,322 million, which is equal to 5.7 % of the total public expenditure and 2.3 % of the GDP.
3) The *core* PEE for the financial year 2009/10 is Nu. 756 million, which is equal to 2.5 % of the total public expenditure and 1.1 % of the GDP. The core PEE for 2008/09 is Nu. 491 million, which is

equal to 2.1 % of the total public expenditure and 0.8 % of the GDP. The proportion of core PEE of the total PEE remained at the same level with 38 % in 2009/10 and 37 % in 2008/09.

4) The core PEE (0.8 % and 1.1 % GDP) is high compared to international estimates. Bhutan has a priority on the environment but so have other developing countries. The conclusion from the 2009 PEER that the PEE in Bhutan is significantly higher than other countries with 2.8 % PEE of GDP could not be reconfirmed. It appears that the 2009 PEER included more expenditures in the PEE than covered by the international definition.
5) The PEE increased in both absolute and relative terms from 2008/09 to 2009/10. The total PEE increased by almost 49 % from 2008/09 to 2009/10 which was more than the increase in public expenditure (30 %) and GDP (15 %). The 2009 PEER revealed a constant nominal level of PEE at about Nu. 1 billion per year, but the relative share showed a declining trend due to the doubling of both public expenditure and GDP during the 9th FYP. The downward trend from the 2009 PEER has changed to an increase in the 10th Plan. The next years will show if the increasing trend is sustained for the remaining 10th FYP.
6) The 49 % increase in the PEE is mainly due to the increase of external funding by Nu. 600 million (181 %) from 2008/09 to 2009/10. The RGoB funded share of PEE increased by only Nu. 40 million (4 %). The share of PEE in the RGoB public expenditures (without the external funding) decreased from 6.0 % in 2008/09 to 5.4 % in 2009/10. The reason for the increase is that the first year (2008/09) had a late release of the budget and it took time to prepare investment projects and tenders. It was only in the second year the investments were ready for external funding.
7) About 30 % of the PEE is at local government level. In the 9th FYP only about 4 % of the PEE was at the local government level. The increased local government share reflects an emerging fiscal decentralization in Bhutan. The increase is not due to the PEE from farm roads as this is only 3 % of total PEE in 2009/10 or about 10 % of the PEE at local government level.
8) About 70 % of the PEE is with the central level agencies. Three ministries (MoAF, MoEA and MoWHS) account for over 60 %, and the National Environmental Commission Secretariat (NECS) accounts for 3.4 % of the total PEE. Expenditures accounted for at the central level can be actual expenditures incurred at local level, e.g. expenditures on national parks and infra-structure.
9) 'Forestry services' is the RGoB programme having the largest share of PEE. The 'Forestry services' programme's share of PEE decreased by 10 %-point from 40.4 % to 30.4 %. The PEE for 'Urban development and engineering services' increased by 10 %-point to 12.7 % in 2009/10.
10) The PEE of the cluster 'Soil conservation and land management' decreased by half from 2008/09 to 2009/10. This is mainly explained by a decline in external funding. In all other cluster the external funding increased.
11) The PEE of the 'Climate change' cluster is unclear since the RGoB programme, activity and sub-activity budget codes do not capture climate change as a separate theme, except for external funding for specific climate change projects. This cluster also includes investments in irrigation (as an adaptation measure), disaster risk reduction and mitigation projects. The climate change related expenditures is 13 % and 16 % of the total PEE in the two fiscal years.
12) Environmental mainstreaming includes sub-clusters on Environmentally Friendly Road Construction (EFRC) of national roads and farm roads. Based on empirical evidence it is assumed as a best estimate that EFRC is a 15 % incremental cost (equal to 13 % of the total road building expenditure). It is confirmed that EFRC incremental cost occurs for almost all national road construction projects while the level of EFRC for farm road projects is uncertain. The estimated PEE share of EFRC is 16 % for roads and 3.2 % for farm roads in 2009/10.
13) The PEER does not in itself provide further environmental mainstreaming. It does give insight to MoF and GNHC about the importance of environment for Bhutan's economic development and thus contributes with knowledge for environmental mainstreaming. The share of PEE for environmental mainstreaming (other than roads) is 1.6 % and 3.7 % in 2008/09 and 2009/10.
14) From 2008/09 to 2009/10 the capital expenditures' share of PEE increased from 60 % to 71 %. This is higher than for total public expenditure where capital and current expenditures are 50:50.

It reveals that environmental expenditures have a higher proportion of capital investments and external funding than the overall public expenditure.

15) The share of externally financed PEE is 48 % of the total PEE budget in 2009/10 (external finance share of current expenditure is 14 % and 61 % of capital expenditure) up from 25 % of the total PEE in 2008/09 (share of current 11 % and capital 35 %). The external funding of PEE during the 9th FYP was 34 %.
16) The total external funding for PEE amounts to Nu. 1.271 million for 2008/09 and 2009/10. The Governments of India and Denmark provide 26.9 % and 21.0 % respectively or almost half of the external PEE funding. About a quarter (27.2 %) is provided by multi-lateral organizations, such as ADB (9.2 %), GEF (9.0 %), World Bank (4.0 %) and the UN agencies (5.2 %). Another quarter (24.7 %) is provided by a number or other bilateral and multilateral development partners, international organisations and NGOs.
17) DPA/MoF expressed a preference for a PEER at the end of each FYP and a mid-term PEER rather than annual PEER updates. It will not feasible to include PEER findings in the Annual Finance Statements (AFS) of the RGoB but it can be in separate publications.

Recommendations

Updates of the PEER

1) DPA/MoF should prepare an updated PEER for the 10th FYP (2008/09 - 2012/13) in 2013. For the 11th FYP a mid-term PEER should be prepared covering the first three fiscal years and a final PEER covering five years at the end of the FYP.
2) An environmental expenditure review of the private sectors, NGOs and foundations, and households should be developed in parallel with the next PEER (but not as part of PEER). It will provide a full account of the environmental expenditures in Bhutan and contribute towards a full cost accounting in the 'green national accounting' to be developed by National Statistics Bureau (NSB).
3) The estimated expenditure for Environmentally Friendly Road Construction (EFRC) for farm roads should be validated in order to confirm the appropriatelevel of environmental expenditure according to mandatory environmental standards for environmental mainstreaming of roads projects.
4) The PEER should be expanded to include the public revenue from natural resources (royalties) and environmentally related user fees.

Institutional development and anchoring

5) A focal person for maintaining the PEE data base and responsible for preparing PEER updates should be nominated in DPA/MoF.
6) The PEER task force with MoF as a chair and members from NECS, NSB, GNHC and other relevant ministries should be maintained on an *ad hoc* basis.
7) The PEE data base and other PEER relevant documentation should be available at the website of DPA/MoF.

Methodological development and applications

8) The identified 'green' budget codes should be tagged in the RGoB budget and accounting system as far as possible and linked to the environmental classification from the 11th FYP. Alternatively the budget classification system should be reorganised to include the environmental classification in sub-activities (e.g. a budget code for 'waste management'). A customized extraction of PEE data should be possible *ad hoc* when needed and not only when a PEER is prepared.

Link to 11th Five Year Plan

9) The environmental classification and integration of PEER with the RGoB budget and accounting systems should be revisited by the PEER task force for the 11th FYP.

Policy relevance and effectiveness

10) Case studies should be initiated by PEER task force for detailed assessment of the efficiency and effectiveness of environmental expenditures. This could be for cross-cutting topics of policy relevance that are not captured well in the public accounting system like climate change.
11) The PEER should be integrated with the Bhutan Environment Outlook (BEO) by linking PEE with the State of the Environment reporting, and by revising and harmonizing the environmental classification framework developed for the PEER. NECS should take a lead in ensuring such linkage in coordination with the PEER task force.

1. Introduction

The Royal Government of Bhutan (RGoB) has made concerted efforts towards protection of the natural environment, conservation of the rich biodiversity and prevention of ecological degradation. These efforts have been delivered through national legislations, policies and guiding practices. The Constitution of the Kingdom of Bhutan 2008, mandates every Bhutanese citizen as a *"….trustee of the Kingdom's natural resources and environment for the benefit of present and future generations…*" (Article 5). Conservation of the environment also features as the second of the four pillars of *Gross National Happiness* (GNH)[1]. GNH is the overarching policy goal for development in Bhutan, and efforts are made to account for and monitor progress towards this end. The 'Middle Path' was the National Environment Strategy for sustainable development in Bhutan since 1998 and an intitial step in this direction.

The RGoB has made environmental protection a priority that is reflected in the national public budgets and expenditures. The public expenditures are among the means to achieve the development targets including protection and management of the environment and natural resources. In order to assess how the public budget is allocated and utilized to achieve the environmental targets, and pursuit of GNH, a *Public Environmental Expenditure Review* (PEER) has been prepared. The main objective of the PEER is to provide information about the scale of the *Public Environmental Expenditures* (PEE) and how it is allocated and utilised in different environmental domains.

This PEER covers the first two financial years of the 10th Five Year Plan (FYP), i.e. 2008/09 and 2009/2010. A methodology has been developed for the PEER, which will facilitate future updates of PEE data. The methodology is partly drawing on the PEER conducted for the 9th FYP in 2009.

The PEER is not an assessment of Bhutan's state of environment or a provision of environmental statistics. For such information reference is made to the *Bhutan Environment Outlook* (BEO) (last published in 2008 by the National Environment Commission (NEC) but an update is in preparation for November 2011), and statistics from the National Statistics Bureau (NSB) including the Statistical Yearbook.[2]

The PEER report is organized in five Chapters. In *Chapter 2* an overview of the purpose and application of PEER with relevance for Bhutan is included. In *Chapter 3* the methodology and data sources for the PEER is outlined. The aim is to develop a simple and structured approach that can be aligned with the public financial management system in Bhutan and make future updates feasible. In *Chapter 4,* analysis and results from the first two years of the 10th FYP are presented. In *Chapter 5* the main findings and recommendations for further development of PEER in Bhutan are presented. Additional information is included in annexes including background data and a brief case on Environmentally Friendly Road Construction (EFRC).

[1]For further information on Gross National Happiness in Bhutan see the website: www.grossnationalhappiness.com at the Centre for Bhutan Studies.

[2] With support from Danida from July 2011, NSB will develop its capacity for environmental statistics and 'green national accounting'. The aim is to move towards a full cost environmental accounting for GNH.

2. Purpose and applications of PEER [3]

2.1 The PEER approach

A *Public Expenditure Review* (PER) is carried out to assess how the public sector allocates budgets and utilise expenditures according to development targets. The PER is commonly applied to sectors such as health, education and transport. The Public *Environmental* Expenditure Review (PEER) follows similar principles as the PER but it is more ambiguous because 'environment' is not a well defined sector and a composite of many themes from biodiversity conservation to waste management.

The objectives of the PER and therefore also the PEER are to assess:

- **Effectiveness**: An assessment of the effectiveness of the public expenditure in relation to development priorities. Assessments of the public expenditures compared to priorities in the national development policy (e.g. the 10th FYP in Bhutan).
- **Efficiency:** The cost efficiency of the public expenditure in delivering outputs and outcomes, i.e. how do agencies perform on delivery of public services. A starting point is an assessment of budget efficiency and whether the allocated budget is utilised.
- **Accountability**: Accountability shall ensure that the public expenditures are according to the prescribed functions of the public agencies. The PER therefore includes an assessment according to government functions and agencies.

A single PEE figure or a percentage of total public expenditure or GDP does not provide adequate information. As noted by Markandya *et al.* (2006) "*a low level of public environmental spending is not in itself an argument for more expenditure; the question is whether government expenditures are effective in meeting environmental priorities*". The PEER does not distinguish between expenditures to repair or prevent environmental degradation, or investments in maintaining environmental quality. One country can have high level of PEE due to pollution while another country may have a clean and pristine environment but yet a high level of PEE to maintain the environmental quality. Variations in PEE from year to year show evidence of emerging issues or gaps (e.g. flood damage prevention) and declining priorities. Relevant information can be derived if the PEE is analyzed by different environmental domains, institutions and functions preferably for more than one year.

The effectiveness of the PEE in Bhutan can be measured against environmental objectives of the 10th FYP (*see* Box 1). But the objectives need to quantifiable and measurable in order to assess progress. One of the environmental targets in Bhutan is to maintain a forest cover above 60 %, but the current forest cover and variations are difficult to measure frequently. An operational measure of effectiveness is the *state of the environment* in Bhutan as monitored and documented in the *Bhutan Environment Outlook* (BEO). The BEO documents changes in the state of the environment in different domains, e.g. air quality and land use. The BEO can be linked to the PEER with a comparable environmental classification and be a measure for the effectiveness of PEER.

[3]Readers mainly interested in the PEER methodology and results for Bhutan and less in this introductory background can proceed to chapters 3 and 4.

Box 1: Environment in the 10th Five Year Plan

In the 10th FYP (July 2008 – June 2013) the Royal Government of Bhutan has adopted the following six interrelated strategies that will constitute the core strategies and set of sub-objectives through which the overarching goal of poverty reduction will be addressed. These six interrelated strategies are: (i) vitalizing industry, (ii) national spatial planning, (iii) synergizing integrated rural-urban development for poverty alleviation, (iv) expanding strategic infrastructure, (v) investing in human capital and (vi) fostering an enabling environment through Good Governance. Environment is strategized as a cross-cutting development theme with the mandatory requirement to mainstream environment in policies, plan and programs.

Priorities related to environment as a cross-cutting theme and as a sector are included in the 10th FYP. The objectives of the environment sector for the 10th FYP are to:

- Ensure sustainable development in conservation of environment;
- Disseminate environmental information and raise awareness among the general public;
- Move towards a cleaner environment;
- Mainstream environment issues into development policies, plans and programs;
- Develop appropriate environmental legislation;
- Develop environmental standards;
- Fulfilling Bhutan's obligations of Multilateral Environment Agreements;
- Enforcement of Environmental laws/Acts; and
- Coordination for water resources management.

The above objectives for the environment sector will be addressed through the following strategies and initiatives:

- Development of appropriate policy and legal frameworks;
- Compliance monitoring;
- Provision of environmental services;
- Decentralizing environmental governance and networking;
- Strengthening environmental information management system to support and improve decision making (SOE, EIMS, etc.);
- Public education and awareness on environmental issues;
- Utilizing environmental assessments as a tool for sustainable development;
- Building and strengthening institutional capacity;
- Mainstreaming environmental issues in sectoral plans, programmes and projects of all government agencies; and
- Development of appropriate legal and policy framework for water resources management.

There are also relevant priorities related to environment and natural resources in the agriculture and energy sectors.

Source: 10th FYP (2008), vol.1, p.84-86.

2.2 Definition of environmental expenditure

A methodological challenge for a PEER is the classification of what will constitute environmental expenditure and how the relevant data can be extracted *ex post* from the public expenditure accounts. The 'environment' is not well defined as a sector and there are potential overlaps with other sectors. Therefore, an initial exercise with environmental classification and data collection is required to determine the relevant framework for the PEER (Markandya *et al*., 2006).

Internationally, PEERs have been carried out based on a rather narrow definition of the environment to include only '*pollution abatement and control*' (PAC). This definition was developed by OECD in the 1970s. It was later expanded to include '*PAC expenditure plus protection of biodiversity and landscape, and research and development (R&D) in environment*'. This definition will include protected areas management but not forestry. A discussion has evolved whether supply of drinking water should be

considered under environmental expenditure. The definition of environmental expenditure in the context of climate change could be expanded to include 'climate change risks' together with 'pollution'.

A definition of public environmental expenditure provided by the World Bank (2003)[4] includes: *"Expenditures by public institutions for purposeful activities aimed directly at the prevention, reduction, and elimination of pollution or any other degradation of the environment resulting from human activity, as well as natural resource management activities not aimed at resource exploration or production".* This is in line with the PAC definition above.

In the case of Bhutan, there is also a demand in relation to the overall environmental protection and natural resource management objectives in the context of GNH. A two-tier approach to PEER is therefore proposed. The upper bound or *total* PEE will include broader environmental expenditures relevant for pursuit of GNH. The lower bound or *core* PEE will include the environmental expenditures that are compatible with an international comparison.

The importance of the environmental wealth for poverty reduction is also a reason for the relevance of assessing environmental expenditures. The *poverty-environment nexus* and the rationale for investing in the environment by the public sector are outlined below (*see* Box 2).

Box 2: Investing in environmental wealth for poverty reduction

Poverty, population change and environmental assets interact in complex ways that have come to be known as the *poverty-environment nexus*. The dependency of the poor on natural resources and the environment has brought attention not only to protection of existing resources but also the options from reducing poverty by investing in environmental assets for the poor.

Investing in the environment and thus creating assets on which the poor depend can often make immediate economic impact. Policy measures aimed at improving the natural environment and investments in environmental assets have a critical role in improving the well-being of the poor.

The rationales are that:

- Poor people are poor because their assets are few, and often of low quality. Addressing the low quality and vulnerability of the environmental assets of the poor is an important objective for anti-poverty policies.
- A significant fraction of those assets comprise natural and environmental resources that provide valuable ecosystem services. Poor households rely heavily on environmental assets as a source of wealth from which to generate income and improve their livelihoods
- Environmental assets are highly vulnerable to overuse and external appropriation
- it is extremely easy for local, national and global events and policies to trigger mechanisms that damage environmental assets, forcing the poor into 'vicious cycles' of poverty and further environmental loss
- Although rich people can often protect themselves against many of the effects of environmental degradation, the poorest usually cannot or at a higher cost
- When carefully managed, the return from investments in environmental assets can be very high and of particular benefits to the poor. Investments in protecting and restoring natural ecosystems can produce substantial net benefits, especially for the poor.
- Such investments need a favourable policy context to make them effective and sustainable. Market-based environmental policies for pro-poor asset formation may be a longer-term goal for many developing countries, due to institutional capacity constraints.
- Poverty reduction strategies must achieve a two-fold goal: expanding the asset base of the poor and increasing the efficiency with which those assets are converted into well-being for the poor.

Source: Pearce (2005)

The poverty-environment nexus can also provide some guidance on the definition of environmental expenditures from the perspective of investing in sustaining and enhancing environmental wealth.

[4] World Bank (2003): 'Public Environmental Expenditure Reviews (PEERS) Experience and Emerging Practice', A Country Environmental Analysis Publication, Environmental Strategy Paper No. 7.

Interventions today can carry debt of future costs. Cleaning up after pollution or soil erosion are expenditures due to earlier lack of investments in pollution control or soil conservation.

2.3 Limitations of the PEER

The national budget is about the fiscal flows. The PEER is limited by not taking into account the depreciation of environmental and natural capital stock. There are two main sources of natural and environmental capital in the public domain:

- **Endowment of wealth from natural resources.** This includes renewable resources like forestry and hydro-power, and exhaustible resource like minerals. Most of natural resources are owned by the public and are sources of development finance through royalties from extractions.
- **Quality of the environment.** This reflects the state of the ambient environment and access to environmental services. It may be regarded as a luxury for a developing country, but the costs of pollution and other environmental degradation, for example on health, can erode the achievements and sustainability of development. Maintaining a healthy environment is a public good that require the involvement of the public sector.

The PEER provides only a partial view of the environmental expenditures by excluding environmental capital and expenditures of non-public sectors (World Bank, 1999). The PEER is by definition limited to expenditures the public sector while those incurred by the private sector, non-government organisations (NGO), foundations, and households are not captured. The Government can shift some of the financial burden of environmental expenditures onto the private sector and households through regulations and user fees. For instance, instead of using tax revenue for preventing pollution or clean-up, regulation could require manufacturers to apply the best available technology. The enforcement of the '*polluters pay principle*' is another way to shift the burden of pollution control costs from the public to the private sectors and households.

A complete picture of environmental expenditures should include the expenditure of the entire economy including private sector, non-government organisation, foundations, and households. In addition, it should also include the depreciation in the stock of natural capital and environmental assets, i.e. the allocation between generations. Furthermore, the contributions of the environment and natural resources to the economy (e.g. protection of hydropower resources) or the costs of externalities such as environmental degradation are not captured directly in the environmental expenditures. But indirectly there are costs due, for example, to soil erosion or health impacts of pollution.

One example in Bhutan is Environmentally Friendly Road Construction (EFRC) of farm roads. Due to policy targets of delivering maximum number of km of farm roads there is a disincentive to include the additional costs of EFRC due to the incremental costs. For a fixed budget there can be more km without than with EFRC. There is little incentive to cost future maintenance costs and road upgrading in the year of establishment. One approach for full cost accounting would be to include a budget for a road maintenance fund where future maintenance costs are paid up front and such contribution could be smaller for EFRC standard roads.

2.4 The PEER of the 9th FYP

The PEE of the 9th FYP was analysed in 2009 with support from the UNDP/UNEP Poverty and Environment Initiative (PEI). A broad environmental classification was developed including public

expenditures related to reducing impacts on the environment and natural resources. The analysis for the 9th FYP found:[5]

- The PEE amounted on average to 7.4 % of the total public expenditure over six financial years. It amounted to around Nu. 1.0 to 1.1 billion annually. The PEE analysis did not capture the environmental expenditures of the private sector and households.
- The absolute amount of PEE was steady while the relative percentage of expenditures showed a declining trend. The public expenditure in Bhutan doubled nominally from 2002/03 to 2007/2008 but the increase was in other sectors than environment.
- The share of PEE to GDP on average was 2.8 %. The highest share was recorded in 2002/03 with 3.6 % and lowest share in 2007/08 with 1.9 %. The declining trend was due to the doubling of GDP during the 9th FYP from Nu. 29.4 billion to Nu. 57.5 billion.
- The four institutions Department of Forestry (Moa), Council of RNR Research for Bhutan, the National Biodiversity Centre (Moa) and Department of Energy (MoEA) accounted for more than 50 % of the PEE.
- The external funding for PEE from development partners accounted for one third (34 %) of the PEE during the 9th FYP.
- A decentralized budget allocation system began during the 9th FYP. Only about 4 % of the PEE was incurred at Dzongkhag and Geog level. The share of PEE of all local expenditure was 2 % at the Dzonkhag level and 15 % at the Geog level.
- The classification followed eight domains of which the largest 'other environment' accounted for 28 %. It reveals that the classification might not have been adequate to capture all the relevant types of PEE.
- The analysis found that the expenditure incurred for 'soil and water conservation' was low (about 3.5 % of the total PEE). The report concluded that this was a case of under-financing considering importance of soil and water protection in Bhutan. However, relevant expenditures may have been incurred under other headings such as 'natural resources' (26 % of all PEE) and 'other environment' (28 % of all PEE).

Compared to other countries the PEE for Bhutan estimated in the 9th FYP PEER was found to be relatively high. Other studies for developing countries found that the PEE is around 1.0 % of the public expenditure compared to 7.4 % in Bhutan. But the PEER for the 9th FYP may have included more expenditures than PEERs in other countries.

The 2009 PEER recommended:

- Bhutan should maintain the same level of PEE in the future at around 2.8 % of the GDP.
- Planning and budget authorities should take innovative measures to allocate sufficient funds to the environmental sector to balance material production and environment maintenance.
- Project monitoring authorities should take measures to improve the rate of budget utilisation especially for external resources.
- Authorities to develop suitable measures to increase public expenditure in soil and water conservation.
- Development of new economic sectors for environmental expenditures (investments) like eco-tourism.
- Government to encourage semi-government institutions to increase self-financing of their environmental expenditures.

[5] Based on UNDP/UNEP PEI (2009): 'Report of Public Environment Expenditures of the RGOB for the 9th Plan'

The PEE share of GDP was 2.1 % and 2.9 % for the total PEE in 2008/09 and 2009/10. It is uncertain whether this figure is comparable with the 2009 PEER due variations in data use. The basic data for the 2009 PEER are not available and it is therefore uncertain what budget lines were included.

The 2009 PEER recommendations were not implemented deliberately by RGoB. But there is further attention on the environment in the 10th FYP and therefore also measures to enhance the PEE.

3. Methodology and Data Sources

A methodology for the PEER including a classification of environmental expenditures has been developed. The emphasis of the methodology has been to balance an accurate assessment of PEE and an assessment that is manageable and feasible for later updates.

The methodology developed for the PEER follows a three-step approach:

- Step 1: Screening for optional PEE from the RGoB expenditure data. At the screening stage a broad definition is applied of what environmental expenditures are.
- Step 2: Organization in the PEE data base with a classification of the PEE data into environmental clusters. The classification of environmental data and organisation of the PEE data base is informed by the data available in step 1.
- Step 3: Analysis of the PEE data. The depth of the analysis is determined by the quality the of information provided in the budget and accounting system mainly in the activity and sub-activity headings.

The three steps of the PEER are outlined below after a brief overview of the data sources for the PEER

3.1 Data sources for the PEER

The access to and quality of the public financial information in Bhutan is good. This is the advantage of a well organised public sector and a relative small public sector economy. The scope for a PEER in Bhutan is therefore relative good compared to other countries. In most other countries the expenditure data are available only at the institutional level, whereas in Bhutan expenditure data can also be extracted at activity/sub-activity level across programmes and institutions.

The financial management system in Bhutan is structured with budget codes and the overall structure of the budget codes is outlined in Annex 2. Data are extracted from the budget and accounting system used by the DPA/MoF. Until the 2009/10 financial year the Central Budget and Accounting System (CEBA)[6] is used but from July 2010 it was replaced by the Public Expenditure Management System (PEMS). The PEMS is expected to provide a simplified and possibly customized extraction of expenditure data for the update of the PEE data. With CEBA there were difficulties to extract the relevant PEE data without subsequent manual data management.

3.2 Step 1: Screening of Public Environmental Expenditures

The *first step* is the screening the budget codes to determine whether the expenditures fall within the scope of PEE. The budget codes are screened at programme, activity and sub-activity level. The initial screening of the budget codes is carried out with the help of a colour coding:

- **Green colour code** indicates the activity/sub-activity is expected to be included as PEE.
- **Yellow colour code** represents an undecided activity/sub-activity referred for clarification with JTF or with respective institution or in some cases an expert opinion. Subsequently, it is decided whether the budget line falls under 'green' or 'red'.
- **Red colour coded** indicates the activity/sub-activity is considered not to be relevant for PEE.

[6] The Budget and Accounting System (BAS) is the system used to enter financial data into CEPA by the public agencies including local government and ministries. BAS and CEBA are replaced by PEMS from July 2010.

After all budget codes have been screened, a set of 'green' budget codes remains for inclusion in the PEE data base. This should be one-time exercise provided the budget codes do not change from one year to the next and new budget codes are screened as these are added.

The 'green' budget codes could be tagged in the MYRB (Multi-Year Rolling Budget) and PEMS. This will enable an extraction of PEE data through a customized search and facilitate a consistent update of the PEE data base at the end of each financial year and a consolidated PEER at the end every of FYP.

3.3 Step 2: Development of an environmental classification and PEE Data Base

The *second step* is to develop the environmental classification and the PEE data base. The definition of the environmental expenditures and the environmental classification was informed by the outcome of the screening for PEE in step 1 and therefore becomes part of the second step.

What is 'environment' and what are 'environmental expenditures'? It is a challenge in the PEER to define what is included as 'environment'. In the case of Bhutan there is guidance from the Environmental Assessment Act and Bhutan Environmental Outlook. (BEO) However, these are not easily translated into environmental expenditures according to the budget codes at activity and sub-activity level of the RGoB budget and accounting systems (BAS, CEBA and PEMS).

There are two demands in Bhutan when assessing the public environmental expenditure. One is the total public PEE in a broader sense relevant to support environment in the pursuit of GNH. This is a figure advocated by DPA/MoF. The other demand is for the *core* PEE in line with international definitions. The core PEE is advocated by NECS to avoid inflated PEE estimates. The total PEE may show a high expenditure and thus indirectly indicate that Bhutan has enough funding for environment without the need for further external funding.

An environmental classification has been developed for the PEER. The environmental classification includes nine clusters of environmental expenditure and 40 sub-clusters. The first four clusters are included in the core PEE estimate. The clusters are:

1. Environmental protection
2. Urban, rural and industrial environmental management
3. Biodiversity conservation
4. Information and knowledge (R&D)

1-4: Core PEE

5. Natural resource management
6. Soil conservation and land management
7. Climate change
8. Environmental mainstreaming
9. Miscellaneous (other)

An overview of the structure and content of the PEE data base is in Annex 4. The PEE data base is in MS Excel that has tools for data analysis. Most of the information for the PEE data base is already available in the extracted data from CEBA. The main addition is the data base structure that assign each budget line to an environmental cluster and sub-cluster. With the data base documented and established an annual update of the PEE data base is feasible. It will include an update of capital and recurrent expenditures and budget appropriations for subsequent years.

The assessment of the expenditure for Environmentally Friendly Road Construction (EFRC) of roads and farm roads has been a methodological challenge. These expenses are included under the cluster on 'environmental mainstreaming' that includes the sub-clusters for 'farm roads' and 'roads'. There is a consensus that the average incremental costs of EFRC is 15 % for both farm roads and other roads with some variation between projects. This implies that 13 % of the expenditure for an EFRC road project (15 % / 115 % = 13 %) can be included as PEE. The question is whether all road and farm road projects are constructed according to EFRC principles ? There is a consensus that almost 100 % of the

main road projects are EFRC because it is an enforced mandatory environmental requirement. It is uncertain whether EFRC is applied to all farm roads due to lack of supervision and enforcement. Annex 9 includes a case on EFRC on the assessment of PEE of road and farm road projects.

3.4 Step 3: Data analysis

The *third step* is the analysis of the PEE data. The PEE data base includes the budgets and expenditures for each of the 'green' budget codes and additional information related to several functions (see Annex 3). These functions are analyzed for the expenditures incurred and the initial budget outlay, i.e.:

- **Institutions**: Administrative units for autonomous agencies, ministries, Dzonghags and Geogs.
- **RGoB Programmes**: Programme codes are used as a function since some of these cut across several institutions (e.g. programme code 18 for 'forestry services').
- **Economic**: Current and capital expenditures and budgets for each of the 'green' budget codes. Budget efficiency is measured as expenditure of allocated budget.
- **Financing**: Source of financing from RGoB or external sources.
- **Environment**: The 'green' budget codes are linked with the environmental classification of PEE. Nine environmental clusters are used of which four clusters are the core environmental expenditures. The environmental classification captures the type of PEE with a classification code (e.g. 2.1 for 'waste management') included for each of the 'green' budget codes in the PEE data base. (Further detail is provided in Annex 1 and 4).

The analysis is compiled in tables and charts according to functions identified. The analysis includes the assessment of the total PEE and how it compares with the total public expenditure and GDP. A comparison is made with the PEER (2009) of the 9th FYP, though it was not been possible to verify whether the assumptions, methodology and PEE data were compatible.

The analysis could be made according to Object Code (OBC) level similar to the Schedule 2 of the Annual Financial Statement (AFS). The OBC does not include a basis for selection of PEE like the sub-activity budget codes, but it would be possible to further itemize the PEE, e.g. to estimate what the PEE is for 'human resource development' (object code 45.01.) and other OBCs.

The scope for analysis is limited by the quality of the data. An efficient mainstreaming of the environment will for example make it more difficult to separate the environmental expenditures. The PEE data are from the past and the budget codes were not made to reflect PEE specifically. It is not feasible to use the PEE data as a policy tool for a normative assessment of how much the PEE should be. It is also difficult to apply the PEE data to assess carbon neutrality in Bhutan (as suggested in the PEER concept paper), budget allocation to local government, or to make assessments of the expenditures for emerging topics, such as climate change.

3.5 PEER updates

It was assumed that the PEER could be updated annually from October to December. The DPA/MoF has expressed that it will be sufficient with a PEER at the end of each FYP and a mid-term PEER. Annual updates of the PEE database could be considered. The next PEER will then be after the 2012/13 financial year 10th FYP and the mid-term of the 11th FYP after the 2015/2016 financial year.

It is suggested that three years are included in the mid-term PEER since the first year of a FYP may not be representative for the next years due to lower level of investments during the FYP inception. This PEER report can be used as a reference document for 10th FYP PEER. A revision of the methodology taking into account lessons learned will be relevant for the 11th FYP from the financial year 2013/14.

4. Analysis and Results

4.1 Total and core public environmental expenditures

Budgets and expenditures for the first two years of the 10th FYP (2008/09 and 2009/10) are reviewed, classified and analyzed to determine the PEE.

The *total* PEE is the wider assessment of PEE in pursuit of GNH covering all nine clusters. The total PEE for the financial year 2009/10 is Nu. 1,966 million, which is equal to 6.5 % of the total public expenditure and 2.9 % of the GDP. The total PEE for 2008/09 is Nu. 1,322 million, which is equal to 5.7 % of the total public expenditure and 2.3 % of the GDP. The total PEE increased by almost 49 % and the core PEE by 54 % from 2008/09 to 2009/10. The increase can be attributed to a delay in the beginning of the first year of the 10th FYP in allocating the budget as well as a time lag of initiating investment projects.

The *core* PEE covers only four clusters according to an international definition of PEE for comparison with PEERs from other countries. The core PEE for the financial year 2009/10 is Nu. 756 million, which is 2.5 % of the total public expenditure and 1.1 % of the GDP. The core PEE for 2008/09 is Nu. 491 million, which is 2.1 % of the total public expenditure and 0.8 % of the GDP. The share of core PEE as percentage of total PE is at a similar level with 38 % in 2009/10 and 37 % in 2008/09.

The main results of the PEE assessment are in Table 1 together with the results from the 9th FYP. The total PEE was at a constant level but the relative share declined due to the growth of GDP and public expenditures that both doubled during the 9th FYP. In the 10th FYP the PEE is increasing in both absolute and relative terms in the first two years (*see* Figure 1 and Figure 2), i.e. the PEE increased more than the PE and GDP.

Table 1: Public Environmental Expenditures 2002/03 to 2009/10 [7]

million Nu.	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
GDP	29,386	32,320	36,463	40,448	51,522	57,456	57,981	66,865
PE	10,211	10,932	13,563	16,006	16,298	21,810	23,035	30,039
Total PEE	1,059	951	915	1,017	1,157	1,116	1,322	1,966
Core PEE							491	756
PE %-of GDP	34.7%	33.8%	37.2%	39.6%	31.6%	38.0%	39.7%	44.9%
Total PEE %-of PE	10.4%	8.7%	6.7%	6.4%	7.1%	5.1%	5.7%	6.5%
Total PEE %-of GDP	3.6%	2.9%	2.5%	2.5%	2.2%	1.9%	2.3%	2.9%
Core PEE %-of PE							2.1%	2.5%
Core PEE %-of GDP							0.8%	1.1%
Core PEE %-of total PEE							37.1%	38.5%

PE: Public expenditure; PEE: Public environmental expenditure

[7] Data from the 9th Plan (2002/03 – 2007/08) are from the 2009 PEER report. Data from the 10th Plan (2008/09 and 2009/10) are results from this analysis. Data on GDP are from NSB. Data on Public Expenditure (PE) are from the Annual Financial Statement (AFS) from DPA/MoF.

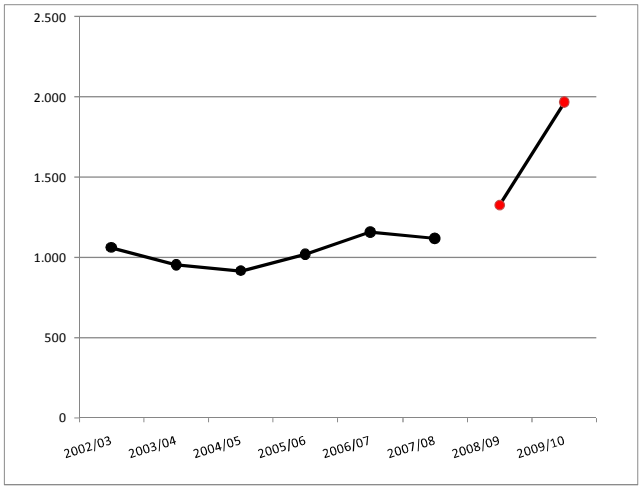

Figure 1: PEE in million Nu.

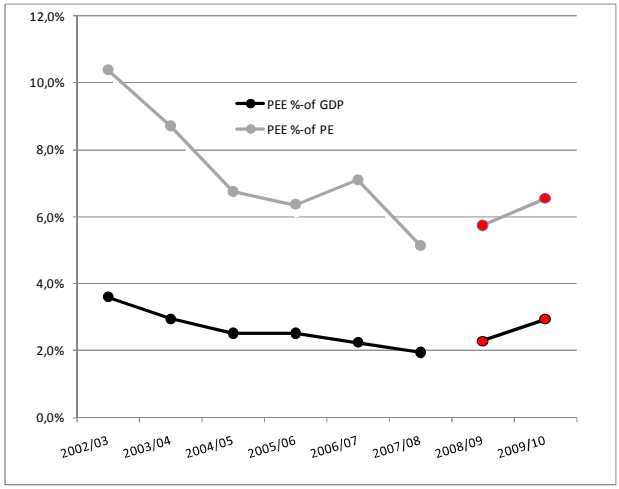

Figure 2: PEE as percentage of PE and GDP

The PEE estimates from the 9th and 10th FYP should not be compared directly since different approaches may have been applied. The specific PEE data used for the assessment of the PEE for the 9th FYP are not available.

Two years of analysis is not sufficient to establish a trend and more years are required for the 10th FYP to establish whether the PEE level for 2009/10 will continue to increase, level out or even decline.

In the following sections the PEE for the first two years of the 10th FYP are analysed according functions like the environmental clusters, agencies, source of funding, type of expenditure and budget efficiency.

4.2 Analysis of PEE by environmental cluster

The PEE is allocated into environmental clusters and sub-clusters by applying the environmental classification outlined in the methodology. The results for the nine environmental clusters are included in table 2. A more detailed presentation of the analysis is included in Annexes 6 and 7. Five of the clusters ('environmental management', 'biodiversity', 'natural resources', 'climate change' and 'mainstreaming') are between 13 % and 24 % of PEE in 2009/2010. These five clusters cover more than 90 % of the PEE.

A methodological challenge has been the large share of farm road and other road expenditure in 'Environmental Mainstreaming'. This is further elaborated in section 3.2 and in the case on Environmentally Friendly Road Construction (EFRC) in Annex 9.

Table 2 shows that the PEE is a composite of several different types of environmental expenditures. The further analysis into sub-clusters confirms the spread of PEE into various environmental domains from biodiversity to waste management. The cluster on 'miscellaneous' is insignificant, so the environmental classification is able to capture the different types of environmental expenditures like 'waste management' and 'biodiversity conservation'. In the PEER of the 9th FYP 28 % of the PEE was in 'Other Environment'.

Table 2: PEE according to environmental clusters

Environmental Clusters --- Million Nu. ---	2008/09		2009/10		Change *) Absolute	 Relative
1. Environmental Protection	18.0	1.4%	38.5	2.0%	20.5	0.6%
2. Urban, rural and industrial environmental management	201.1	15.2%	358.2	18.2%	157.1	3.0%
3. Biodiversity conservation	158.4	12.0%	268.9	13.7%	110.6	1.7%
4. Information and knowledge	113.8	8.6%	90.7	4.6%	-23.2	-4.0%
Total Core PEE (cluster 1-4)	**491**	**37.2%**	**756**	**38.5%**	**265**	
5. Natural resource management	360.2	27.2%	383.8	19.5%	23.6	-7.7%
6. Soil conservation and land management	96.8	7.3%	51.6	2.6%	-45.2	-4.7%
7. Climate change	177.6	13.4%	313.1	15.9%	135.5	2.5%
8. Environmental mainstreaming	193.8	14.7%	460.2	23.4%	266.4	8.8%
9. Miscellanous (other)	2.6	0.2%	0.9	0.0%	-1.7	-0.2%
Total PEE (cluster 1-8)	**1,322**	**100%**	**1,966**	**100%**	**644**	

*) *Change* from fiscal year 2008/09 to 2009/10.
Absolute is increase/decrease in million Nu. and *Relative* is percentage-point increase/decrease from fiscal year 2008/09.

The changes in the relative share of PEE are less than 4 % except for 'natural resources management', 'soil conservation and land management' and 'environmental mainstreaming'. The reasons for the variation in the PEE within each environmental cluster is the postponed release of the external funding for investments after the first year was for planning and tenders.

The variation in external funding is the main explaining factor of the variations of PEE for each cluster with correlations to the above reasons. The variation in external funding is in particular for natural resource management (decrease), soil conservation and land management (decrease), climate change (increase) and mainstreaming (increase). Planning time is required for investments in particular for environmental management (e.g. water supply and waste management) and environmental mainstreaming (mainly farm roads and other roads).

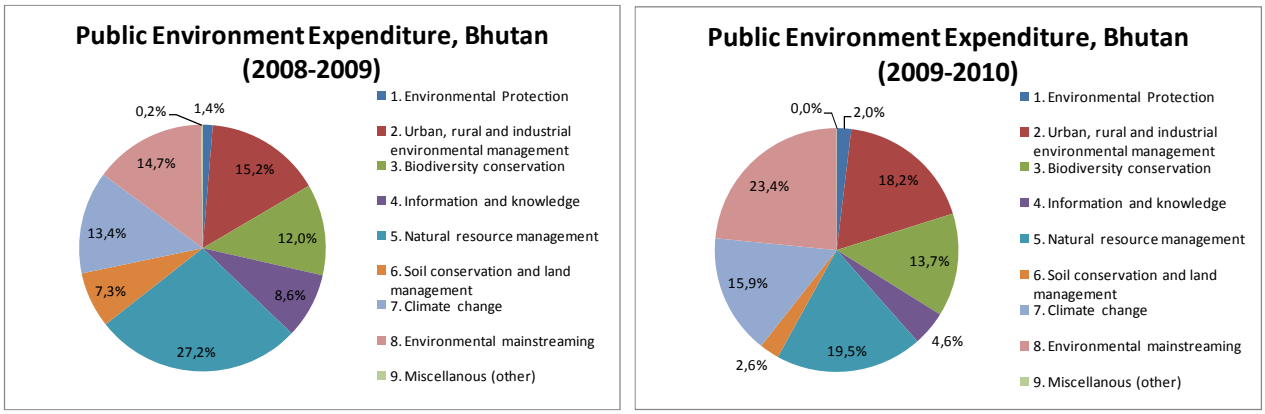

Figure 3 Composition of PEE by Environmental Clusters

4.3 Analysis of PEE by RGoB programmes

The PEE is analysed according to the RGoB programmes. The programmes are part of the budget code classification in the budget and accounting system. It has some similarity to a COFOG (Classification of functions of government) system found in other countries but there are no fixed sub-divisions. The

IMF Functional Classification for the structure of the budget and accounting system is used by MoF. It does not have a complete overlap with government functions and therefore has some limitation in capture of PEE data.

The PEE database makes it possible to analyse the programme codes for the PEE of the environmental clusters. The RGoB programmes and the environmental classification have some overlap. An overview included in Annex 5 reveals the share of the RGoB programmes of the PEE for each of the environmental clusters, i.e. several programmes contributes to each environmental cluster.

The environmental clusters include PEE that originates mainly from few of the programmes. There are seven programmes with a share of PEE above 3 %. These are the Forestry, Roads and Bridges, Agricultural, Health, Energy and General Administrative Services programmes. The other programmes have smaller or no shares of PEE and are not included.

'Forestry services' is the programme contributing most of the PEE. The absolute level is almost the same from 2008/09 to 2009/10 but the relative share of PEE decreased by 10 %-point from 40.4 % to 30.4 % since the increase in PEE was mainly in other programmes. The 'Forestry services' programme is mainly funded by RGoB. The increase in the PEE from 2008/09 to 2009/10 was mainly through an increase in external funding and that explains the relative decrease in the share the 'Forestry services' programme in PEE.

'Urban development and engineering services' increased by 10 %-point to 12.7 %. The increase is mainly due to decentralization of implementation and administration from central to the local government and the delay in initiating the investments in water supply and waste management. 'Roads and bridges services' and 'agricultural services' are other programmes with a share of PEE of 10 % to 13 %.

The activities under 'health services' are mainly rural water supply scheme. 'Energy services' includes rural renewable energy and CDM projects, while rural electrification and larger hydro-power projects are not included in the PEE.

Table 3: PEE by RGoB Programmes

RGoB Programmes	2008-09		2009-10		Change *)	
	Mio. Nu.	%	Mio. Nu.	%	Absolute	Relative
FORESTRY SERVICES	534.7	40.4%	598.4	30.4%	63.6	-10.0%
ROADS & BRIDGES SERVICES	172.7	13.1%	325.2	16.5%	152.4	3.5%
AGRICULTURE SERVICES	156.6	11.8%	191.6	9.7%	35.0	-2.1%
URBAN DEVELOPMENT AND ENGINEERING SERVICES	26.6	2.0%	249.7	12.7%	223.1	10.7%
GENERAL ADMINISTRATION AND DIRECTION SERVICES	144.4	10.9%	245.6	12.5%	101.2	1.6%
HEALTH SERVICES	123.4	9.3%	120.8	6.1%	-2.6	-3.2%
ENERGY SERVICES	46.3	3.5%	88.1	4.5%	41.9	1.0%
Other PROGRAMMES	117.7	8.9%	146.6	7.5%	28.9	-1.4%
Total	**1,322.4**	**100%**	**1,966.0**	**100%**	**643.6**	

*) *Change* from fiscal year 2008/09 to 2009/10.

Absolute is increase/decrease in million Nu and *Relative* is percentage-point increase/decrease from fiscal year 2008/09.

Comparative figures of PEE programme expenditures for 2008/09 and 2009/10 are shown in Figure 4.

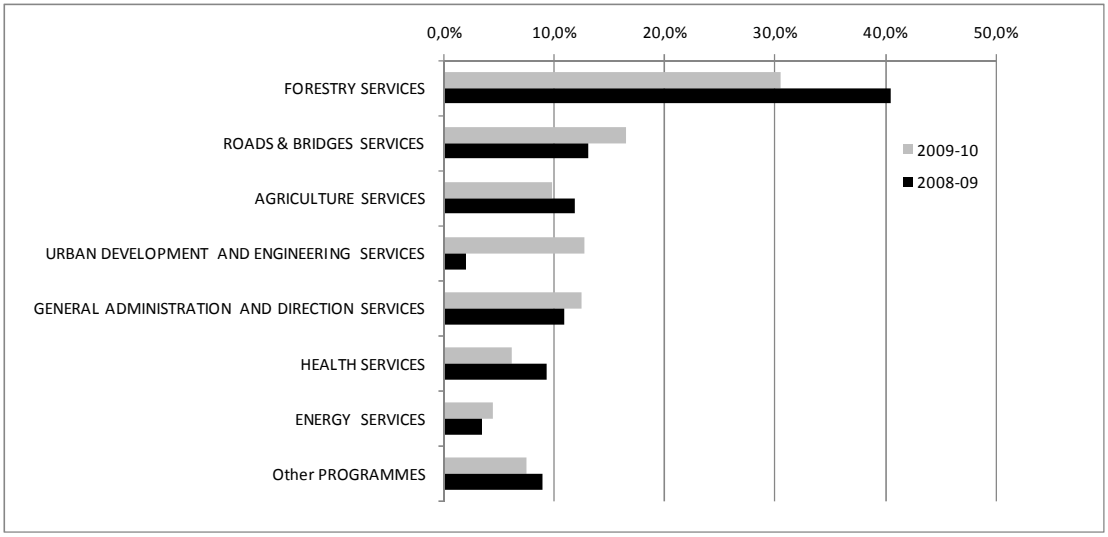

Figure 4. RGoB programmes' share of PEE (2008/09 and 2009/10)

4.4 Analysis of PEE by agency

Table 4 shows the occurrences of PEE at central, district (Dzongkhag) and Geog level for 2008/09 and 2009/10. In 2009/10, 70 % (Nu. 1,375 million) of the PEE has occurred at the central level and 16 % and 14 % each at district and Geog level (Nu. 337 million and 332 million). This is similar to the 69 % (Nu. 906 million) at central and 16 % each at district and Geog level (Nu. 207 million and Nu. 211 Million) in 2008/09. The relative percentage share of total PEE amongst the three levels of Government is consistent in the two years, while PEE in absolute terms has increased.

About 60 % of the PEE or 85 % of the central level PEE incurred in both years is covered by MoAF, MoWHS and MoEA. About 3.4 % of PEE for both years is covered by the NECS.

The 30 % of PEE for local government is for 'environmental management' (mainly water supply and sanitation), 'natural resource management' (mainly forestry services), 'climate change' (mainly irrigation projects) and 'environmental mainstreaming' (mainly environmental expenses for farm roads). The farm roads PEE is about 10 % of the local government PEE and thus not a dominant share of the 30 % of local government PEE.

Table 4: Public Environmental Expenditures by Central and Local Government

	2008/09			2008/09		2009/10			2009/10	
Environmental Clusters	**Agency**			**Expenditure**		**Agency**			**Expenditure**	
--- Million Nu. ---	**Central**	**Dzonkhag**	**Geog**	**Total**	**Pct.**	**Central**	**Dzonkhag**	**Geog**	**Total**	**Pct.**
1. Environmental Protection	18.0	0.0	0.0	18.0	1.4%	38.5	0.0	0.0	38.5	2.0%
2. Urban, rural and industrial environmental management	15.5	66.7	118.9	201.1	15.2%	129.0	109.6	119.5	358.2	18.2%
3. Biodiversity conservation	154.2	3.7	0.5	158.4	12.0%	265.6	0.4	3.0	268.9	13.7%
4. Information and knowledge	102.6	6.0	5.3	113.8	8.6%	80.2	5.1	5.4	90.7	4.6%
5. Natural resource management	261.7	80.4	18.1	360.2	27.2%	263.5	92.2	28.1	383.8	19.5%
6. Soil conservation and land management	78.7	7.7	10.4	96.8	7.3%	38.0	2.5	11.2	51.6	2.6%
7. Climate change	111.3	23.2	43.0	177.6	13.4%	163.1	96.3	53.8	313.1	15.9%
8. Environmental mainstreaming	161.6	17.8	14.4	193.8	14.7%	396.8	13.6	49.8	460.2	23.4%
9. Miscellanous (other)	2.6	0.0	0.0	2.6	0.2%	0.9	0.0	0.0	0.9	0.0%
Total environmental expenditure	**906.2**	**205.6**	**210.6**	**1,322.4**	100%	**1,375.6**	**319.7**	**270.7**	**1,966.0**	100%
Percentage	**68.5%**	**15.5%**	**15.9%**		0%	**70.0%**	**16.3%**	**13.8%**		0%

4.5 PEE analysis by economic activity

The PEE analysis by economic activity is presented in Table 5. The analysis is carried out at the highest level of aggregation, i.e. for *current* and *capital* budget and expenditures. For 2009/10 the overall public budget allocation shows 42 % was allocated to current and 58 % to capital, while for PEE 36 % was allocated to current and 64 % to capital. On the budget side there is 6 %-point (64 % less 58 %) more on capital, i.e. the relative capital budget is slightly higher for PEE.

In 2009/10 the overall public expenditure was equal for current and capital expenditure, so the share of current expenditures had increased compared to the budget. It was the opposite for the PEE where the current expenditure was 29 % and the capital budget 71 %. The relative share of capital of PEE is 21%-point higher than for the overall budget in 2009/10 (71 % less 50 %).

From 2008/09 to 2009/10 the PEE share of capital expenditure grew from 60 % to 71 %. This is correlated with the increase in external funding.

Table 5: PEE Current and Capital Expenditure

	2008/09					2009/10				
	Current		Capital		Sum	Current		Capital		Sum
	million Nu.	%	million Nu.	%		million Nu.	%	million Nu.	%	
Public Expenditure										
Budget	11,905	44%	15,122	56%	27,027	13,829	42%	19,198	58%	33,027
Expenditure	11,061	53%	9,765	47%	20,826	12,903	50%	12,929	50%	25,832
Public Environment Expenditure										
Budget	603	33%	1,212	67%	1,816	997	36%	1,741	64%	2,738
Expenditure	524	40%	798	60%	1,322	567	29%	1,399	71%	1,966

4.6 Analysis of PEE by type and source of funds

RGoB funded 52 % for PEE in 2009/10 and 75 % of PEE in 2008/09. The share of externally financed PEE is thus 48 % of the total PEE budget in 2009/10 (external finance share of current expenditure is 14 % and 61 % for capital expenditure) and 25 % of the total PEE in 2008/09 (share of current 11 % and capital 35 %). The external funding of PEE was 34 % on average during the 9th FYP.

The RGoB funding for PEE increased by about Nu. 40 million from 2008/09 to 2009/10 while the external funding increased by more than Nu. 600 million. The external financing for PEE has tripled from 2008/09 to 2009/10 from Nu. 334 million to Nu. 937 million. This confirms the increase in the external funding of PEE from the 2008/09 to 2009/10.

The ratio of capital expenditure to total PEE for 2009/10 is 52 % for RGoB internal funding and 92 % for external funding (table 6). In 2008/09 the RGoB capital share is similar at 53 % while the external funding has a capital share of 83 %. It reveals that the external capital expenditures increased relative more from 2008/09 to 2009/10. In general, external funding is mainly for capital expenditure while RGoB has to meet recurrent expenditures from the internal revenue.

Table 6: Public Environmental Expenditures by Source and Type of Funding

million Nu.	2008/09				2009/2010			
	Total	Current	Capital	Ratio: Capital	Total	Current	Capital	Ratio: Capital
Budget	**1816**	**603**	**1212**	**67%**	**2738**	**997**	**1741**	**64%**
RGoB	1186	483	703	59%	1281	565	715	56%
External	629	120	509	81%	1457	432	1026	70%
External-%	35%	20%	42%		53%	43%	59%	
Expenditure	**1322**	**524**	**798**	**60%**	**1966**	**567**	**1399**	**71%**
RGoB	989	469	520	53%	1029	490	539	52%
External	334	55	278	83%	937	78	860	92%
External-%	25%	11%	35%		48%	14%	61%	

Table 7 includes the source of funding for the environmental clusters. The lowest external funding is for 'natural resource management'. This is mainly for 'forestry services' programme that is a RGoB priority receiving funding mostly from internal funding and only 9 % from external funding in 2009/10. At the same time 'forestry services' is the RGoB programme with the largest share of PEE as shown previously.

The largest share of external funding is for 'climate change' with 71 % in 2009/10. It confirms that development partners have a particular priority on this theme. It is followed by 'information and knowledge' (68 %) and 'environmental mainstreaming' (69 %) in 2009/10.

Significant increases of external finance occurred for 'environmental management' (from Nu. 13.2 to 204.1 million), 'climate change' (from Nu. 60.7 to 222.4 million) and 'environmental mainstreaming' (from Nu. 63.7 to 318.3 million). This is explained by the release of externally funded investment activities in the second year after preparations of investments were made. A significant drop occurred for 'soil conservation and land management' (from Nu. 71.8 to 28.0 million) due to a reduction in external funding (closing of projects). The RGoB environmental financing exceeds (> 50 %) the external sources for 'environmental protection', 'biodiversity conservation', and 'natural resource management'.

Table 7: Source of PEE funding

	2008/09			2009/10		
Environmental Clusters	**Source**		**External**	**Source**		**External**
--- Million Nu. ---	**RGOB**	**External**	**%**	**RGOB**	**External**	**%**
1. Environmental Protection	16.4	1.6	9%	24.3	14.2	37%
2. Urban, rural and industrial environmental management	188.0	13.2	7%	154.1	204.1	57%
3. Biodiversity conservation	116.3	42.0	27%	215.0	54.0	20%
4. Information and knowledge	57.7	56.2	49%	28.9	61.8	68%
5. Natural resource management	338.3	21.9	6%	350.2	33.6	9%
6. Soil conservation and land management	24.9	71.9	74%	23.6	28.0	54%
7. Climate change	116.8	60.7	34%	90.7	222.4	71%
8. Environmental mainstreaming	130.1	63.7	33%	141.9	318.3	69%
9. Miscellanous (other)	0.0	2.6	100%	0.0	0.9	100%
Total environmental expenditure	**988.6**	**333.8**	**25%**	**1,028.7**	**937.3**	**48%**

The total external funding for PEE was Nu. 1.271 million in 2008/09 and 2009/10. Figure 5 shows how the contribution of development partners to the externally funded share of the total PEE. The Governments of India and Denmark provide 26.9 % and 21.0 % respectively or almost half of the external funding. About one quarter (27.4 %) is provided by multi-lateral organizations, such as ADB (9.2%), GEF (9.0 %), World Bank (4.0 %) and the UN agencies (5.2 %). Another quarter (24.7 %) is provided by several other bilateral and multilateral development organizations as well as international NGOs.

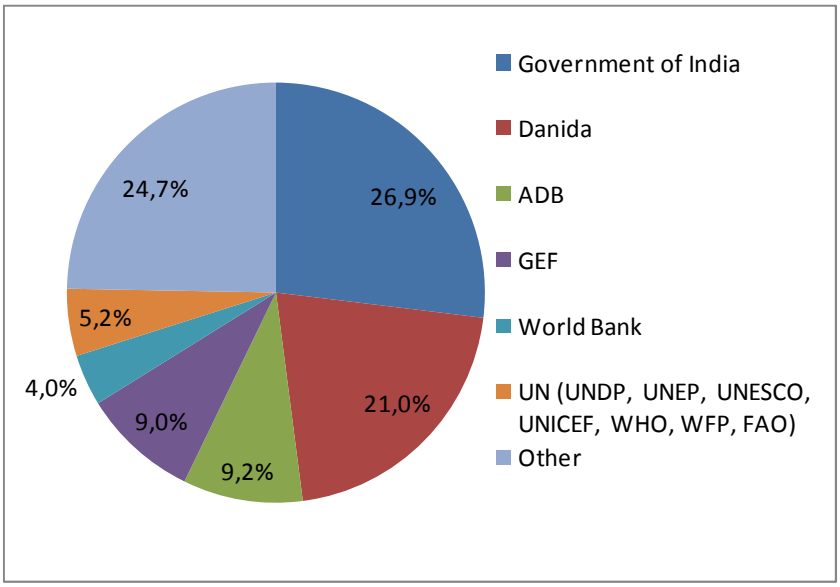

Figure 5: Development partners' share of *externally* financed PEE

The assessment of external funding only includes the expenditures in the *public* accounts of Bhutan and does therefore by definition not include, for example, the Bhutan Trust Fund, the Royal Society of Protection of Nature (RSPN) or other semi-public and private sector environmental expenditures. It is only RGoB contributions to these organisations and external funding, e.g. for RSPN, routed via MoF that is included in the public expenditures.

4.7 PEE and budget efficiency

The budget efficiency is assessed as the ratio of expenditure to budget allocation. Table 8 shows the overall budget efficiency for both overall public expenditure (as a bench mark) and for PEE. During the first year of the 10th FYP, the PEE budget absorption rate is 73 % and 72 % compared to overall public budget efficiency of 79 % and 81 %, respectively. It is an indication that the PEE budget efficiency is lower than the overall public expenditure by 6 %-point and 9 %-points respectively for the two years.

A comparative analysis of budget efficiency among the levels of Government (ministries, autonomous agencies and local governments) indicates that the PEE efficiency of local government is highest in both years (81 % and 85 %) and lowest for ministries (69 % and 66 %). Compared to the total public expenditures the PEE budget efficiency is better for autonomous agencies (6-7 %-points), almost the

same for local government, while the ministries are lagging behind in PEE budget efficiency compared to the total public expenditures (less 9 and 15 %-points respectively).

Table 8: Budget Efficiency of Autonomous, Central and Local Government

	2008/09				2009/10			
million Nu.	Autonomous Agencies	Ministries (10)	Dzongkhags (20) and Geogs	Total	Autonomous Agencies	Ministries (10)	Dzongkhags (20) and Geogs	Total
AU Codes	**100.01 - 134.01**	**201.01 - 212.01**	**401.01 - 420.09**		**100.01 - 134.01**	**201.01 - 212.01**	**401.01 - 420.09**	
Public Environment Expenditure								
Budget	97	1,201	517	1,816	160	1,882	696	2,738
Expenditure	75	831	416	1,322	130	1,246	590	1,966
Efficiency	77%	69%	81%	73%	81%	66%	85%	72%
Public Expenditure								
Total Budget	3,427	19,875	6,007	29,309	4,790	24,194	8,262	37,247
Total Expenditure	2,409	15,626	5,000	23,035	3,592	19,546	6,900	30,039
Efficiency	70%	79%	83%	79%	75%	81%	84%	81%
Efficiency difference %-point	7%	-9%	-3%	-6%	6%	-15%	1%	-9%

4.8 Changes in PEE from 2008/09 to 2009/10

In Table 9 it is shown that the PEE share of public expenditure increased from 5.7 % in 2008/09 to 6.5 % in 2009/10. The PEE of the RGoB internal expenditure (i.e. the PEE without the external funding) decreased from 6.0 % to 5.4 %. The PEE of the external funding increased from 5.1 % to 8.4 %.

Table 9: Share of PEE in external and RGoB expenditure

	2008/09			2009/10		
million Nu.	PE	PEE	%	PE	PEE	%
Total	23,035	1,322	5.7%	30,039	1,966	6.5%
External funded	6,575	334	5.1%	11,118	937	8.4%
RGOB (domestic)	16,460	988	6.0%	18,921	1,029	5.4%

PE: Public expenditure; PEE: Public environmental expenditure

The change in PEE by agency, source and expenditure type is presented in table 10. The increase in total PEE is 49 % and for both central Government and Dzonkhags the increase is at a similar rate (52 % and 55%) while the increase in PEE for Geogs is lagging behind (29 %).

The table confirms previous findings on the increase in external funding (181 %) while the RGoB funding for PEE was at a similar level (4 %). The analysis also confirms the relative higher growth in capital expenditure (75 %) compared to current expenditure (8 %) that can also be explained by the increase in external funding being mostly capital expenditure.

Table 10: Change in PEE by agency, source and expenditure type

	Agency			Source		Expenditure		
	Central	Dzonkhag	Geog	RGOB	External	Current	Capital	Total PEE
2008/09								
Total (Million Nu.)	906.2	205.6	210.6	988.6	333.8	524.3	798.1	1,322.4
Percentage	69%	16%	16%	75%	25%	40%	60%	100%
2009/10								
Total (Million Nu.)	1,375.6	319.7	270.7	1,028.7	937.3	567.4	1,398.6	1,966.0
Percentage	70%	16%	14%	52%	48%	29%	71%	100%
Change								
Absolute (Million Nu.)	469.4	114.1	60.2	40.2	603.5	43.1	600.5	643.6
Relative (%)	52%	55%	29%	4%	181%	8%	75%	49%

*) *Change* from fiscal year 2008/09 to 2009/10.
Absolute is increase/decrease in million Nu. and *Relative* is percentage increase/decrease from fiscal year 2008/09.

4.9 International comparison: Bench marking

It was concluded in the 2009 PEER that the relative PEE is much higher in Bhutan than other countries. It was recommended to maintain the PEER at least at 2.8 % of GDP that was the average during the 9th FYP. This is probably based on a total PEE that embraces more than what is included in the international definition of environmental expenditures.

The total PEE share of GDP was 2.1 % and 2.9 % in the first two years of the 10th FYP. For international comparison a more appropriate measure is the core PEE. According to the analysis of the 10th FYP data the core PEE for Bhutan is 2.1 % to 2.5 % of public expenditure and 0.8 % and 1.1 % of GDP. In the table below the core PEE for Bhutan is compared with other countries. Bhutan is at a similar or higher level comparing PEE share of public expenditure. It is yet higher for percentage of GDP mainly because the public expenditure in Bhutan is almost 40 % - 45 % of GDP compared to 10 % to 30 % in other countries.

Table 11: PEE Benchmarking

Country	% GDP	% PE	Year
Bhutan (9th FYP)	2.8%	7.4%	(2002-2009)
Bhutan (core)	**0.8 – 1.1 %**	**2.1 – 2.5 %**	**2011**
Ghana	0.0%	0.1%	2005
Madagascar	0.5%	2.0%	2005
Namibia	0.2%	0.7%	2005-2006
Chile	0.5%	2.6%	2003
Colombia	0.3%	1.0%	2003
Mexico	0.7%	4.2%	2003

Data from other countries than Bhutan is from an overview compiled in World Bank (2008)

According to one source[8] the World Bank recommends that the PEE in developing countries should be at 1.4 % to 2.5 % of GDP, but this could not be confirmed from the World Bank. This level is more in the range of PEE percentage of GDP that could be expected from developed countries.

[8] Information from IIED in tool kit paper on PEER: http://www.environmental-mainstreaming.org/documents/EM%20Profile%20No%2012%20-%20PEER%20(5%20Oct%2009)%20(2).pdf

5. Findings and Recommendations [9]

5.1 Main results and findings from the PEER

1) The PEER reveals that RGoB allocates and utilises substantial public funding for environmental expenditures. About 6 % of the public expenditures are related to the fulfilment of policy objectives on environment in pursuit of GNH. The public environmental expenditure has reached almost Nu. 2.0 billion in 2009/10.
2) The *total* PEE for the financial year 2009/10 is Nu. 1,966 million, which is equal to 6.5 % of the total public expenditure and 2.9 % of the GDP. The total PEE for 2008/09 is Nu. 1,322 million, which is equal to 5.7 % of the total public expenditure and 2.3 % of the GDP.
3) The *core* PEE for the financial year 2009/10 is Nu. 756 million, which is equal to 2.5 % of the total public expenditure and 1.1 % of the GDP. The core PEE for 2008/09 is Nu. 491 million, which is equal to 2.1 % of the total public expenditure and 0.8 % of the GDP. The proportion of core PEE of the total PEE remained at the same level with 38 % in 2009/10 and 37 % in 2008/09.
4) The core PEE (0.8 % and 1.1 % GDP) is high compared to international estimates. Bhutan has a priority on the environment but so have other developing countries. The conclusion from the 2009 PEER that the PEE in Bhutan is significantly higher than other countries with 2.8 % PEE of GDP could not be reconfirmed. It appears that the 2009 PEER included more expenditures in the PEE than covered by the international definition.
5) The PEE increased in both absolute and relative terms from 2008/09 to 2009/10. The total PEE increased by almost 49 % from 2008/09 to 2009/10 which was more than the increase in public expenditure (30 %) and GDP (15 %). The 2009 PEER revealed a constant nominal level of PEE at about Nu. 1 billion per year, but the relative share showed a declining trend due to the doubling of both public expenditure and GDP during the 9th FYP. The downward trend from the 2009 PEER has changed to an increase in the 10th Plan. The next years will show if the increasing trend is sustained for the remaining 10th FYP.
6) The 49 % increase in the PEE is mainly due to the increase of external funding by Nu. 600 million (181 %) from 2008/09 to 2009/10. The RGoB funded share of PEE increased by only Nu. 40 million (4 %). The share of PEE in the RGoB public expenditures (without the external funding) decreased from 6.0 % in 2008/09 to 5.4 % in 2009/10. The reason for the increase is that the first year (2008/09) had a late release of the budget and it took time to prepare investment projects and tenders. It was only in the second year the investments were ready for external funding.
7) About 30 % of the PEE is at local government level. In the 9th FYP only about 4 % of the PEE was at the local government level. The increased local government share reflects an emerging fiscal decentralization in Bhutan. The increase is not due to the PEE from farm roads as this is only 3 % of total PEE in 2009/10 or about 10 % of the PEE at local government level.
8) About 70 % of the PEE is with the central level agencies. Three ministries (MoAF, MoEA and MoWHS) account for over 60 %, and the National Environmental Commission Secretariat (NECS) accounts for 3.4 % of the total PEE. Expenditures accounted for at the central level can be actual expenditures incurred at local level, e.g. expenditures on national parks and infra-structure.
9) 'Forestry services' is the RGoB programme having the largest share of PEE. The 'Forestry services' programme's share of PEE decreased by 10 %-point from 40.4 % to 30.4 %. The PEE for 'Urban development and engineering services' increased by 10 %-point to 12.7 % in 2009/10.
10) The PEE of the cluster 'Soil conservation and land management' decreased by half from 2008/09 to 2009/10. This is mainly explained by a decline in external funding. In all other cluster the external funding increased.

[9] Identical text in executive summary.

11) The PEE of the 'Climate change' cluster is unclear since the RGoB programme, activity and sub-activity budget codes do not capture climate change as a separate theme, except for external funding for specific climate change projects. This cluster also includes investments in irrigation (as an adaptation measure), disaster risk reduction and mitigation projects. The climate change related expenditures is 13 % and 16 % of the total PEE in the two fiscal years.
12) Environmental mainstreaming includes sub-clusters on Environmentally Friendly Road Construction (EFRC) of national roads and farm roads. Based on empirical evidence it is assumed as a best estimate that EFRC is a 15 % incremental cost (equal to 13 % of the total road building expenditure). It is confirmed that EFRC incremental cost occurs for almost all national road construction projects while the level of EFRC for farm road projects is uncertain. The estimated PEE share of EFRC is 16 % for roads and 3.2 % for farm roads in 2009/10.
13) The PEER does not in itself provide further environmental mainstreaming. It does give insight to MoF and GNHC about the importance of environment for Bhutan's economic development and thus contributes with knowledge for environmental mainstreaming. The share of PEE for environmental mainstreaming (other than roads) is 1.6 % and 3.7 % in 2008/09 and 2009/10.
14) From 2008/09 to 2009/10 the capital expenditures' share of PEE increased from 60 % to 71 %. This is higher than for total public expenditure where capital and current expenditures are 50:50. It reveals that environmental expenditures have a higher proportion of capital investments and external funding than the overall public expenditure.
15) The share of externally financed PEE is 48 % of the total PEE budget in 2009/10 (external finance share of current expenditure is 14 % and 61 % of capital expenditure) up from 25 % of the total PEE in 2008/09 (share of current 11 % and capital 35 %). The external funding of PEE during the 9th FYP was 34 %.
16) The total external funding for PEE amounts to Nu. 1.271 million for 2008/09 and 2009/10. The Governments of India and Denmark provide 26.9 % and 21.0 % respectively or almost half of the external PEE funding. About a quarter (27.2 %) is provided by multi-lateral organizations, such as ADB (9.2 %), GEF (9.0 %), World Bank (4.0 %) and the UN agencies (5.2 %). Another quarter (24.7 %) is provided by a number or other bilateral and multilateral development partners, international organisations and NGOs.
17) DPA/MoF expressed a preference for a PEER at the end of each FYP and a mid-term PEER rather than annual PEER updates. It will not feasible to include PEER findings in the Annual Finance Statements (AFS) of the RGoB but it can be in separate publications.

5.2 Recommendations for PEER in Bhutan

Updates of the PEER

1) DPA/MoF should prepare an updated PEER for the 10th FYP (2008/09 - 2012/13) in 2013. For the 11th FYP a mid-term PEER should be prepared covering the first three fiscal years and a final PEER covering five years at the end of the FYP.
2) An environmental expenditure review of the private sectors, NGOs and foundations, and households should be developed in parallel with the next PEER (but not as part of PEER). It will provide a full account of the environmental expenditures in Bhutan and contribute towards a full cost accounting in the 'green national accounting' to be developed by National Statistics Bureau (NSB).
3) The estimated expenditure for Environmentally Friendly Road Construction (EFRC) for farm roads should be validated in order to confirm the appropriate level of environmental expenditure according to mandatory environmental standards for environmental mainstreaming of roads projects.
4) The PEER should be expanded to include the public revenue from natural resources (royalties) and environmentally related user fees.

Institutional development and anchoring

5) A focal person for maintaining the PEE data base and responsible for preparing PEER updates should be nominated in DPA/MoF.
6) The PEER task force with MoF as a chair and members from NECS, NSB, GNHC and other relevant ministries should be maintained on an *ad hoc* basis.
7) The PEE data base and other PEER relevant documentation should be available at the website of DPA/MoF.

Methodological development and applications

8) The identified 'green' budget codes should be tagged in the RGoB budget and accounting system as far as possible and linked to the environmental classification from the 11th FYP. Alternatively the budget classification system should be reorganised to include the environmental classification in sub-activities (e.g. a budget code for 'waste management'). A customized extraction of PEE data should be possible *ad hoc* when needed and not only when a PEER is prepared.

Link to 11th Five Year Plan

9) The environmental classification and integration of PEER with the RGoB budget and accounting systems should be revisited by the PEER task force for the 11th FYP.

Policy relevance and effectiveness

10) Case studies should be initiated by PEER task force for detailed assessment of the efficiency and effectiveness of environmental expenditures. This could be for cross-cutting topics of policy relevance that are not captured well in the public accounting system like climate change.
11) The PEER should be integrated with the Bhutan Environment Outlook (BEO) by linking PEE with the State of the Environment reporting, and by revising and harmonizing the environmental classification framework developed for the PEER. NECS should take a lead in ensuring such linkage in coordination with the PEER task force.

Annex 1: Environmental Classification for PEE in Bhutan [10]

Environmental clusters and sub-clusters	Comments
1. Environmental protection	*** Core environmental expenditure ***
1.1 Ambient air quality	Monitoring and regulation for ambient air quality
1.2 Ambient water quality	Monitoring and regulation for ambient water quality
1.3 Clean technology and environmental clearances	Clearances for infrastructure, industry and mining
1.4 Vehicle emission reduction	Enforcement and monitoring of vehicle emission standards
1.5 Regulation of ozone depletion substances	Activities to phase out ozone depleting substances
1.6 Other pollution regulation and control	Other ambient emission regulation to water, air and soils.
2. Urban, Rural and Industrial Environmental Management	*** Core environmental expenditure ***
2.1 Waste management	Regulation and management of waste
2.2 Water supply services	Access to clean water.
2.3 Sanitation services / drainage	Toilet facilities and sewage systems.
2.4 Other environmental management services	Other management of solid waste and waste water; provision of services (other than water resources and sanitation)
3. Biodiversity conservation	*** Core environmental expenditure ***
3.1 Protected areas and parks management	Management of protected areas
3.2 Protected species / plants and wildlife	Management of protected species. Human wildlife conflicts.
3.3 Other biodiversity management, guidelines and support	Other biodiversity
4. Information and knowledge	*** Core environmental expenditure ***
4.1 Research and higher education	Universities and colleges.
4.2 Primary environmental education	Environmental education.
4.3 Environmental awareness and campaigns	Awareness, e.g. world environment day.
4.4 Information and statistics	Environmental related information, e.g. publications, data bases and monitoring.
4.5 Human resource development	Activities to enhance knowledge and skills of farmers and professionals.
4.6 Other environment information and knowledge	Activities not covered above, e.g. conferences.
5. Natural resource management	
5.1 Forestry and forest products	Forestry (management, planting, nurseries)

[10] The environmental classification presented here is prepared for the PEER in other to cover the wide range of different types of potential and actual environmental expenditures. The core PEE is cluster 1-4. In the proposed classification there are potential overlaps in particular with the added clusters for 'climate change' and 'information and knowledge'. The proposed classification can be tested and further developed.

Environmental clusters and sub-clusters	Comments
5.2 Forest fires prevention and control	Equipment and training for forest fire prevention and control; fire break establishment and maintenance.
5.3 Community level NRM	Community level activities on NRM, e.g. community forestry.
5.4 Watershed management and water resources	Protection and management of spring sources and watersheds.
6. Soil conservation and land management	
6.1 Soil conservation and erosion control	Protection against soil erosion (also a large activity under road construction) and soil conservation activities.
6.2 Sustainable land management	Planning and sustainable use of land
7. Climate change	Some overlap with natural resource management, e.g. in water resource management.
7.1 Climate change adaptation	Measures to reduce climate change risks, e.g. river bank protection
7.2 Disaster risk reduction	GLOF monitoring and risk avoidance. Other Disaster Risk Reduction (DRR).
7.3 Meteorological services and early warning	Hydro-meteorological services and flood warning.
7.4 Climate change mitigation	Renewable energy (except large scale hydro power). Energy efficiency and CDM projects
7.5 Weather related damage	Monsoon and other flood damage compensation. Damage from storms.
7.6 Irrigation (adaptation and resilience)	Rehabilitation and construction of irrigation (water supply to crops). Could also have been included under natural resource management or climate change adaptation. It is assumed that irrigation rehabilitation and construction is located where the alternatively would be large climate vulnerability.
7.7 Other climate change	Any other not included above. E.g. national communications to UNFCC
8. Environmental mainstreaming	
8.1 Mainstreaming in plans and policies	Efforts to mainstream environment in procedures including capacity development.
8.2 Mainstreaming in farm roads	Estimated 15 % additional costs of environmental related expenditures for farm road construction.
8.3 Mainstreaming in road projects	Estimated 15 % additional costs of environmental related expenditures for road construction by RGoB, but not for DANTAK.
8.4 Other environmental mainstreaming	Any other not included above.
9. Miscellaneous (other)	If several similar PEEs are included here there will be an option to include these specifically in the classification.
9.1 Eco-tourism	Public investments in eco-tourism. Could also include other private sector related activities.
9.2 Environmental and occupational health	Environmental health related topics.
9.3 Other environmental topics	Other issues not covered in any of the above.

Annex 2: Bhutan public finance budget codes

Accounting Unit AU code	Programme PR code	Sub-programme SP code	Activity / Sub-Activity. AC code	Object OB code
Autonomous agencies: 101.01 102.01 1xx.01 Etc.	Two digit codes for each programme: 01 0x Etc.	Three digit codes: 001 00x Etc. Not all programmes may have also SP codes.	Three digit codes and .00 for activity name: 001.00 002.00 00x.00 Etc. Sub-activity codes two digits after AC code: 00x.01 00x.02 Etc.	Four digits: xx.zz Current expenditure: 1x.zz to 3x.zz Capital expenditure: 4x.zz to 9x.zz Same code template is used for all accounts. This enables a summary by objective class in the Annual Financial Statements (AFS) report, e.g. for rental of property (13.01) or purchase of vehicles (53.01)
Ministries (10 ministries): 201.01 202.01 2xx.01 Etc.				
Dzongkhag administrations (total of 20): 401.01 402.01 4xx.01 Etc. The two digit code continues from 02 for each geog of the Dzongkhag				
Geogs under each Dzongkhag (total of 205): 4xx.02 4xx.03 4xx.0y Etc. First three digits the Dzongkhag.				
Example, for sub-activity budget code: 205.01.18.003.001.03				
Ministry of Agriculture: AU 205.01	Forestry Services: PC 18	Conservation and Afforestation Services: SPC 003	Social Forestry Division: AC 001.00 Sub-Activity: Watershed management section: SAC 001.03	Computers and peripherals: 54.03

The public environmental expenditures (PEE) are identified at activity/sub-activity level. Some can be identified at accounting unit (AU) level (e.g. for NEC the AU is 114.01) and programme level when all activities are included. But each activity/sub-activity code still has to be reviewed according to specific environmental classification and the source of finance.

The source of external financing (development partner) can be identified through the Finance Item Codes (FIC) where each programme has a unique four digit code (e.g. for the Danida support to NECS under the EUSPS the FIC is 1784).

Annex 3: PEE Budget Code Functions

For each activity/sub-activity budget codes selected for PEE information is collected on the following dimensions.

Dimensions	Source of information	Comments
Institutions	AU codes	Available from CEBA / PEMS. It will also be possible to assess PEE according to programmes, e.g. PC 18 ('Forestry services').
Economic	Recurrent / capital budget and expenditure	Available from CEBA / PEMS
Financing	FIC codes RGOB sources and External finance (grants and loans)	Available from CEBA / PEMS FIC codes will make it possible to identify if the source of financing is RGoB or external, and the specific external sources.
Environmental clusters / sub-clusters	Based on classification of environmental expenditure developed for the PEER. Nine environmental clusters and 40 environmental sub-clusters.	To be added manually for each of the selected activity budget lines. Not yet available in PEMS (for further development). The environmental classification can be linked to the Bhutan Environment Outlook (BEO) format.

The activity budget codes selected for inclusion in PEE are a subset of all activity budget codes of the public finance system. The selection of activity budget codes for PEE is based on the initial screening and refined with the definition of environmental expenditures that were validated with the relevant institutions.

Annex 4: PEE Data Base Structure

#	Data	Data	Source / Comment
0	ID number	No. 1 - xxx	Number added in PEE data base
1	Accounting Unit	AU code (xxx.xx)	CEBA (PEMS from July 2010)
2	Institutional name	Text	AU corresponding institution (corresponding to AU code)
3	Institutional cluster	1, 2, 3 or 4	1: Autonomous agencies (AU 100), 2: Ministries (AU 200), 3: Dzongkhags (AU 4xx.00), and 4: Geogs (AU 4xx.0z)
4	Programme code	PC (xx)	CEBA (PEMS from July 2010)
5	Programme name	Text	Corresponding to PC
6	Sub-programme code	SPC (xxx)	If applicable. CEBA (PEMS from July 2010)
7	Sub-programme name	Text	If applicable. Corresponding to SPC
8	Activity code	AC (xxx.xx)	CEBA (PEMS from July 2010)
9	Activity name	Text	From text in BAS (PEMS from July 2010) and further details from concerned institution. Corresponding to AC.
10	Sub-activity code	SAC (xxx.xx)	CEBA (PEMS from July 2010)
11	Sub-activity name	Text	From text in BAS (PEMS from July 2010) and further details from concerned institution. Corresponding to SAC.
12	Finance information code	FIC (xxxx)	CEBA (PEMS from July 2010)
13	Funding source	B / F	From FIC the funding sources is identified either as RGOB (B) or external (F)
14	Funding source	Text	RGOB or development partner (donor agency)
15	Budget: Current	Nu.	CEBA (PEMS from July 2010)
16	Budget: Capital	Nu.	CEBA (PEMS from July 2010)
17	Budget: Sum	Nu.	Spreadsheet calculation (#14 + #15)
18	Expenditure: Current	Nu.	CEBA (PEMS from July 2010)
19	Expenditure: Capital	Nu.	CEBA (PEMS from July 2010)
20	Expenditure: Sum	Nu.	Spreadsheet calculation (#17 + #18)
21	Budget Variance	Nu.	Spreadsheet calculation (#16 - #19)
22	Environmental classification	Double digit code: 1-8.1-7, e.g. 5.3	Added manually. First digit is environmental cluster.
23	Environmental cluster.	Text	Environmental cluster according to first digit (1 to 9) of the environmental classification code.
24	Environmental sub-cluster.	Text	Second level of environmental classification (sub-cluster) corresponding to double digit code.

The shaded rows are the information to be extracted from the CEBA (for data until June 2010) and from PEMS (from July 2010). The other rows are added manually or as a function in the PEE database.

A brief overview of the structure of the PEE data base:

- The budget code is used to identify the specific budget line. This is an ID in the database but not used specifically for the PEER analysis (#1, #4, #6, #8 and #10).
- The names of institution (#2) are linked to the name of the programme (#5 and #7) and activity (#9 and #11). The institutions are clustered in autonomous agencies, ministries, dzongkhags and Geogs (#3), which is used for the institutional dimension of PEE. It is an option also to use programme codes for analysis as these cut across the institutions. The names of the activities (#9 and #11) are for reference and will not be used for the analysis.
- The economic data are from BAS / PEMS (#15 - #20) including sums and controls. These include budget (#15 and #16) and expenditures (#18 and #19) split into recurrent and capital budget.
- FIC (#12) and source of funding (#13) are used to identify the source of external finance (#14). FIC are included in BAS/PEMS and linked to each of the activity budget codes.
- An environmental expenditure classification is added (#22). The first level is to identify what is core environmental cluster (#23). The second level is the environmental sub-cluster (#24) that should ideally also be applicable to follow a forthcoming BEO classification of the environment by NECS.

Annex 5: Environmental Clusters and RGoB Programmes

	1. Environmental Protection	2. Urban, rural and industrial environmental management	3. Biodiversity conservation	4. Information and knowledge	5. Natural resource management	6. Soil conservation and land management	7. Climate change	8. Environmental mainstreaming
2008/09	100%	100%	100%	100%	100%	100%	100%	100%
AGRICULTURE SERVICES	..	4%	7%	1%	1%	59%	26%	16%
COLLEGE SERVICES	..	1%	..	23%	..	..	..	..
EDUCATION SERVICES	..	12%	..	..	..	..	2%	..
ENERGY SERVICES	..	..	..	..	..	..	26%	..
FORESTRY SERVICES	..	3%	72%	50%	96%	13%	1%	..
GENERAL ADMINISTRATION AND DIRECTION SERVICES	9%	9%	15%	14%	3%	28%	14%	11%
GEOLOGY AND MINES SERVICES	90%	..	..	..	..	..	5%	..
HEALTH SERVICES	..	61%	..	..		..	..	..
MEDICAL SERVICES	..	1%	7%	..	..	..	..	..
ROADS & BRIDGES SERVICES	..	..	..	..	..	..	18%	72%
URBAN DEVELOPMENT AND ENGINEERING SERVICES	..	8%	..	..	..	..	6%	..
2009/10	100%	100%	100%	100%	100%	100%	100%	100%
AGRICULTURE SERVICES	..	3%	6%	1%	2%	40%	24%	13%
DEPARTMENT OF PUBLIC ACCOUNTS	..	3%	18%	6%	..	..	..	1%
EDUCATION SERVICES	..	7%	..	..	..	..	..	..
ENERGY SERVICES	..	..	..	..	..	..	28%	..
FORESTRY SERVICES	..	..	67%	58%	93%	8%		..
GENERAL ADMINISTRATION AND DIRECTION SERVICES	37%	6%	9%	29%	3%	51%	17%	15%
GEOLOGY AND MINES SERVICES	58%	..	..	..	..	..	9%	..
HEALTH SERVICES	..	31%	..	..	2%	..	..	..
ROADS & BRIDGES SERVICES	..	..	..	..	..	..	..	71%
URBAN DEVELOPMENT AND ENGINEERING SERVICES	..	49%	..	6%	..	2%	22%	..

Annex 6: PEER 2009-10 Summary Table

Environmental Cluster	Agency			Source		Expenditure			
--- Million Nu. ---	Central	Dzonkhag	Geog	RGOB	External	Current	Capital	Total	Pct.
1. Environmental Protection	**38.5**	**..**	**..**	**24.3**	**14.2**	**18.6**	**19.9**	**38.5**	**2.0%**
1.1 Ambient air quality	0.2	..	..	..	0.2	..	0.2	0.2	*0.0%*
1.3 Clean Technology and environmental clearances	33.2	..	..	22.6	10.6	18.6	14.6	33.2	*1.7%*
1.4 Vehicle emission reduction	1.7	..	..	1.7	..	..	1.7	1.7	*0.1%*
1.5 Regulation of ozone depletion substances	3.4	..	..	..	3.4	..	3.4	3.4	*0.2%*
2. Urban, rural and industrial environmental management	**129.0**	**109.6**	**119.5**	**154.1**	**204.1**	**0.4**	**357.8**	**358.2**	**18.2%**
2.1 Waste management	24.9	5.0	1.3	8.7	22.5	0.4	30.8	31.2	*1.6%*
2.2 Water supply services	77.5	61.0	114.6	97.2	155.9	..	253.1	253.1	*12.9%*
2.3 Sanitation services / drainage	9.7	43.6	3.7	41.5	15.4	..	56.9	56.9	*2.9%*
2.4 Other environmental management services	16.9	..	0.0	6.7	10.2	..	16.9	16.9	*0.9%*
3. Biodiversity conservation	**265.6**	**0.4**	**3.0**	**215.0**	**54.0**	**139.1**	**129.8**	**268.9**	**13.7%**
3.1 Protected areas and parks management	77.8	0.4	2.9	62.7	18.4	15.7	65.4	81.1	*4.1%*
3.2 Protected species / plants and wildlife	24.7	..	0.0	11.4	13.4	9.5	15.2	24.7	*1.3%*
3.3 Other biodiversity management, guidelines and suppor	163.1	..	..	141.0	22.1	113.9	49.2	163.1	*8.3%*
4. Information and knowledge	**80.2**	**5.1**	**5.4**	**28.9**	**61.8**	**17.8**	**72.8**	**90.7**	**4.6%**
4.1 Research and higher education	41.2	..	..	17.4	23.8	12.6	28.6	41.2	*2.1%*
4.2 Primary environmental education	0.1	..	..	..	0.1	..	0.1	0.1	*0.0%*
4.3 Environmental awareness and campaigns	4.7	1.6	2.0	3.6	4.7	2.0	6.2	8.2	*0.4%*
4.4 Information and statistics	12.0	..	0.0	1.5	10.6	1.6	10.5	12.0	*0.6%*
4.5 Human resource development	22.1	3.5	3.4	6.4	22.6	1.6	27.4	29.1	*1.5%*
5. Natural resource management	**263.5**	**92.2**	**28.1**	**350.2**	**33.6**	**281.7**	**102.1**	**383.8**	**19.5%**
5.1 Forestry and forest products	249.5	82.9	6.3	334.2	4.7	279.2	59.7	338.8	*17.2%*
5.2 Forest fires prevention and control	0.9	1.4	0.6	2.4	0.5	0.5	2.4	2.9	*0.1%*
5.3 Community level NRM	0.5	6.5	9.1	6.2	9.9	0.4	15.7	16.1	*0.8%*
5.4 Watershed management and water resources	12.5	1.3	12.0	7.4	18.5	1.6	24.3	25.9	*1.3%*
6. Soil conservation and land management	**38.0**	**2.5**	**11.2**	**23.6**	**28.0**	**21.0**	**30.6**	**51.6**	**2.6%**
6.1 Soil conservation and erosion control	2.0	0.1	5.0	2.9	4.2	3.0	4.1	7.1	*0.4%*
6.2 Sustainable land management	36.0	2.3	6.2	20.6	23.9	18.0	26.5	44.5	*2.3%*
7. Climate change	**163.1**	**96.3**	**53.8**	**90.7**	**222.4**	**45.9**	**267.2**	**313.1**	**15.9%**
7.1 Climate change adaptation	32.5	70.8	..	33.5	69.8	0.7	102.7	103.3	*5.3%*
7.2 Disaster risk reduction	35.4	7.4	1.3	2.4	41.7	26.0	18.1	44.1	*2.2%*
7.3 Meteorological services and early warning	24.1	..	..	6.6	17.5	12.0	12.1	24.1	*1.2%*
7.4 Climate change mitigation	60.4	1.6	..	15.3	46.7	2.2	59.8	62.0	*3.2%*
7.5 Weather related damage	..	6.7	..	1.3	5.4	4.9	1.8	6.7	*0.3%*
7.6 Irrigation (adaptation and resilience)	..	9.8	52.5	31.6	30.6	0.0	62.2	62.3	*3.2%*
7.7 Other climate change	10.7	..	..	..	10.7	0.0	10.6	10.7	*0.5%*
8. Environmental mainstreaming	**396.8**	**13.6**	**49.8**	**141.9**	**318.3**	**42.4**	**417.9**	**460.2**	**23.4%**
8.1 Mainstreaming in plans and policies	72.2	..	..	16.5	55.8	26.9	45.3	72.2	*3.7%*
8.2 Mainstreaming in farm roads	..	13.3	49.8	24.6	38.5	..	63.1	63.1	*3.2%*
8.3 Mainstreaming in road projects	324.6	..	..	100.6	224.0	15.4	309.2	324.6	*16.5%*
8.3 Other environmental mainstreaming	..	0.3	..	0.3	..	..	0.3	0.3	*0.0%*
9. Miscellanous (other)	**0.9**	**..**	**..**	**..**	**0.9**	**0.5**	**0.4**	**0.9**	**0.0%**
9.1 Eco-tourism	0.9	..	..	..	0.9	0.5	0.4	0.9	*0.0%*
Total	**1,375.6**	**319.7**	**270.7**	**1,028.7**	**937.3**	**567.4**	**1,398.6**	**1,966.0**	**100.0%**
Percentage	**70%**	**16%**	**14%**	**52%**	**48%**	**29%**	**71%**	**100%**	

The core PEE is the first four cluster between the brackets.

Annex 7: PEER 2008-09 Summary Table

Environmental Cluster	Agency			Source		Expenditure			
--- Million Nu. ---	Central	Dzonkhag	Geog	RGOB	External	Current	Capital	Total	Pct.
1. Environmental Protection	**18.0**	**..**	**..**	**16.4**	**1.6**	**16.4**	**1.7**	**18.0**	**1%**
1.1 Ambient air quality	0.7	..	..	0.1	0.6	0.1	0.6	0.7	*0.1%*
1.3 Clean Technology and environmental clearances	16.3	..	..	16.3	..	16.3	..	16.3	*1.2%*
1.5 Regulation of ozone depletion substances	1.1	..	..	..	1.1	..	1.1	1.1	*0.1%*
2. Urban, rural and industrial environmental management	**15.5**	**66.7**	**118.9**	**188.0**	**13.2**	**8.5**	**192.6**	**201.1**	**15%**
2.1 Waste management	3.8	6.0	2.8	5.2	7.4	0.2	12.4	12.6	*1.0%*
2.2 Water supply services	5.9	36.1	108.0	146.0	4.0	7.4	142.6	150.0	*11.3%*
2.3 Sanitation services / drainage	5.7	24.5	8.1	36.5	1.8	1.0	37.4	38.3	*2.9%*
2.4 Other environmental management services	..	0.1	0.1	0.2	..	..	0.2	0.2	*0.0%*
3. Biodiversity conservation	**154.2**	**3.7**	**0.5**	**116.3**	**42.0**	**110.1**	**48.3**	**158.4**	**12%**
3.1 Protected areas and parks management	120.4	3.7	0.5	100.0	24.6	93.3	31.3	124.6	*9.4%*
3.2 Protected species / plants and wildlife	18.6	..	..	5.1	13.4	5.7	12.9	18.6	*1.4%*
3.3 Other biodiversity management, guidelines and suppor	15.2	..	..	11.2	4.0	11.0	4.2	15.2	*1.1%*
4. Information and knowledge	**102.6**	**6.0**	**5.3**	**57.7**	**56.2**	**46.8**	**67.1**	**113.8**	**9%**
4.1 Research and higher education	68.6	0.1	..	43.2	25.6	33.5	35.3	68.7	*5.2%*
4.3 Environmental awareness and campaigns	16.1	1.9	0.6	7.9	10.7	11.8	6.8	18.6	*1.4%*
4.4 Information and statistics	3.4	..	..	1.3	2.1	1.3	2.1	3.4	*0.3%*
4.5 Human resource development	14.4	4.0	4.7	5.3	17.9	0.2	22.9	23.1	*1.7%*
5. Natural resource management	**261.7**	**80.4**	**18.1**	**338.3**	**21.9**	**265.5**	**94.7**	**360.2**	**27%**
5.1 Forestry and forest products	241.2	75.2	6.3	320.0	2.7	264.4	58.3	322.7	*24.4%*
5.2 Forest fires prevention and control	7.2	1.5	1.4	10.0	0.1	0.6	9.5	10.2	*0.8%*
5.3 Community level NRM	..	3.1	6.8	4.6	5.4	0.1	9.8	9.9	*0.8%*
5.4 Watershed management and water resources	13.3	0.6	3.5	3.7	13.7	0.4	17.0	17.4	*1.3%*
6. Soil conservation and land management	**78.7**	**7.7**	**10.4**	**24.9**	**71.9**	**24.5**	**72.3**	**96.8**	**7%**
6.1 Soil conservation and erosion control	15.5	0.0	2.8	10.2	8.2	10.2	8.1	18.4	*1.4%*
6.2 Sustainable land management	63.2	7.7	7.6	14.7	63.8	14.3	64.1	78.4	*5.9%*
7. Climate change	**111.3**	**23.2**	**43.0**	**116.8**	**60.7**	**22.8**	**154.8**	**177.6**	**13%**
7.1 Climate change adaptation	6.3	9.3	4.5	13.5	6.6	1.1	19.0	20.1	*1.5%*
7.2 Disaster risk reduction	20.1	5.0	..	12.2	12.8	10.2	14.9	25.1	*1.9%*
7.3 Meteorological services and early warning	18.1	..	..	5.1	12.9	10.8	7.2	18.1	*1.4%*
7.4 Climate change mitigation	26.3	..	..	14.6	11.7	0.4	25.8	26.3	*2.0%*
7.5 Weather related damage	31.9	..	..	31.9	..	..	31.9	31.9	*2.4%*
7.6 Irrigation (adaptation and resilience)	0.1	8.9	38.5	39.6	8.0	..	47.6	47.6	*3.6%*
7.7 Other climate change	8.6	..	..	..	8.6	0.2	8.4	8.6	*0.7%*
8. Environmental mainstreaming	**161.6**	**17.8**	**14.4**	**130.1**	**63.7**	**29.6**	**164.2**	**193.8**	**15%**
8.1 Mainstreaming in plans and policies	21.3	..	..	16.9	4.4	15.7	5.6	21.3	*1.6%*
8.2 Mainstreaming in farm roads	..	17.8	14.4	18.1	14.1	..	32.2	32.2	*2.4%*
8.3 Mainstreaming in road projects	140.3	..	..	95.1	45.2	13.9	126.4	140.3	*10.6%*
9. Miscellanous (other)	**2.6**	**..**	**..**	**..**	**2.6**	**0.1**	**2.5**	**2.6**	**0%**
9.1 Eco-tourism	2.5	..	..	..	2.5	..	2.5	2.5	*0.2%*
9.2 Occupational and Environmental Health	0.1	..	..	..	0.1	0.1	..	0.1	*0.0%*
Total	**906.2**	**205.6**	**210.6**	**988.6**	**333.8**	**524.3**	**798.1**	**1,322.4**	**100%**
Percentage	**69%**	**16%**	**16%**	**75%**	**25%**	**40%**	**60%**	**100%**	

The core PEE is the first four cluster between the brackets.

Annex 8: List of References

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Annex 9: Case on Environmentally Friendly Road Construction (EFRC)

[case prepared by the national consultant is not yet completed]