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TRENDS AND PRACTICES OF PUBLIC ENVIRONMENTAL EXPENDITURE IN ETHIOPIA

TREND ANALYSIS

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ACRONOMY AND ABBREVIATIONS

BPEE	Bureau Public Environmental Expenditure
CSE	Conservation Strategy of Ethiopia
EFY	Ethiopian Fiscal Year
EFAP	Ethiopian Forestry Action Program
EIA	Environmental Impact Assessment
EKC	Environmental Kuznets Curve
EPA	Environmental Protection Authority
EPC	Environmental Protection Council
EPE	Environmental Policy of Ethiopia
FFE	Forum for Environment
FGD	Focus Group Discussion
GBS	General Budget Support
GDP	Growth Domestic Product
GTP	Growth and Transformation Plan
KII Key	Informant Interview
MOFED	Ministry of Finance and Economic Development
NNI	Net National Income
ODI	Oversees Development Institute),
OCED	Organization for Economic Co=operation and Development
ODA	Office Development Assistant

PEE	Public Environmental Expenditure
PEER	Public Environmental Expenditure Review
UN	United Nations
WB	World Bank
WPEE	Woreda Public Environmental Expenditure

ABSTRACT

One of the pillars of greening the economy is the increase of public expenditures in activities that are associated to sustainable development. Even though environmental protection is not the only concern for a "green" economy, it can only make sense if there is an improvement of the efforts in the public sector associated with environmental protection. It is unquestionable that public funding remains crucial for addressing environmental problems and, more broadly, promoting a greener model of development in Ethiopia. The main objective of the study was to understand the trends of public expenditure in environment and to obtain critical information for streamlining and strengthening future investments in environmental programs, project and activities. Public environment expenditures covered in this report are those related to the prevention, control, abatement, or elimination of environmental pollution by general government; both federal and state government. The techniques used for primary data collection are key informant interview and focus group discussion.

As many literatures indicate public spending on environmental protection is often a small fraction of total government budget in many developing countries. Accordingly this thesis analyses Ethiopian spending on environmental protection including both federal and state levels, in the 2002/03-2012/13 period. The descriptive part of the analysis showed in aggregate terms, public environmental expenditures have increased from about ETB 1136.47 million in 2002/03 to about ETB 15,230.54 million in 2012/13.The times series data analysis results confirmed previous studies that suggested an increasing trend of public environmental expenditures in absolute value, whereas in percentage terms it is highly fluctuated on environmental expenditures at both the federal level and the state level. The environmental sector in the country has been very effective in attracting domestic public financing, especially after Rio convention in 1992. Finally, through fixed effect model the elasticity of expenditure with respect to income (GDP) is found to be 0.6, and is significant in explaining the downward slope of the environmental Kuznets curve. The findings of the study can playing a major role in providing information to governments, researchers and other stakeholders on the status of environment and natural resources related spend and initiatives undertaken in a country.

KEY WORDS: Green economy, Public environment expenditure, fixed effect model.

CHAPTER ONE
INTRODUCTION
1.1.BACKGROUND

A review on the links between the environment, budget support and other aid instruments suggested that in the presence of favorable domestic political factors and external agencies, policy makers could exercise significant influence over the choice and sequencing of public policy. There is not good understanding of the interactions between national budgetary processes, budget support arrangements and national environmental actions (ODI, 2006). The budget is the financial mirror of government policy. Most economists argue that for the budget to be an effective instrument of achieving government policy's goals, it should be comprehensive (OECD, 1996).

General Budget Support (GBS) is seen as the aid modality which is most inherently aligned to national policies and systems. Its increased use holds the promise of addressing the problem of financing environmental objectives in a more creative way than in the past. For example the monitoring framework commonly utilized for General Budget Support provides a mechanism for strategic dialogue between government and development partners. The Joint-Donor Evaluation of General Budget Support concluded that environmental consideration had received limited attention. It re-emphasized the challenges in integrating environmental priorities into national planning processes, and highlighted the financing gap (OECD, 2006).

In most countries budgeting decisions focus on direct expenditure programmes and on multi-year explicit legal commitments such as debt servicing. Less attention is usually paid to implicit or contingent liabilities. In the wake of financial crises this makes future problems worse than they would be if the realities were faced more openly (OECD, 1997). Sound budgeting and policy formulation require a wider and more courageous approach, covering more effectively and directly the fiscal risks faced by governments in the short term as well as in the long term. For example, obligations arising from current

or new environmental expenditure programmes and policy measures must be assessed realistically, whatever their nature — implicit or explicit, direct or contingent.

The achievement of the objectives of public expenditure management rests on several pillars, namely, transparency, accountability, budget comprehensiveness, participation, consistency, equity, additionality and non-intrusiveness (Schiavo-Campo and Tommasi, 1999; World Bank, 1999; OECD, 1999b). The first three seem to be the necessary conditions for good public expenditure management. For accountability and financial control, reports should consolidate the financial operations of the government and the financial activities of all entities controlled by the government (OECD, 1996a).

Public environmental expenditure can impede Sustainable development. Sustainable development considers both the well being of the human system and the ecosystem. The well being of Ethiopians by and large depends on the well being of the biophysical environment (air, water, land, flora and fauna). This is due to the dependence of the majority of the Ethiopian people on subsistence agriculture, which in turn has a heavy dependence on land, water and climatic resources. The nation's environmental resources such as land, water and biodiversity are the basis for agricultural, industrial and overall economic development. Unfortunately, over the years, Ethiopians have not managed to transform these natural resources in to wealth and have not been able to improve their standard of living (NCSS, 1994a).

Environmental issues have been growing in importance since the 1970's, especially after the Stockholm Summit in 1972. As a consequence of that, legal rules and institutions devoted to environment protection have been created "in governments worldwide". Ethiopia is not an exception in that sense. Although the importance of environmental protection is generally recognized, when it comes to government spending, the environment often receives little priority.

1.2.STATEMENT OF THE PROBLEM

Environmental issues have been growing in importance since the 70's, especially after the Stockholm Summit in 1972. As a consequence of that, legal rules and institutions devoted to environment protection have been created in governments worldwide. Ethiopia is not an exception in that sense. However, in times of financial difficulties, the environment is often treated as a soft sector more vulnerable to being cut. That the environment is so treated may be explained in at least three ways. Environmental priorities and goals have not been clearly defined in many countries (Reed, 1996:134).

Usually, the main public investment decision facing policymakers is that of how to allocate an existing pool of public resources across various sectors, rather than whether to increase or decrease the public budget. This question is typically deliberated on an annual basis or within a medium-term strategy in a given country. Budget allocation is inherently a political process in developing and industrialized countries alike, and budget decisions will typically reflect a range of considerations in addition to overall economic growth or poverty reduction. There is considerable need for studies on which types of public investments contribute most to development goals, as this information may help shape aspects of the budgeting process. Public sector environmental expenditures in transition countries have relied on three major domestic institutional sources of financing: local governments, transfers from central government budgets, and environmental funds (Peszko and Zylicz, 1998).

There is no related study about budget allocated to the environment sector as well as actual spent in Ethiopia. Taking in to account these, the thesis try to provide information about the amount of fund allocated to environmental protection.

1.3.OBJECTIVE OF THE STUDY

The overall objective of study is to analyze the trends of public environmental expenditure and document of experience implementing policy priorities. Specifically, the study aims to:

- Establish the magnitude of federal and regional governments' expenditure on environmental sectors
- Analyze the experiences and trends of public expenditure in environmental sectors
- Test the environmental Kuznets curve hypothesis
- Undertake in-depth analysis of the budgetary allocation and expenditure in the key sectors for EFY 2002/03 up to 2012/13.
- Draw policy implication based on the obtained critical information for streamlining and strengthening future investments in environmental programs, project and activities.

1.4.RESEARCH QUESTIONS

There is a dilemma of whether there is an increasing or a decreasing trend in Government environmental expenditure in both developed and developing countries. This could be mainly due to the contraction of public sector financing. However, as I have already aforementioned in the statement of the problem of this thesis, there is no empirical evidence about public environment expenditure in Ethiopia.

Based on these arguments in this study the researcher has developed research questions. The main research questions of this thesis are:-

- What could be the adequate amount of public environmental expenditure in Ethiopia?
- What is the correlation between environmental expenditure and GDP?
- What is the share of Public Environmental Expenditure (PEE) from GDP and over all governmental Expenditure?

- What is the trend of public expenditures on environmental sector at the federal level?
- What are the magnitudes of state government and Federal Government in environmental conservation?

1.5.HYPOTHESIS OF THE STUDY

The study has hypothesized about the relation of public environmental expenditure and gross domestic product (GDP) based on the 'environmental Kuznets curve' (EKC) for environmental protection expenditures. The EKC hypothesis suggests that economies at an early stage of economic transition tend to deteriorate their environments. After some point, however, environmental quality increases. Part of this change is due to structural transformations within the economy (for example, from heavy industry to light industry or from dirty to clean fuels — both of which have an effect in terms of reducing environmental expenditures compared with the counterfactual situation in which these transformations do not occur). But, in most explanations of the EKC, part of the downward turn is also thought to be due to the demand for environmental quality growing as per capita income rises (Randall and Stoll, 1980).

Null hypothesis (HO): GDP is not a significant determinant of public environmental protection expenditures in Ethiopia.

Alternative hypothesis (H1): GDP is a significant determinant of public environmental protection expenditures in Ethiopia.

Based on this hypothesis the researcher can investigate the relationship between environmental expenditure and income for Ethiopia. More specifically, researcher can look at the elasticity of expenditure with respect to income. It is important to note that the conventional notion of an income elasticity of demand relates to private goods, while the relevant notion in the current context is that of a quantity-rationed public good. Essentially, public goods are exogenous to household and corporate decisions. Hence the relevant income elasticity is what has been called in the literature the 'price flexibility of

income' (Randall and Stoll, 1980) or the 'income elasticity of virtual price' (Hanemann, 1991), the 'income elasticity of willingness to pay' (Flores and Carson, 1997), the 'income elasticity of environmental value' and the 'income elasticity of environmental improvement' (Kristrom and Riera, 1996). The basic relationship is sets out in appendix C. The main point of relevance is that the elasticity of willingness to pay with respect to income is equal to the ratio of the conventional income elasticity. In other words,

$$Ew = \frac{Ey}{-ep}$$

Where ε is elasticity and the subscripts denote willingness to pay with respect to income (W), quantity with respect to income (Y) and quantity with respect to price (P).

There are several views about the expected size of εW. Garrod and Willis (1999) argue that short-run price elasticities for environmental goods are less than one and income elasticities are positive and often greater than one. The latter finding is consistent with the intuition that 'the environment' is a luxury good (i.e. a normal good with conventional income elasticity greater than unity). Hence εW will be significantly greater than one in the short run and, arguably, smaller in the long run as price elasticities rise. Flores and Carson (1997) show that the size of εW cannot be determined from the size of εY (as is clear from the equation above) and offer no empirical support for small or large values. Kristrom and Riera (1996) analyse contingent valuation studies of environmental change and conclude that εW is *less* than one, i.e. the 'consumption' of environmental goods accounts for a higher proportion of income of the poor than of the rich. If they are right, then 'environment' is a normal good but not a luxury good, contradicting the usual intuition about the demand for environmental quality.

The researcher seeks to offer some further evidence of relevance to this debate by estimating the "income elasticity of environmental expenditure using Ethiopian public environmental data." To my knowledge, this is the first time that environmental expenditure data have been used for this purpose in Ethiopia.

1.6.SCOPE AND LIMITATION OF THE STUDY

The study has covered public expenditure for the environment and natural resources sectors on an annual basis for the period 2002/3-2012/13. For these periods, the environment and natural resources sector, encompassing expenditure incurred by ministries, government departments and other agencies and the local administration on environment related interventions along with all donor supported projects of the environment sector.

The major limitation to this study has mainly been data accessibility. In particular, data on GDP and Public environmental expenditure were either not available or aggregated in other categories of expenditure in the sector ministries.

1.7.SIGNIFICANCE OF THE STUDY

The study will provide comprehensive analyses in budget allocations, expenditure and revenue monitoring and effectiveness, and policy analysis concerning the contribution of environment and natural resources towards the achievement of national and sustainable development objectives, with specific attention to poverty eradication and climate change, and Growth and Transformational plan (GTP) vision 2014/15 targets.

The study findings will be used to raise the awareness of policy makers and planners at local government and national levels on the desirability to accord high priority to sustainable use of environmental resources by timely funding strategies to address land degradation, protect water sources; and climate change adaptation and mitigation. In addition, this study will be used as a reference to advocate for the Ministry of Finance and Economic Affairs to improve the investment in environmental services and enhancing the tracking of environmental expenditures through a specific environmental budgetary vote to trace fund allocation and expenditure by local government authorities on environmental activities.

The findings, conclusions, and recommendations will help policy makers to easily identify the impacts of public environmental expenditure on environmental outcomes. In addition it is expected to give some hints and invites other researcher to develop more comprehensive work in this area.

1.8.ORGANIZATION OF THE THESIS REPORT

This thesis's report is comprised of five chapters, and begins in the first part by introducing the practice of public environmental expenditure management and its trends in both developing and developed countries. The hypothesis of the downward environmental Kuznets curve and dilemma about the status of public environmental expenditure presented in this first part of the thesis thus highlights the trends and practices of public environmental expenditure in both developing and developed countries, while also providing a context for the following chapters' exploration of more specific environmental issues.

The second chapter reviewed environment related policies, programmes and strategies at national, sectoral and local government levels to identify the strength and weakness in capturing environmental issues. The second part also reviewed related work on public environmental expenditure.

The third chapter of the thesis is about the methodology part of the research. It contains data collection methods, techniques and research analyzing methods, both descriptive and econometric parts. It also presented data presentation and analyzing tools.

The fourth chapter examines trends of public environmental expenditure in Ethiopia. The magnitude of state and federal government up on public environmental expenditure was established. In this part the researcher identifies mechanisms involved in public environmental management and the main government institutions concerned on environmental protection through document review, focus group discussions and key informant interview.

The final chapter of this thesis concluded about trends and practices of public environmental expenditure in Ethiopia based on the finding. This part also incorporated some policy implications which based on the finding part of the thesis for the concerned bodies.

CHAPTER TWO

LITERATURE REVIEW

2.1.DEFINITION AND CONCEPTS

Defining what is specifically meant by environmental expenditure is no easy task, for it does not simply mean that which is spent by the environmental sector's dedicated agencies. As set out in many literatures, environment is a cross-cutting issue which spans many different areas of government. The aim therefore of this section is to lay out some common global definitions of environmental expenditure and to propose the extent of the scope of environment expenditure within Ethiopia. Expenditures are defined as "the values of the amounts that buyers pay, or agree to pay, to sellers in exchange for goods and services that sellers provide to them or other institutional units designated by the buyers (UN, 1993b). Public expenditure refers to Government expenditure i.e. Government spending. It is incurred by Central, State and Local governments of a country. In another ways Public expenditure can be defined as, "The expenditure incurred by public authorities like central, state and local governments to satisfy the collective social wants of the people is known as public expenditure (Macmillan Dictionary, 2003). It is the set of expenditures of the State for the operation of goods and public services. It can also be set as the application of public resources to finance the public services or to invest in economic development. At every level, government decisions about how much to spend, what to spend on, and how to finance its spending is of central importance (UN, 2010 b).

Public Environmental Expenditure is expenditure 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 exploitation or production". This definition doesn't include resource exploitation or production, but in its report adds that they need to be monitored and corrective measures taken afterwards if necessary, using the example of correct mine closure and rehabilitation after exploitation (WB, 2003).

This can be quite complex, especially separating out the difference between integral spend that also affects environment from separate activities. A framework that defines environmental expenditures consistently and ensures comparability may often be in place. Types of environmental expenditure which are often included in the definition are: Air and water pollution control, Hazardous waste management, Mitigation of greenhouse gas emission and ozone-depleting substances, Sanitation and solid waste management, Water supply, Watershed management, Water resources management. Soil degradation control Controlling deforestation Protecting biodiversity and landscapes (Aongola, et al. 2007).

Four factors which were used to define the boundary of environmental expenditure in Rwanda are the national legal definition of the environment; the classification of government functions; institutional mandates and practices of other countries. Until all development expenditure forms part of budget reporting, it will be difficult to capture the true magnitude of environmental expenditure.' This constraint also applies to national climate finance, where traditional, projectzed official development assistance (ODA) has been a significant source of early financing in many countries. This finance is often not readily visible in the national budgetary or accounting systems (Allen S, 2009).

However, unlike tax policy, where the theory of optimal taxation was already developed, expenditure policy does not have a theory of optimal allocation that could provide comparably well-defined rules for government spending. The main ideas of expenditure policy were the concepts of externalities and market failures. It indicates that public expenditure is only justified if its interventions could correct the inefficient provision of a product or service due to market failure (Paternostro et al., 2005).

2.2.THE ENVIRONMENTAL POLICY OF ETHIOPIA

The Environmental Policy of Ethiopia (EPE) and the 2002 Sustainable Development and Poverty Reduction Program (SDPRP) attribute the prevalence of poverty in part to low growth and low productivity of agriculture and to the populace's dependence on agriculture and natural resources. The EPE states that agriculture is the main source of variability and stagnation in economic growth (1997). As one of the most dependent countries on foreign aid, limited fiscal resources impact Ethiopia's ability to address these issues. At the same time, as the current government of Ethiopia has only been in place since 1995, Ethiopia faces not only the economic development challenges of any low-income country, but also the challenge of creating a new government institutional structure so that it can best serve its citizens' needs. Its overall policy goal is "to improve and enhance the health and quality of life of all Ethiopians, and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole, so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs".

EPE emphasize the need for arresting land degradation. The policy's section on Soil Husbandry and Sustainable Agriculture, Forest Wood Land and Tree Resource, Genetic Species and Ecosystem Biodiversity, Water Resource, Energy and Mineral Resource address the issue of combating desertification.

Similar to the development of formal environmental agencies, most of the environmental laws in place today in Ethiopia were developed after a national backlash removed Derg regime policies that were perceived as authoritarian (Bekele, 2008; Keeley & Scoones, 2003). As Damtie notes, within Ethiopia "a separate enactment of environmental laws is a recent phenomenon in the history of making laws," although some earlier laws had dealt with environmental matters directly or indirectly (Damtie, 2011, p. 1). The majority of the environmental laws in effect today were developed after the transfer of power to the EPRDF in 1995 (Bekele, 2008). After the Derg regime, a breadth of environmental

legislation was written addressing many environmental sectors. Beginning as early as 1994 with the Water Policy Law, until the more recent 2007 Wildlife Policy, a number of sectoral policies were written, covering areas such as forests, conservation, rural land use, and impact assessment, among others. The strength of these policies varies significantly: some, like the Environmental Policy of Ethiopia (EPE) and its predecessor the Conservation Strategy of Ethiopia (CSE), are widely regarded as well-written, comprehensive environmental policies. Others, such as the Rural Development Policy, appear to lack crucial policy elements, or have been criticized for promoting development interests over environmental protection (Bekele, 2008).

Issued in 1997, the current federal environmental policy, the EPE, spans numerous sectoral policies and various cross-sectoral policies (Bekele, 2008). This policy, unlike those of previous regimes, addresses implementation principles, evaluation, and policy review, and explicitly recognizes a role for participatory management. The EPE also addresses the importance of involving local communities, NGOs and professional associations, indicating in its text the relevance of decentralization of power and collaboration between sectoral interests (Bekele, 2008).

The EPE stresses the importance of sustainable development, stating that its overall goal is...*to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the need of the present generation without compromising the ability of future generations to meet their own needs (1997, p. 3).*

To fully understand the implications of this process, one must understand the main objective of the current government that drives it. The thrust of the EPRDF's sustainable development plan has been motivated by what has been described as Ethiopia's complex, deep and structural poverty: 44% of the population was living below the poverty line in 2000 (MoFED, 2002). The Plan for Accelerated and Sustained Development to End Poverty (PASDEP) of 2006 and its predecessor, the 2002 Sustainable Development and Poverty Reduction Program (SDPRP) state that the "main development goal" of the

Ethiopian government is poverty eradication (MoFED, 2006, 2002). The main mechanisms to achieve this goal are an "overriding and intentional focus on agriculture," and the strengthening of private sector growth and development of industry (MoFED, 2002).

The government's focus on agricultural and industrial development has potentially large implications for Ethiopia's environment. This potential conflict (and undeniable link) between environmental protection and economic development goals was addressed in a section of the SDPRP entitled "Environment and Development," which holds accountable the EPA for ensuring "harmonization" of economy and environment through the laws established in the EPE, so neither sector suffers as a result of protection of the other (MoFED, 2002, p. 121). In contrast to the SDPRP, the PASDEP features an expanded section on environmental degradation as a result of development and increased agricultural pressures, addressing explicitly the fact that "reversing environmental degradation and poverty eradication are...mutually reinforcing imperatives and have to be implemented together in Ethiopia's development initiatives" (MoFED, 2006, p. 187). The SDPRP mentions the potential of Environmental Impact Assessment (EIA) laws to enable integration of environmental consideration into development planning (MoFED, 2002). The extent to which these EIAs have been consistently implemented has been debated, however, and as such, the ability of these laws to prevent environmental degradation is unclear (Ruffeis et al., 2010).

2.3.REVIEW OF RELATED LITERATURE

Most of the studies examining the link between public expenditure and development outcomes fall into one of two categories. Studies in the first category explore how the size of overall public expenditure or public investment affects growth or poverty. Examples of this category include the impact of shifting resources from recurrent to capital expenditure in Ethiopia (Agenor etal (2004) cited in Tewodaj etal. 2007). The second category includes studies in which the authors sought to correlate spending in one economic sector with outcomes in that sector, or with broader welfare measures (e.g.

Collier et al. 2002 on the health sector in Ethiopia; Roseboom 2002 on agricultural research cited in Tewodaj etal.2007).

Public spending on environmental protection is often a small fraction of total government budget in developing countries. Such spending is further reduced during the stabilization phase of macroeconomic adjustment. Increased environmental awareness calls for proper treatment of such spending, particularly during periods of financial difficulty. But international financial and development institutions that advise governments on macroeconomic adjustment still do not have specific guidelines on public environmental expenditures (OCED, 2006).

In the Royal Government of Bhutan the average public environmental expenditure was 7.4% with the highest level recorded (10.4%) in 2002-2003 and the lowest in 2007-2008 (5.1%). It is observed that there has been a declining trend of public environmental expenditure during the period of 2002-2008 plan periods (MoF, 2009). Brazilian spending on environmental protection, including federal, state and municipal levels, in the 2003-2010 period suggested a declining trend of public expenditures (in % terms) on environmental expenditures at the federal level, but an increasing trend at the state level. The federal government of Brazil perceives an "anti-green" growth strategy, increasing activities that pressure the environment (especially infrastructure investment), while the spending on environmental protection remains relatively stagnated, and there is an important change in political distribution of environmental protection, with growing participation of state and municipal governments. It was also shown that increasing expenditures on environmental protection do not harm social and economic development, confirming the main "green economy" hypothesis (Young, 2011).

Environmental expenditures in Indonesia indicate a significant newly industrializing economy – reported at the plant level comprising all 23 thousand manufacturing establishments with more than 20 employees. Since compliance is barely enforced,

pollution abatement expenditures are effectively voluntary in nature. This allows us to test whether foreign owned firms expend more due to a technology that adheres to stricter Western standards or whether the predominant effect is that both foreign and domestic exporting companies are more environmentally conscious due to better technology transfer or green consumerism in the Western countries. If so, this would contradict conventional wisdom that environmental expenditures reduce competitiveness and that increased levels of foreign direct investment or export-orientation in manufacturing will necessarily pre-empt firms from behaving in a "greener" fashion (Schulze, 2003)

The study analyzes green budget practices and suggests several ways to use them in order to ensure consistency in implementing key elements of sustainable economy. An empirical study on Environmental health expenditure and national income suggest that green budgeting is an important factor for sustainable economy. The reasons behind the introduction of a sustainable perspective for budgeting in any country are important since they will dictate, to a large extent, the way the medium term budgeting will be institutionalized (Maria, 2012).

A recently completed public Environmental Expenditure review (PEER) study in Bhutan was able to explore national environmental spending by reconstructing the budget at activity level and compiling a new database. Out of a total of 4,600 expenditure lines the 400 largest budget lines accounted for approximately 80% of environmental public expenditure. The analysis highlighted that capital expenditure predominated (also at 80%) and about one-third of the expenditure occurred at the local government level, reflecting the emerging fiscal decentralization in Bhutan. Both of these issues – the balance between capital and recurrent spending, and between central government and local expenditure – are issues to be addressed when examining climate change-related expenditure (Rinzin and Linddal, 2011).

Several studies on green budget practices suggested several ways to use them in order to ensure consistency in implementing key elements of sustainable economy. An empirical study on Environmental health expenditure and national income suggest that green budgeting is an important factor for sustainable economy. The reasons behind the introduction of a sustainable perspective for budgeting in any country are important since they will dictate, to a large extent, the way the medium term budgeting will be institutionalized (Maria, 2012).

In spite of the lack of accurate information, the evidence suggests not only that forestry budgets are low, but also that there has been a systematic reduction in the funds budgeted and disbursed to forestry. This may partly be due to the prioritization of funds toward noneconomic sectors and the protection of social spending, as well as to ad hoc shortfalls in the funds budgeted (Akroyd and Smith 2006, 2007). For example, in Indonesia, not only is the proportion of the budget earmarked for forestry and other environmental expenditures low, but it also fell in real terms during the 1990s while simultaneously making up for a decline in GDP (Vincent et al. 2002).

In at least one case, Vietnam, the proportion of public expenditure allocated to forestry is significantly higher than its contribution to agricultural GDP. Although forestry spending in Vietnam has declined, it still accounts for between 20 and 25 percent of total agricultural expenditure, significantly higher than its contribution to agricultural GDP, which is estimated to be close to 4 percent (World Bank 2010a). In most of the studies reviewed, DP disbursement levels tend to be lower than those associated with funds provided by the recipient governments. The reasons include the difficulties associated with DP procurement procedures and shortages of counterpart contributions from the recipient governments (Govereh et al.2009). Environmental spending is not recorded as part of the total expenditure of the forest sector.

The analysis of public financial and household-level data in Ethiopia revealed that despite the importance of agriculture to the economy of Ethiopia returns to agricultural spending were fairly low, suggesting the need for further research into the drivers of efficiency and effectiveness of public investments in this important sector. From Agriculture sub sectors very little amount of budget were allocated to environment, biodiversity and other natural resource sector in Ethiopia (Tewodaj etal, 2007).

In some cases, forest sector PERs have brought together, for the first time, data on forest expenditures, providing a foundation for future analyses of the impact of public spending on sector performance (Bekele 2001). The Kenya Forest Service is an example of the latter; each year, it undertakes a PER as part of its budget and MTEF preparation process (Kenya Forest Service 2008).

Public funding of forestry projects and programs in Nigeria has historically been inadequate, with untimely disbursements at both federal and state government levels (Federal Department of Forestry 2001). In Ethiopia, less than 1 percent of total federal government spending is allocated to forestry's parent ministry, with only 2 to 3 percent of this total being allocated to the sector. To this amount, however, must be added the larger sums of money made available to state administrations for forestry (and wildlife) to cover their recurrent and capital expenditures. In recent years, these grants have been about 30 times the amount allocated centrally. In addition, regional state administrations are able to raise revenue and spend it locally, although no information is available on the amounts (Bekele 2001).

2.4.ANALYTICAL FRAMEWORK OF THE STUDY

There has been no agreed international classification of environmental expenditures. The costs and benefits of environmental protection programs often defy quantification and monetization, making it difficult to justify these programs on conventional economic criteria. Many developing countries are faced with serious financial difficulties, which constrain their ability to spend on the environment. In short, there is no analytical framework that helps bring Public Environmental Expenditures (PEEs) into the core of government spending considerations.

Depending on data availability, environmental expenditures has been analyzed by spending agency (ministry, regulatory agency, other institutions), by type of expenditure (current, capital), and by environmental domain (water, air, waste and etc). Public spending on environment in Ethiopia comes from four main sources: central government, municipalities, donors, and publicly owned enterprises, such as water and waste management companies. While data on budget-financed expenditures seem to be comprehensive and reliable, complete information on donor-financed projects and expenditures of publicly owned enterprises is lacking as these have been largely pushed implemented outside the budget framework

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1.BACKGROUND OF ETHIOPIA

Ethiopia is one of the poorest landlocked developing countries in the world. Ethiopia is the world's 27th-largest country, comparable in size to Bolivia. It lies between latitudes 3° and 15°N, and longitudes 33° and 48°E. Situated in the Horn of Africa, Ethiopia is a geographically diverse developing nation occupying 1.1 million square kilometers of land. Ethiopia is the second-most populous country in Sub-Saharan Africa with a population of about 92 million (United Nations, 2012). Of the nearly 92 million people living in Ethiopia 82.4% of the population, live beyond city limits, and about 79% are employed in the agricultural sector. While Ethiopia is undergoing urbanization, the overwhelming majority of people still live in rural areas. Ethiopia's population is growing with an annual growth rate of 2.1%.

Ethiopia is one of the most important biodiversity hotspots of the world, but also one of the most degraded (FFE, 2011b; Conservation International, 2007; McKee, 2007). The country faces numerous environmental challenges such as deforestation, soil erosion, loss of biodiversity, and declines in soil fertility and water quality (FFE, 2011a; Bekele, 2008; EPE, 1997). These problems pose significant risks for Ethiopian citizens since – as emphasized in the 1997 Environmental Policy of Ethiopia – "natural resources are the foundation of the economy." Political, social, and economic challenges can both contribute to and be exacerbated by environmental degradation. Much of Ethiopia's population is dependent upon on the environment as their principal source of income (HoAREC, 2011). This leads to a cycle of environmental degradation and poverty: to survive, people "are forced to disregard the long-term well-being of the environment and thus degrade it further" (MoFED, 2002, p. 121). Recurrent droughts, famines, poor infrastructure and periods of political unrest serve as additional challenges for environmental management within Ethiopia (Ogbaharya & Tecle, 2010; EPE, 1997).

The major portion of Ethiopia lies on the Horn of Africa, which is the easternmost part of the African landmass. The wide range of altitude has given the country a variety of ecologically distinct areas; this has helped to encourage the evolution of endemic species in ecological isolation. To date more than 856 bird species have been recorded in Ethiopia, 20 of which are endemic to the country. Sixteen species are endangered or critically endangered. Historically, throughout the African continent, wildlife populations have been rapidly declining owing to logging, civil wars, pollution, poaching and other human interference. A 17-year-long civil war, along with severe drought, negatively impacted Ethiopia's environmental conditions leading to even greater habitat degradation. Habitat destruction is a factor that leads to endangerment. When changes to a habitat occur rapidly, animals do not have time to adjust. Human impact threatens many species, with greater threats expected as a result of climate change induced by greenhouse gas emissions. With carbon dioxide emissions in 2010 of 6,494,000 tonnes, Ethiopia contributes just 0.02% to the annual human-caused release of greenhouse gases (IUCN, 2008).

Renewable natural resources, i.e. land, water, forests and trees as well as other forms of Biodiversity, which meet the basic needs for food, water, clothing and shelter have now deteriorated to a low level of productivity. In many areas of highland Ethiopia, the present consumption of wood is in excess of unaided natural sustainable production. Estimates of deforestation, which is mainly for expansion of rainfed agriculture, vary from 80,000 to 200,000 hectares per annum. The burning of dung as fuel instead of using it as a soil conditioner is considered to cause a reduction in grain production by some 550,000 tonnes annually. In 1990, accelerated soil erosion caused a progressive annual loss in grain production estimated at about 40,000 tonnes, which unless arrested, will reach about 170,000 tonnes by 2010. Livestock play a number of vital roles in the rural and national economy but according to one estimate some 2 million hectares of pasture land will have been destroyed by soil erosion between 1985 and 1995. Land degradation is estimated to have resulted in a loss of livestock production in 1990 equivalent to 1.1

million tropical livestock units (TLUs), and, unless arrested, will rise to 2.0 million TLUs or to 10 per cent of the current national cattle herd by 2010.

In economic terms, soil erosion in 1990 was estimated to have cost (in 1985 prices) nearly Birr 40 million in lost agricultural production (i.e. crop and livestock) while the cost of burning dung and crop residues as fuel was nearly Birr 650 million. Thus in 1990 approximately 17 per cent of the potential agricultural GDP was lost because of physical and biological soil degradation.

The permanent loss in value of the country's soil resources caused by soil erosion in 1990 was estimated to be Birr 59 million. This is the amount by which the country's soil "capital" should be depreciated in the National Accounts or which should be deducted (as capital depreciation) from the country's Net National Income (NNI).

The Ethiopian Forestry Action Program (EFAP) estimated the full value of forest depletion in 1990 to have been about Birr 138 million or some 25 per cent of the 2 potential forestry GDP of Birr 544 million.

3.2.DATA

Multiple data sources have represented in both the descriptive and econometric analyses. The study has involved an in-depth deskwork review of various national, sector and local government policies, strategies and programmes documents that are related to environment.

Secondary information particularly from sectors Environmental expenditure reports, Economic Survey reports, Parliamentary Budget Speeches by different Ministries and other government reports has been used.

The panel data on public expenditure, has extensively collected from Ministry of Finance and Economic Development (MOFED), comprises annual data from fiscal year 2003/02 to 20011/12 and includes federal and regional expenditures. These data has been disaggregated by functional and economic classification. Further sector-specific data, usually disaggregated by region and available for multiple years, were obtained from the respective line ministries and are primarily contained in the following descriptive sections.

To supplement the secondary data, this study has used key informant interview, focus group discussion and consulting various sectors, departments and local government offices. The focus group discussion and interviews has guided by the checklist of lead questions and conducting informal interviews. The researcher has visited six ministries and one city administrations. Additionally the researcher has contacted and received official written information from Ministry of forestry and environment.

A. **Focus Group Discussion (FGD)**: FGD has been also used to assess public environmental expenditure performance of the country. The researcher had conducted FGD in three groups. The first group is with Ministry of Environment and Forestry, The second group is with Addis Ababa City administration Environmental Protection authority.

B. **Key Informants' Interview (KII):** Key informants are among the best sources of detail information in qualitative type of research. For qualitative part of the research, key informant interview was made with individuals of both sexes of male and female as conditions permitted. Through key informant interview, primary data relevant the study was collected from different ministries. The list of their name, responsibility and address were annexed.

3.3.RESEARCH METHOD AND ANALYTICAL APPROACH

Both statistical descriptive and econometrical methods of analysis have been employed to analyze the trends and practice of Public environmental Expenditure in Ethiopia.

In the descriptive methods of analysis, the data has sum up first, according to programs implemented by the environment related institutions and thereafter by institutions. Their totals will tabulate into consolidated tables on annual basis.

These tables were helpful to analyze the public environmental status of Ethiopia and also to compare the results across regions. For analytical purposes, several other tables using the overall results of the main analytical table has used to study the trends of environmental expenditure, salient characteristics of environmental expenditure and to understand the major areas of environmental expenditure in the country.

Series of studies have used panel data simultaneous equation models to study the effect of a range of sectoral expenditures on agricultural growth and poverty outcomes at the country level (e.g. Fanet al. 2000, Fan et al. 2002). In this study the researcher also has use panel data for regression analysis on the impact of public expenditures on environmental outcomes in Ethiopia.

3.4. ECONOMETRIC MODEL SPECIFICATION

Using the data from MOFED (2002/03 and 2012/13), a fixed-effects model, which has estimated a constant for each region and has takes account of missing observations, has be fit to test the effects of a change in GDP on changes in absolute public environmental expenditure over the period 2002/03–2012/13.

$$Yit = \beta_0 + \beta_1 \chi it + \varepsilon it$$

t= 1, 2, 3, --------- and 9 (1=2002/03, 2=2003/04, -------- etc

i = 1, 2, 3, 4 and 5 (1= the sum of the GDP of federal government, Tigray, Afar, Ethiopian somali, SNNPR, Benishangul gumzu, Gambella and Dire dawa, 2= Amhara, 3= Oromia, 4=Harare, 5= Addis Ababa)

Where T = 12 time periods covering 2000/01 to 2012/13, N = 11 regions covered by the MoFED data, Yit denotes public environmental expenditure for country i in year t in 2007 prices and Xit denotes absolute GDP for country i in year t in 2007 prices and Fit denotes foreign assistant. εit is the residual.

The GDP data is not available in all regions of the country. GDP data is available only for the three regions of Amhara, Oromia, Harare and one city administration of Addis Ababa. In the first place, this available GDP data is summed together. Then this summed GDP data is deducted from GDP of the country to find out the sum of the GDP of other regions including federal government.

Next, a time-trend variable (t) is has incorporated into the model to control for any increases in environmental expenditure that occur independently of country specific effects, GDP where an observation taken in 2002/03 is coded as 1, an observation in 2003/04 is coded as 2 and so on. In addition, the data has transformed. A natural log has been taken of both absolute public environmental expenditure and GDP since a log-log specification is the most readily interpretable.

3.5. DATA PROCESSING AND ANALYSIS

The data which have collected from the different sources has properly compiled and made ready for easy presentation computer processing. All have been sorted in Micro Soft excel. Soft Ware that fit for analysis STATA has been selected among the available tools for its convenience and widely applicability.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1.DESCRIPTIVE PART OF ANALYSIS

This section describes Ethiopia's public sector resource allocations and spending patterns related to environmental issues. Depending on data availability, in this section PEE is analyzed by spending agency (ministry, regulatory agency, other institutions) and by type of expenditure (current, capital). Besides, this section try to looks environmental expenditure trends in the 9 regions (Tigray, Afar, Amhara, Oromia, Somale, Benishangul Gumuz, SNNP, Gambella and Hararai), 2 city administrations (Addis Ababa and Dire dawa) and federal government of Ethiopia over a period of 10 years, 2002/3-2012/13, based on data extremely collected from Ministry of Finance and Economic Development (MoFED).

4.1.1. INSTITUTIONAL DISTRIBUTION OF KEY INFORMANTS (RESPONDENTS)

For the sake of clarity and simplicity the compositions of respondents of key informant interview at public institutions level summarized in the table 4.1 below as follow. In the first place the researcher contacted ministry of environment and forestry to identify public institutions which have a concern about environmental protection issues. Then the researcher contacted informants by email, telephone, or both, depending on available contact information. Interviews consisted of a series of 5-15 questions that varied based on the expertise and experience of the individual. When applicable, the researcher asked follow-up questions to clarify comments and expand upon issues raised.

Name of public body	Number of contacted person
Ministry of Environment and Forestry	5
Ministry of Agriculture	3
Ministry of Mine	1
Ministry of Water and Energy	3
Ministry of Industry	1
Ministry of Transport and Communication	2
Addis Ababa Environmental Protection Authority	3
Total	18

Table 4.1: Institutional distribution of key informants

4.1.2. STATUS OF ESTABLISHED ENVIRONMENTAL UNIT IN THE SELECTED PUBLIC INSTITUTIONS

The sample for key informant interview was selected at institutional level based on purposive sampling technique. In the first place the researcher has contacted the ministry of environment and forestry to identify the main public bodies which have more concern for environmental issues. According to key informal interview with the ministry of environment and forestry, at federal level seven public bodies have to established environmental unit. These are ministry of environment and forestry, ministry of agriculture, ministry of mine, ministry of water and energy, ministry of urban development and construction, ministry of transport and communication and ministry of industry. This suggests from 170 federal public bodies only eight (0.05%) have to established environmental unit. Except at ministry of agriculture, ministry of mines and ministry of water, energy and irrigation in the remaining public bodies' environmental unit is established as cross cutting issues.

As their annual expenditure performance reports and data show, in these purposively selected public bodies in all sampled fiscal years the allocated budget not spent totally. The results from focus group discussion and key informal interview with the selected six federal public bodies (Ministry of Environment and Forestry, Ministry of Agriculture, Ministry of Mine, Ministry of Water and Energy, Ministry of Transport and

communication and Ministry of Industry) and one city administration (Addis Ababa City Administration), this finding. Generally the findings from eighteenth key informant interviews are summarized.

4.1.3. EFFECTS OF UNPLANNED PUBLIC PROCUREMENT ON PUBLIC ENVIRONMENTAL EXPENDITURE

In all these sampled public bodies there were procurement on processing. Due to this the budget is transferred from one fiscal year to another fiscal year. All these contacted respondents told that the main reason for the presence of procurement on processing is lengthy of bid floating time. Based on this information the researcher has tried to review the procurements' rules of Ethiopian federal government. According to the Public Procurement and Property Administration Proclamation Number 649/2009 of article 22 sub articles 2, each public body shall have to be approved by the head of the public body concerned and communicated to the relevant departments of the public body and the Agency until Hamle 30 of the Ethiopian Calendar. The procurement plan has to be prepared in such a way that they have to be smart enough to:

- Achieve the work program of the Public Body.
- Ensure economy and efficiency in the operation of the Public Body by discouraging piecemeal purchase.
- Exercise prudence and make the necessary preparation to forestall problems that might be encountered in the execution of procurement.

However, the data indicate that even though they prepare annual procurement, the plan is not smart enough for implementation, monitoring and follow up. Due to poor procurement planning they prepared, there was always procurement on processing at the end of each fiscal budget years.

For instance, the time series data from Environmental Protection Authority of Addis Ababa city administration clearly demonstrate that the total allocated budget is not spent totally. In same fiscal years there were on average three procurements on processing at

the end of the each fiscal year. In value terms these procurements have on average 20 percent of the total allocated budget. Based on these both annual data of total budget amount and value of procurement on processing, someone can simply identifying that on processing procurement is one of the main cause for the poor performance of Ethiopian Public environmental expenditure. Due to this poor procurement planning, on average 20 percent of the total allocated budget was not spent on each sampled years.

Table 4.2: Annual Budget and Expenditure of Addis Ababa City Administration Environmental Protection Authority (in ETB).

Year	Budget	Expenditure	Percentage of expenditure from the total budget.	Percentage of procurement on bidding at the end of EFY
2010/11	25,158,153.60	11,604,988.67	46.13	28.2
2011/12	11,225,462	9,568,864.70	85.24	15.4
2012/13	31,986,920	26,606,497.96	83.18	16.4

Source: Own calculations using data from Addis Ababa EPA, 2011, 2012, 2013

4.1.4. PUBLIC ENVIRONMENTAL BUDGET CUTTING EXPERIENCE

As the informal interview results' and the annual reports of the selected public organization showed financial crisis has resulted in major cuts of both public budget and expenditure. In order to bring the institutions budget into balance, the Ethiopian government sometimes reduced state budget expenditures requisitions by some percentage. For instance, in the year 2011/12 Ethiopian government reduced the overall state budget by 4.2 percent. These cuts affected the Ministry of Environment by 7.5 percent (Ministry of Finance 2008). Public expenditure management is an important aspect of a country's environmental policy. Major budget cuts in times of financial crisis might jeopardize attainment of critical long run objectives. This suggests that public environmental expenditure is more sensitive to cuts in public expenditure during periods of crisis than other public expenditure. Like Ethiopia in the case of other countries, for

instance Indonesia, as Vincent and his co-authors find environmental expenditures declined much more than budget cuts on average. However, this thesis does not discuss potential reasons for this budget cutting differences between PEE and other expenditure.

To support the above macro level finding of the public environmental budget cutting experience of the country, some public ministries and agencies were selected to analyzed the Public environmental budget cutting experience at institutions level with supporting evidences of focus group discussion. As table 4.3, clearly shows in all selected institutions the requested budget is not approved by the government of the country; ministry of finance and economic development. As per the focus group discussion with the budget experts and the directorates' director in MOFED, this budget cutting is due to limitations of government resources. There is increasing demand on budget. To balance this increasing demand of budget, the government of Ethiopia has enforced to not allocate the entire requested budget amount. The government has prioritizing the budget allocation to main economic development sectors; manly for infrastructure and agriculture sectors.

Nevertheless, this overall budget cut has affected more the public environmental expenditure than the overall expenditure. In this five selected public institutions, on average 20% of the requested budget is not approved as a whole. But in disaggregate term; the budget cutting is 30% on environment sector.

Table 4.3: Public environmental budget experience at some selected federal government Public Institutions.

	Ministry of Agriculture		Ministry of Mines		Ministry of Water, Irrigation and energy		Ministry Environment and forestry		Ministry Industry	
	Requested	Approved	Requested	Approved	Requested	Approved	Requested	Approved	Requested	Approved
11	7,738,460	5,456,675	39,311	30,901	2,760,180	2,174,232	6,355	5,867		36,002
12	10,206,626	7,644,374	100,488	71,153	5,836,985	4,445,210	77,618	76,617	48,534	46,060
13	7,879,207	6,982,105	198,887	90,180	5,734,550	4,506,858	74,378	74,408	5,054,338	178,488

Source: Own calculations using data from MOFED.

4.1.5. OVERALL PUBLIC ENVIRONMENTAL EXPENDITURE

Public spending on environment in Ethiopia comes from three main sources: Treasury, Internal sources and foreign assistants (aid and loan). While data on budget-financed expenditures seem to be comprehensive and reliable, complete information on donor-financed projects and expenditures of publicly owned enterprises is lacking as these have been largely pushed implemented outside the budget framework.

The total Government expenditure including Central and state government spending on the environment rose during 2002/03–2012/13 (see the above figure 4.1). The main environmental responsibilities lie with ministry of Environment and Forestry at federal level whereas at local level the responsibilities lie with bureau of environment and forestry. Their annual budgets have increased several-fold since 2002/03. The increase

has been in line with the overall growth in spending, and the share of environmental expenditures in the overall central budget show highly fluctuating. In this fiscal year, public expenditures soared mainly due to the large expansion of capital investment (mostly in transport infrastructure) but also due to rising current expenditures (on salaries, for example).

Conservation of the Environment is the eighth of the tenth strategic pillars of Growth and Transformation plan (GTP) of the country. It has a vital contribution for sustainability of development. Through plan and policies the Ethiopia government has made protection of the environment and natural resources a priority for development in Ethiopia in pursuit of the environmental objectives of GTP. In line with this, the government of the country has become investing on nature protection.

The commitment to address environmental issues can be best illustrated by analyzing environmental related public expenditure in all regions of the country and measuring its share in the total income of the economy. Figure 4.1 clearly indicate that in absolute terms, except 2003/04 and 2007/08 fiscal years total public environmental expenditure showed a clear increasing trend over the time period 2002/03-2012/13. This absolute increment can be one of the symptoms that the commitment of Ethiopian government for protecting the environment has become great.

In percentage terms the analysis revealed that the environment sector of Ethiopia accounted for almost an average of 7.25% of the total public sector expenditure over the period 2002/03-2012/13. During the first year of the study period (2002), the public expenditure on environment was around the average, 6.17% of the total budgetary expenditure of that year. However, during the latter years it fluctuated between 3–8 percent per annum. This fluctuation may be due to competing demands for budgetary resources from other economic sectors. To support this findings up on secondary data the researcher has did focus group discussion with the ministry of finance and economic development (MoFED). The results from both focus group discussion and key informants

indicate the increasing demand for budgetary resources (infrastructure investment, for example). Table 4.1 presents the average annual public environmental expenditure in Ethiopia over the period 2002-2013.

Table 4.4: Average Annual Public Environmental Expenditure in Ethiopia over the period 2002/03-2012/13 (Values in ETB, Million)

year	Annual PEE	Annual Total Public Expenditure	PEE as % of Total Public Expenditure	GDP	PEE as % of GDP
2002/03	1136.47	18,424.65	6.17%	71,690.9	1.59%
2003/04	1003.49	22,528.85	3.57%	81,421.1	0.99%
2004/05	1255.07	22,628.56	3.54%	91,044.1	1.38%
2005/06	1488.24	27,752.63	5.36%	100,908.4	1.47%
2006/07	2720.11	31,809.32	8.55%	112,468.5	2.42%
2007/08	2117.31	38,478.70	5.5%	124,602.2	1.70%
2008/09	4322.64	66294.7	6.52%	135,570.3	3.19%
2009/10	6809.19	81552.4	8.35%	152,585.1	4.46%
2010/11	7002.93	105015.4	6.67%	169,641.5	4.13%
2011/12	11639	147641.4	7.88%	180,651.30	6.41%
2012/13	15230.54	189979.4	8.02%	192,622.50	7.91%
Annual Average	4956.82	68373.27	7.25%	128,473.25	3.86%

Source: Own calculations using data from MOFED.

The above average annual PEE can be compared with the average annual expenditure of the Ministry of Environment and Forestry (MoEF) of Birr. 3.4 million, over the study period, which was around 0.07 percent of the average annual budgetary environmental expenditure of the period. It is also interesting to note that the PEE as a percentage of GDP of the country experienced a fluctuation over the period 2002/03-2012/13. The percentage of PEE in 2002–2003 that stood at 1.59 of GDP has increased by almost 260% during the time coverage of the study period closing at 4.13 of GDP in 2007–2008. The PEE experience in Ethiopia is still better. The results summarized in Table 4.1 are depicted in figure 4.1.

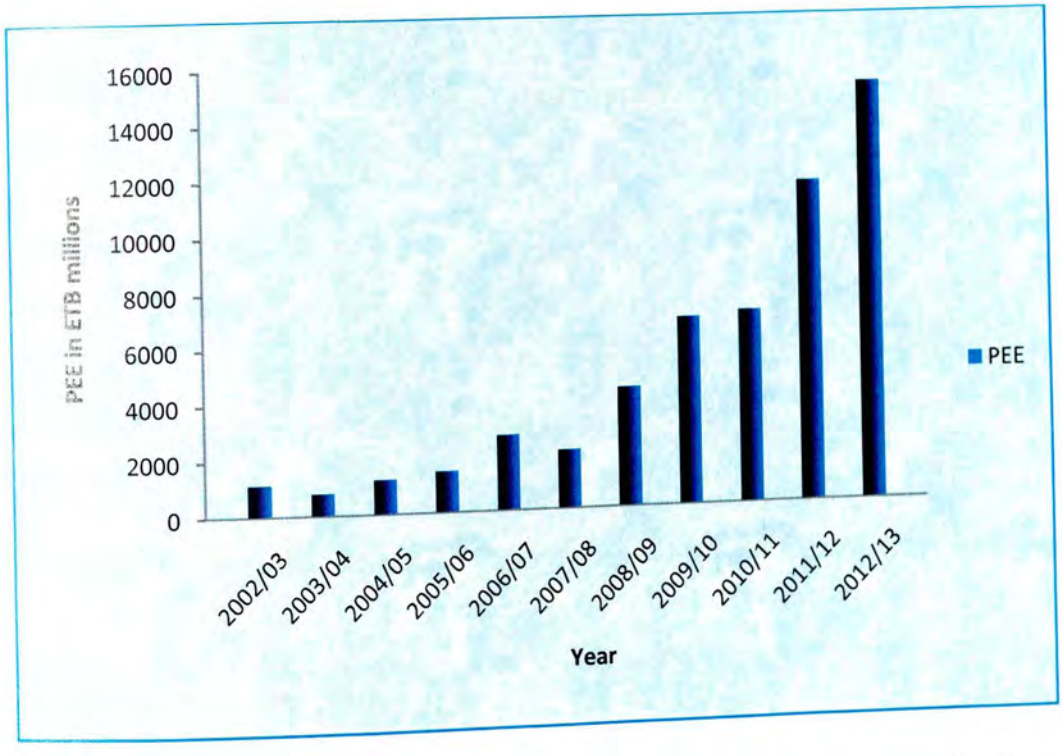

Figure 4.1. Public Environmental expenditure in absolute value term (ETB, in millions).
Source: Own calculations using data from MOFED.

4.1.6. COMPARISON STATE AND FEDERAL PUBLIC ENVIRONMENTAL EXPENDITURE

The analysis of the Federal Expenditure showed a strict fluctuation over the period 2003-2008, while it showed an increase over the period 2009-2013. On the other hand, at the state level, the analysis of aggregate state budget showed that, despite having different patterns of share over the total budget, none of the analyzed functions had a huge increase over the same period, with relative stability of their share over the period 2003-2009.

One of the results of this process can be seen in Figure 6: since 2002/03, the aggregate environmental spending by states surpassed federal government environmental expenditures.

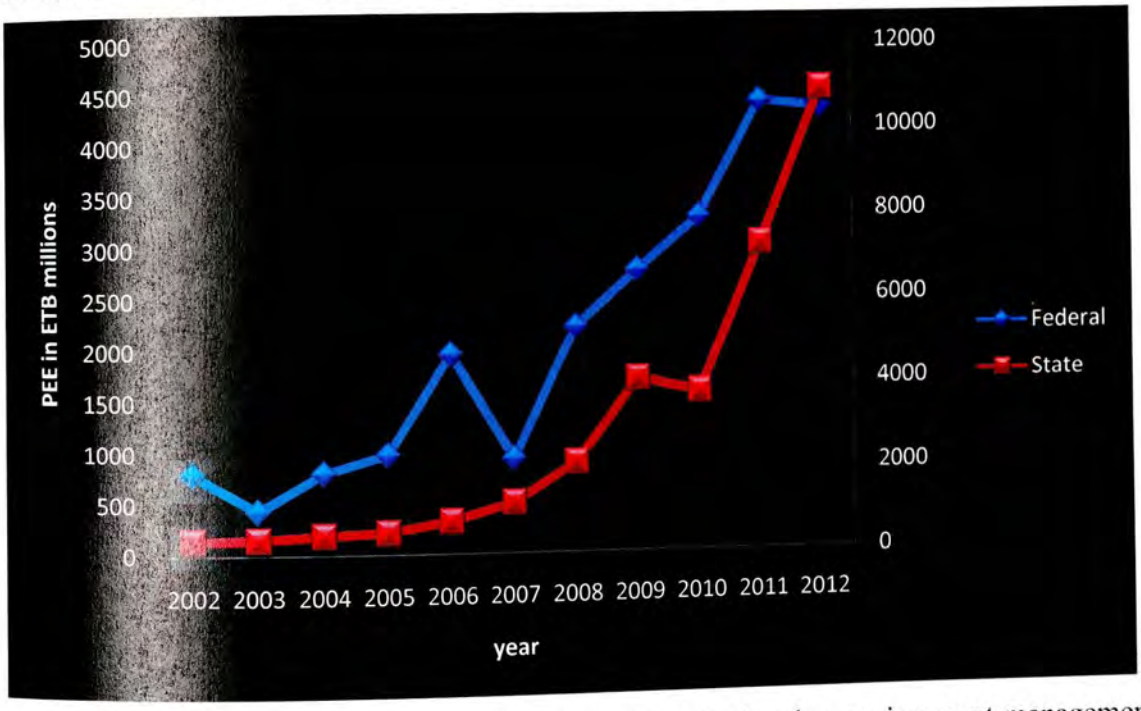

Figure 4.2. Federal and State Government expenditure in function environment management in the period 2002/03-2012/13 (ETB, in millions). Source: Own calculations using data from MOFED.

The analysis in terms of percentages also confirms that, when it comes to environmental expenditure, environmental issues have a more relevant role on the state policy in comparison to the federal policy (Figure 4.4.). While expenditures in the function Environmental Management represented on average about 25.1% of the total state expenditure along 2002/03-2012/13, on average this share is reduced to about 3.8% for the total federal expenditure.

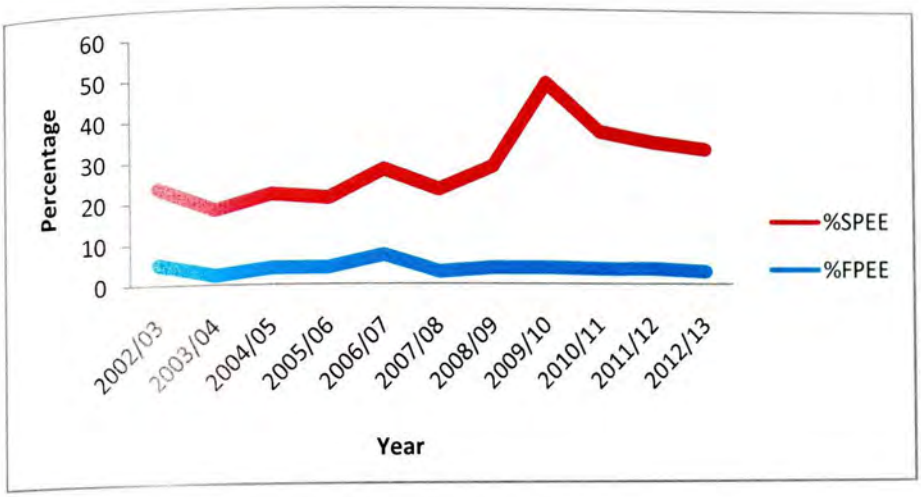

Figure 4.3. Relative share of federal and state expenditure from the total expenditure
Source: Own calculations using data from MOFED.

4.1.7. PUBLIC ENVIRONMENTAL EXPENDITURE BY ECONOMIC CLASSIFICATION

The Government's expenditure policy is to allocate some resources for environmental protection with the aim of eradicating poverty and achieving sustainable economic development. Cognizant of this objective both recurrent and capital general government environmental spending has shown significant increment in the past seven years. Growth in recurrent expenditure registered an average of 28.65 percent over the past 11 years (2002/03-2012/13), while the growth rate in capital expenditure averaged 53.09 per annum during the same period. Consequently, the share of capital expenditure to total expenditure increased from 41.71 percent in the fiscal year 2002/03 to 89.14 percent in 2012/13, while the share of recurrent expenditure to total expenditure declined from 58.29 percent in 2002/03 to 10.86 percent in 2012/13. Significant share of the spending is focusing more on natural resource management, water wastage management and disaster prevention protection. Government spending pattern completely changed over the past years with more resource being allocated to capital investment on environmental protection. To identify the main reason for the increment of the share of capital expenditure, focus group discussion and key informant interview were conducted with

the ministry of environment and forestry. The results showed the increment of this capital expenditure share out of the total expenditure is due to capital inflow from abroad. There was an agreement, Rio Convention 1992, of the reducing level of emissions among countries. In reducing their emission many countries have signed a carbon trade agreement with Ethiopia. That is why the share of capital expenditure become increasing. What should be noted here is that, the amount allocated by the government and spent by the concerning is only enough to meet recurrent costs for running the office, which include Personal Emoluments, Other Charges and Rental expenses. Most of environmental projects in the country are therefore donor funded/supported. In other word money which is allocated to environment sector by the government, is not enough and is only used for running the office i.e. personal emoluments, other charges and renting of the office. The focus group and key informant interview with the selected public institutions also confirm the results. In the time of focus group discussion three individuals from ministry of Environment and forestry said "if there were no donor fund, there would have been not a single environmental project implemented by/under".

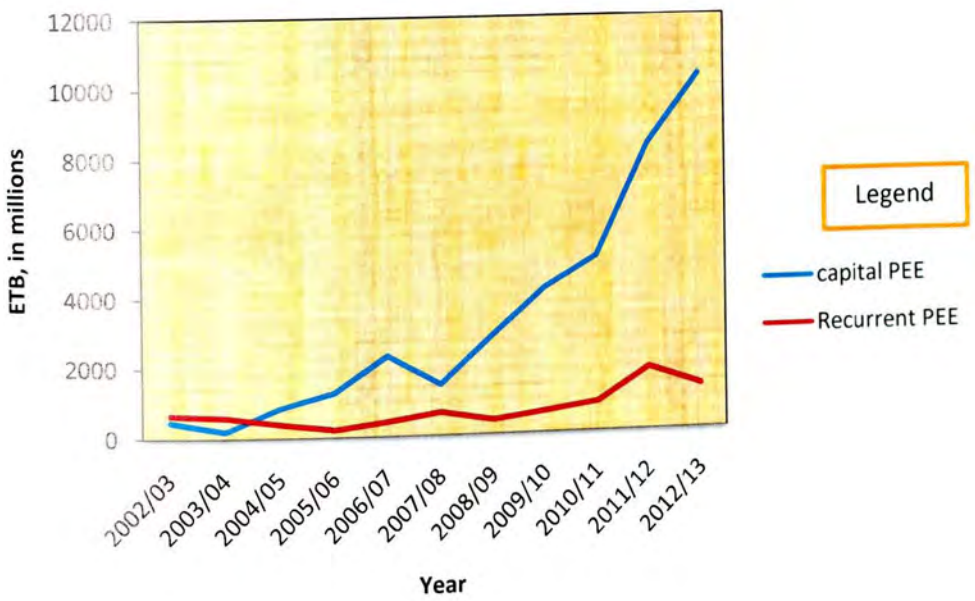

Figure 4.4. Trends of Recurrent and capital expenditure (ETB, in millions)

Table 4.5: General Government Total Expenditures by economic classification (ETB, in millions)

Source: MoFED

Descriptions	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total PEE	1136.47	803.49	1255.07	1488.24	2720.11	2117.31	3242.65	4782.72	5880.550	10036.45	11522.16
Annual growth rate		-29.30	56.20	18.58	82.77	22.16	53.15	47.50	22.96	70.68	14.8
Current PEE	662.41	598.55	397.17	211.92	416.62	654.97	400.66	610.24	826.57	1789.81	1250.84
Annual Growth rate		-9.64	-33.64	-46.64	96.59	57.21	-38.82	52.31	35.45	116.53	-30.11
% share from total PEE	58.29	74.50	31.6	14.2	15.3	30.9	12.35	12.76	14.07	17.83	10.86
Capital PEE	474	204	857	1276	2303	1462	2841	4172	5053.98	8246	10271.32
Annual growth rate		-56.96	320.1	48.90	80.49	-36.52	94.32	46.85	21.14	63.16	24.56
% share from total PEE	41.71	25.39	68.28	85.74	84.67	69.05	87.61	87.23	9.1	82.16	89.14

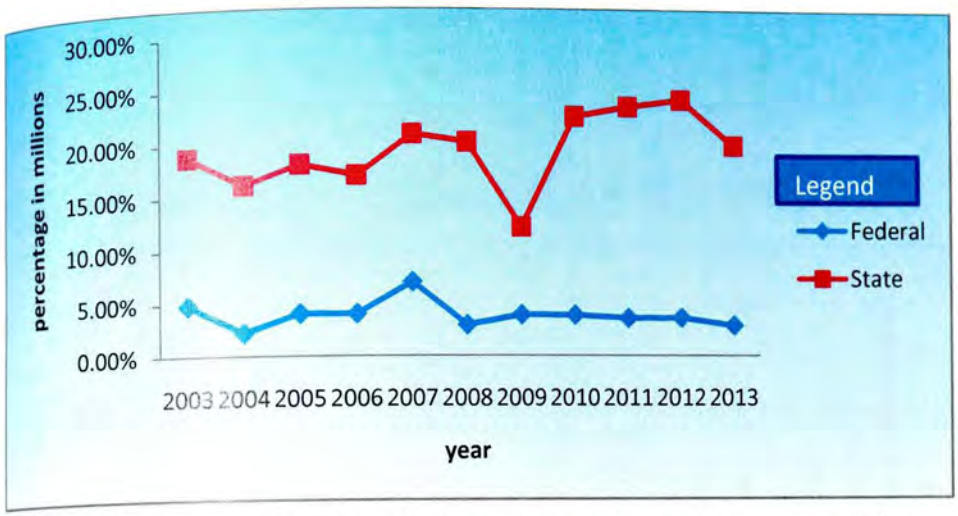

Figure 4.6. Evolution of the relative share of expenditures in function environmental management

Own calculations using data from MOFED.

4.1.9. ANALYSIS OF RESOURCES GAPS ON ENVIRONMENTAL SECTORS, FOCUSING ON WOREDA/DISTRICT LEVEL

The discussion on the foregoing sections has revealed that government resources allocation and expenditure on environment at national, sectoral and sub-national level has not been according to real requirements of the sectors. What the government has been allocating for environmental expenditure was only to meet office-running costs and sometimes even that was inadequate.

For instance, as shown in Table 4.6, what the government allocated to Woredas /Districts/ has been far below what was required. As already aforementioned, the regional government allocated the part of requested budget for both bureau and woreda/districts level. At woreda level, the amount of spent was even above the approved/allocated budget. There may be the question of "How the amount of budget is less than the amount of spent (expenditure)"? As per the focus group discussion with the ministry of finance, budget department experts, it is due to the fact that they may not report the total amount of internal revenue. This amount of money spent may be due to this internal revenue of the respected districts of government institutions.

4.1.8. REGIONS PUBLIC ENVIRONMENTAL EXPENDITURE

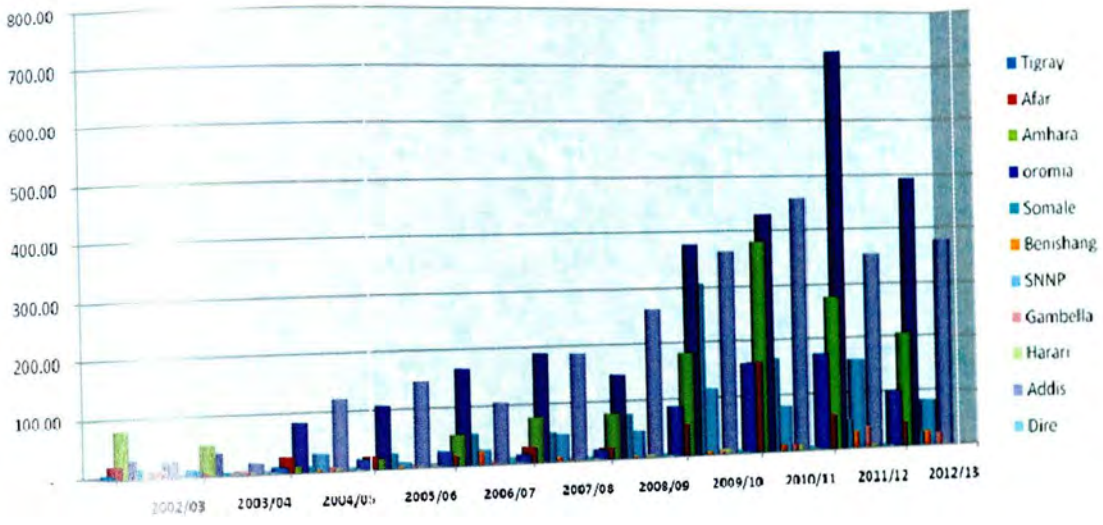

Figure 4.5. Trends of public environmental expenditure by each regional government

The above figure 4.6. Clearly shows in all regions of the country the amount of money allocated to environment sector indicate increasing trends over the period of 2003/004-2012/13. The rate of increment may differ from region to region. However, this thesis not analyzed and compared the rate of increments among regions because the nature and magnitude of environmental problems are not the same.

Nevertheless, to provide information and some hints for future researchers and other stakeholders of the paper, the amount of money spent in ETB over the period of 2002/03-2012/14 in each regions of the country are showed in the figure 4.7.below.

The researcher collected information through email address of tadesse_kebede@yahoo.com to have credible data regarding the inadequate of environmental budget in woreda levels. Accordingly, from Amhara region North Shewa zone Midda Woremo woreda, seven people have provide the information that new institutional framework just like environmental sector specific have a number of activities in their strategic plans that they failed to execute due to underfunding. However, given data and information constraints it is still difficult to establish whether the expenditure on these projects has been comprehensive enough to address the environmental problems national wide.

Table 4.6: Public environmental expenditure at Bureau and Woreda level (ETB, in millions)

Year	BPEB	WPEB	BPEE	WPEE	BPEE as % BPEB	WPEE as % WPEB
2008/09	1251.76	498.08	519.04	528.24	41.47	106.05
2009/10	1727.7	390.47	1491.08	531.31	86.30	136.06
2010/11	4347.176	1254.35	1921.74	682.63	44.21	54.42
2011/12	4100.19	687.38	3170.73	953.14	77.33	138.66
2012/13	7,701.00	761.13	6559.62	992.76	85.18	130.43

Source: Own calculations using data from MOFED.

4.1.10. FOREIGN AID (BOTH ASSISTANT AND LOAN) ON ENVIRONMENTAL ISSUES.

There is no comprehensive data set covering foreign aid payments to environmental protection expenditure in Ethiopia. Generally foreign aid only includes investments. According to gross estimates of ministry of finance and economic development, foreign aid has made up the lion part of government investments into environmental protection, waste water treatment and to waste management. The share of foreign aid in the state investment programme on environmental investments varied between 9 and 53 percent during the time period 2005/06-2011/12 (based on the budget data of only state government of the country). According to this

source, foreign aid increased from about 424.05 million ETB in 2005/06 to about 663.08 million ETB in 2011/12 in absolute value. However, in percentage term foreign environmental investment at state government of the country show an increasing trend. It was 53.35 percent in 2005/06, whereas it was 9 percent in 2011/12. This decreasing trend is due to the 1992, Rio convention. The country is generating a huge amount of income due to carbon trade agreement after the 1992 Rio convention. This money is considered as revenue of the country. And in the time of budget disbursement it was considered in the treasury account. Due to this the amount of budget allocated from treasury increase. As a result of this, even in absolute value term it shows an increasing trend, in percentage term the share of foreign aid environment budget from the total environmental budget showed the decreasing trend. It was unable to get data on foreign aid expenditure.

Table 4.7: Total capital budget ETB, in millions (only state government, however, environmental budget of federal government is not included)

Year	Treasury (A)	Loan (B)	Assistant (C)	Total or D =(A+B+C)	Aid or (E=B+C)	(% of assistant) or C*100/D	(% of aid) = E*100/D
2005/06	554.8826	102.05	238.84	794.74	424.05	30.05	53.35
2006/07	505.13	118.92	244.21	868.26	363.13	28.13	41.82
2007/08	920.01	118.66	233.50	1272.17	352.16	18.35	27.68
2008/09	2,126.52	172.1	320.23	2618.85	492.33	12.23	18.80
2009/10	1,517.06	86.69	354.7	1958.45	441.39	18.11	22.54
2010/11	2,311.76	236.32	426.76	2974.84	652.77	14.35	22.29
2011/12	6,679.65	239.29	413.48	7332.42	663.08	5.64	8.90

Source: Own calculations using data from MOFED.

4.2.ECONOMETRIC RESULT AND ANALYSIS

In econometric part of the analysis, firstly the researcher has conducted Chi square test to check the distribution of both the expenditure and GDP variables. By using Med Calc the researcher automatically perform a Chi-squared test or Kolmogorov-Smirnov test to test the assumption that the data are normally distributed, the graph of Histogram, data that are not normally distributed, but show positive skewness (skewed to the right). The result of the histogram enforces the researcher to transform the distributions /data/ in to a logarithmic transformation.

Table 4.8. Statistical summary of GDP, Expenditure, Logarizim GDP and Logarizim of Expenditure

Variable |	Obs	Mean	Std. Dev.	Min	Max
Logarizim of GDP|	45	23166.71	16557.7	362	66931.5
Expenditure |	45	614.566	1027.361	.56	4751.69
gdp1 |	45	9.407326	1.60959	5.891644	11.11143
epend1 |	45	4.911819	2.22281	-.5798185	8.466255

The results in Table 4.8 show that the time-trend variable is not a significant determinant of public environmental expenditure, i.e. $\beta 2$ is not significantly different from 0 ($p = 0.111 > 0.005$). Hence there is no evidence for growth in public environmental expenditure over time independent of growth in GDP.

Panel variable: regions code (unbalanced)

Time variable: year, 2003 to 2011

The command used for regression of Panel data expenditure against Panel data GDP is *xtreg epend1 gdp1, fe*

Table 4.9: The econometrics results of fixed effect model

Fixed-effects (within) regression				Number of obs = 45	
Group variable: Regions				Number of groups = 5	
epend1 |	Coef.	Std. Err.	t	P>|t|	Decision
gdp1 |	0.6	.3120846	6.86	0.000	Reject Null Hypothesis
year |	.2668121	.0703201	3.79	0.111	Do not reject Null Hypothesis
_cons |	-536.2644	137.3481	-3.90	0.000	

R-square 0.78

Source : Econometrics results using data of MOFED

$$Yit = \beta_0 + 0.6\chi it + \varepsilon it$$

t= 1, 2, 3, --------- and 9 (1=2002/03, 2=2003/04, -------- etc

i = 1, 2, 3, 4 and 5 (1= the sum of the GDP of federal government, Tigray, Afar, Ethiopian somali, SNNPR, Benishangul gumzu, Gambella and Dire dawa, 2= Amhara, 3= Oromia, 4=Harare, 5= Addis Ababa)

GDP is a very significant determinant of public environmental expenditure, i.e. $\beta 1$ is significantly different from both 0 and 1 ($p < 0.05$). The coefficient of GDP is greater than 0.6 and is also statistically significantly. The results of this log-log model, where the coefficient can be interpreted as inelasticity, appear to show that the income elasticity of willingness to pay for the environment is just less than unity, i.e. a 1 per cent increase in GDP leads to an average 0.6 per cent increase in public environmental expenditure. Finally, the R-squared from this model is relatively high, with around two-thirds of the variation in environmental expenditure being explained by the model.

CONCLUSIONS AND RECOMMENDATION

5.1.CONCLUSIONS

- While environmental resources contribute significantly in terms of revenue collections and national income, yet the environmental sectors are financially under resourced in many countries. The resource gap was more pronounced at woreda/district level of regional governments of the country. At woreda level of regions what environmental resource sectors are allowed to retain back is not sufficient to maintain sustainable environmental management.

- Most of environmental management projects, which address the key environmental problems, are foreign donor supported. The government is financed only for running cost including salaries, allowance and office supplies. To sum up, Local and central government sector expenditures on the environment are increased by a significant amount of foreign aid.

- Data on public environmental expenditure show that Government spending on environmental protection is more sensitive to budget cutting than the overall Government Expenditure. Both federal and state government expenditure in absolute value terms on environmental protection in Ethiopia have regularly increased over the period discussed in the paper. Again public expenditures on environmental protection during the period of 2002/03-2012/13 were sensitive to the level of GDP. Another finding is that environmental spending of country is closely correlated to total budget expenditure. As a co effect of various measures, Ethiopia has managed to preserve stability of environmental expenditure.

- The study also concludes that during the last 11 years, PEE performance had showed strict fluctuation during the time period 2002/03-2012/13. This could be attributed to the fluctuation of the competing demands for budgetary resources from other material

sectors. The analysis also indicates that there is a considerable proportion of under expenditure of budgetary resources in the environmental sector.

- The three year annual reports of Environmental Protection Authority of Addis Ababa city Administration showed that as result of absence of procurement plan on average public environmental expenditure performance decreased by 20 percent.

- The analysis also concludes that it is necessary to maintain at least the same level of PEE in the future as well.

- As noted in the main text, what can actually be measured is the income elasticity of willingness to pay or expenditure. This suggests an elasticity of 0.6, which is perhaps less than the expected level if the 'environmental demand effect' is to play a significant role in explaining the downward slope of the environmental Kuznets curve.

5.2.RECOMMENDATION

1. The Government should consider increasing budgetary allocation to the environmental sectors especially at woreda level in each region of the country. In addition to this, it is necessary to allow for efficient and effective management, coordination, monitoring, and valuation of environmental resources to achieve sustainable development and poverty reduction.

2. Considering the cost of environmental damages that could result in the future, the study recommends that the planning and budget authorities take innovative measures to allocate sufficient funds to the environmental sectors to balance the demand for resources between material production and environment maintenance.

3. Since it is an area that could be corrected within the system itself, the study recommends that the project monitoring authorities take suitable measures to continuously monitor

project implementation and take action to improve the rate of utilization of budgetary resources made available to the institutions or projects.

4. Government institutions should have smart procurement plan. To achieve this recommendation Public Procurement and Property Administration Agency has to provide training the government institutions up on procurement plan.
5. The allocated budget was not spent totally. Therefore, this low rate of foreign resources utilization is also a concern that requires attention. Ethiopia is in a fortunate situation to attract more and more foreign resources for its development. Environment is an area where donor agencies are more willing to support and Ethiopia is in an advantageous position in this respect. However, it is important that project implementation authorities take necessary action to increase the rate of utilization of scarce foreign resources. In fact, an increased rate of resource utilization will no doubt increase the rate of aid inflow with the satisfaction of donor agencies on the positive impacts of their assistance.
6. Accordingly, the study proposes to implement innovative and new measures as alternatives for increasing the level of public expenditure without depending on direct budgetary funds.
7. The analysis also concludes that it is necessary to maintain at least the same level of PEE in the future as well. For this purpose, it is not only necessary to plan and implement new project activities by the environment related institutions but also promote other institutions to adopt environment related activities in their programs. The study also recommends the Government to look into establishing innovative approaches such as development of non-governmental institutions. Establishment of such institutions could help absorb financial resources available for environmental activities that are underutilized by the government institutions. This will help to maintain the higher level of PEE even though budgetary resources are bound to reduce due to other competing demands. In the country it was needed to establish the environmental fund, which will be used for environment management activities

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year	Tigray	Afar	Amhara	Oromia	Somale	Benishangul	SNNP	Gambella	Harari	Addis	Dire
2003	13.95	27.49	97.07	110.2	29.67	6.33	6.5	15.78	0.9	26.08	5.83
2004	19.25	7.34	73.96	41.42	7.67	14.68	107.98	8.55	2.72	80.38	3.93
2005	18.84	31.88	18.69	121.69	17.46	4.98	35.59	8.52	3.61	184.18	6.74
2006	38.02	28.04	50.38	134.59	35.24	17.55	14.64	5.66	0.56	184.31	1.75
2007	55.04	13.48	93.6	217.57	45.61	24.45	20.09	7.32	4.21	273.11	12.6
2008	30.44	42.63	148.69	322.77	82.08	12.18	70.89	6.11	2.77	457.72	11.03
2009	18.22	371.04	1007.86	201.43	98.99	7.22	83.36	25.89	11.18	278.41	10.04
2010	99.51	461.42	2075.91	433.93	338.79	9.89	161.24	52.91	19.75	373.58	21.96
2011	164.14	768.21	1241.02	503.63	186.62	27.2	154.78	144.56	42.5	464.09	30.08
2012	594.39	1110.86	2629.67	568.27	946.48	54.42	524.91	118.6	29.64	560.63	89.23
2013	725.03	2094.26	3508.33	1037.61	1703.86	71.48	499.65	198.1	33.84	906.57	103.21

year	Federal gov	Tigray	Afar	Amhara	Oromia	Somale	Benishangul	SNNP	Gambella	Harari	Addis	Dire	Total regional	Total PEE
2002/03	226.87	5.42	20.17	79.97	83.56	13.76	2.1	3.09	10.57	0	26.08	2.47	247.19	474.06
2003/04	76.51	9.21	4.25	52.81	29.14	3.07	0.17	1.9	5.18	2	17.61	3.09	128.43	204.94
2004/05	549.69	8.6	27.88	8.93	83.68	8.54	2.38	31.33	6.3	3.34	123.16	4.07	308.21	857.9
2005/06	926.04	15.9	22.61	14.89	109.06	26.45	2.45	8.65	1.76	0.56	147.74	0.21	350.28	1276.32
2006/07	1,897.48	23.91	7.13	50.74	168.88	32.43	16.62	3.56	3	0	89.89	9.85	406.01	2303.49
2007/08	857.31	12.54	27.76	77.12	190.7	51.04	6.48	47.52	1.31	0	188.21	2.35	605.03	1462.34
2008/09	2175	18.01	20.76	81.61	149.97	76.87	1.79	47.87	0.36	2.39	263.31	4.05	666.99	2841.99
2009/10	2668.9	89.66	55.41	168.58	378.38	307.66	3.54	118.38	4.22	6.57	365.75	5.43	1503.58	4172.48
2010/11	3163.4	161.79	163.18	381.36	430.94	168.72	12.33	83.21	12.49	11.46	458.39	6.71	1890.58	5053.98
2011/12	4234.3	**590.34**	**443.87**	**450.62**	**534.27**	**912.65**	**35.67**	**388.63**	**37.45**	**13**	**551.22**	**54.62**	4012.34	8246.64
2012/13	4114	719.6	590.68	834	946.21	1628.91	50.19	400.48	28.78	8.23	892.65	57.59	6157.32	10271.32

Annex 1.3. Environment Current Expenditure

Year	Federal	Tigray	Afar	Amhara	Oromia	Somale	Benishangul	SNNP	Gambella	Harare	Addis Ababa	Dire dawa	Total Regional	total
2002/03	569.821	8.531	7.317	17.097	26.636	15.905	4.229	3.406	5.212	0.899	0	3.358	92.59	662.411
2003/04	359.1	10.04	3.09	21.15	12.28	4.6	14.51	106.08	3.37	0.72	62.77	0.84	239.45	598.55
2004/05	253.202	10.243	4	9.76	38.01	8.92	2.6	4.264	2.22	0.265	61.02	2.67	143.972	397.174
2005/06	51.46	22.12	5.43	35.49	25.53	8.79	15.1	5.99	3.9	0	36.57	1.54	160.46	211.92
2006/07	55.55	31.13	6.35	42.86	48.69	13.18	7.83	16.53	4.32	4.21	183.22	2.75	361.07	416.62
2007/08	72.69	17.9	14.87	71.57	132.07	31.04	5.7	23.37	4.8	2.77	269.51	8.68	582.28	654.97
2008/09	34	33.83	18.75	136.28	81.15	16.64	9.41	34.61	4.99	0	27.89	3.11	366.66	400.66
2009/10	91.4	74.95	21.29	99.17	169.32	25.61	13.92	45.62	8.64	0.36	56.4	3.56	518.84	610.24
2010/11	112.7	51.48	28.46	121.34	324.15	31.47	18.06	52.7	9.94	1.13	66.25	8.89	713.87	826.57
2011/12	177.6	72.09	26.93	181.63	369.61	8.01	18.78	68.29	160.75	0	706.12	0	1612.21	1789.81
2012/13	234.6	102.12	43.67	209.43	493.6	26.26	26.23	84.54	22.54	0.65	0	7.2	1016.24	1250.84

Annex 2. GDP and Public environmental Data

Year	GDP	Total PE	PEE
2002/03	71,690.9	18,424.65	1136.471
2003/04	81,421.1	22,528.85	803.49
2004/05	91,044.1	22,628.56	1255.074
2005/06	100,908.4	27,752.63	1488.24
2006/07	112,468.5	31,809.32	2720.11
2007/08	124,602.2	38,478.70	2117.31
2008/09	135,570.3	66294.7	3242.65
2009/10	152,585.1	81552.4	4782.72
2010/11	169,641.5	105015.4	5880.55

Annex 3. Data used for Econometric part of Analysis

Where 1= The combination federal government and Some of regions 2= Amhara 3= Oromia 4= Addis Ababa 5= Harare

Year	Code of Region	GDP	Expenditure	Log Expenditure	Log GDP
2003	1	24,773.90	902.24	10.11755	6.804881
2004	1	29,278.10	605.01	10.2846	6.405245
2005	1	32,647.10	926.9	10.39351	6.831846
2006	1	37,228.40	1118.4	10.52483	7.019654
2007	1	42,158.50	2131.62	10.64919	7.664638
2008	1	47,100.20	1185.36	10.76003	7.077802
2009	1	51,293.30	2823.76	10.84532	7.945825
2010	1	60,107.10	3906.02	11.00388	8.270274
2011	1	66,931.50	4751.69	11.11142	8.466256
2003	2	16,523.45	97.07	9.712536	4.575432
2004	2	17,843.90	73.96	9.789417	4.303524
2005	2	19,269.90	18.69	9.8663	2.927989
2006	2	20,809.83	50.38	9.943181	3.919594
2007	2	22994.83	93.6	10.04302	4.53903
2008	2	25634.99	148.69	10.15171	5.001864
2009	2	27256.97	1007.86	10.21306	6.915585
2010	2	29,700.93	2075.91	10.29893	7.638155
2011	2	33447.3	1241.02	10.41773	7.123689
2003	3	20,000	110.2	9.903488	4.702297
2004	3	22,900	41.42	10.03889	3.723764
2005	3	26,400	121.69	10.18112	4.801477
2006	3	28,700	134.59	10.26465	4.902233
2007	3	31,500	217.57	10.35774	5.382521

2008	3	34,400	322.77	10.44581	5.77694
2009	3	37,800	201.43	10.54006	5.305442
2010	3	41536.05	433.93	10.63432	6.072883
2011	3	45641.35	503.63	10.72857	6.221842
2003	4	10,031.43	26.08	9.213478	3.261169
2004	4	11,023.55	80.38	9.307789	4.386765
2005	4	12,302.08	184.18	9.417524	5.215914
2006	4	13,728.90	184.31	9.527258	5.216619
2007	4	15,321.20	273.11	9.636993	5.609875
2008	4	16,913.50	457.72	9.735867	6.126258
2009	4	18,600.50	278.41	9.830944	5.629095
2010	4	20,613.00	373.58	9.933677	5.923132
2011	4	22,843.24	464.09	10.03641	6.140078
2003	5	362	0.9	5.891644	-0.10536
2004	5	376	2.72	5.929589	1.000632
2005	5	425	3.61	6.052089	1.283708
2006	5	441	0.56	6.089045	-0.57982
2007	5	494	4.21	6.202536	1.437463
2008	5	553.36	2.77	6.316009	1.018847
2009	5	619.87	11.18	6.42951	2.414126
2010	5	627.87	19.75	6.442333	2.983153
2011	5	3,347.86	42.5	8.116076	3.749504

Annex 4. Leading questions and checklists for key informant and focus group discussion

Tadesse kebede is my name. I am MA student at center of environment and development at college of development studies in Addis Ababa University. Currently, I am writing my master thesis on the title of "Trends of Public Environmental Expenditure and Its Impact on some Selected Environmental Outcome"

I am kindly requested your collaboration by filling the following questions on behalf of your organization.

NB: Filling the questions in group is allowed.

1. Name of Respondent (optional, if you are interested)

   ---

2. Name of Public Body

   ---

3. Year of establishment of the public body

   ---

4. Do you have any of the following in your sector/department/ministry?
   a. Programs /strategies related to environment?

   YES_____

   NO_____

   b. If YES please specify: e.g. which department / section is responsible for environmental issues

   .....

   .....

c. If the answer is yes for question number 4 how many workers does the department have?

_____

d. As much as possible please try to list their education level and experience for each workers?

Education level	Number of workers	Experience	Number of workers
0-12		Below 1 years	
Vocational Training		1-3	
Diploma		3-6	
First Degree		6-9	
Master Degree		Above 9	

5. Budget planning guidelines?

YES_____

NO_____

If YES please specify:

.....

.....

6. How much budget was allocated and spent on environment related matters in your sector/department/ministry for FY 2000/01 and 2001/12?

Please fill in the table below if possible:

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ironmental air pollution ters														
get allocated														
ount spent														
tal budget														
rrent budget														

7. How much budget was allocated to your sector/department/ministry for FY 2000 and 2012? How much did your sector/department requested for environmental management in 2000 /2012.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ironment and/or ural resource nagement enditure														

8. How much did your sector/department/ministry spend for FY 2000/01 and FY 2011/12?

9. How much was allocated to environment and/or natural resource management (e.g. training, pollution control, forest protection, anti-poaching, tree planting, etc) for FY 2000/01 and FY 2011/12?

	200 0	200 1	200 2	200 3	200 4	200 5	200 6	200 7	200 8	200 9
ment natural e ment spent										

10. How much was spent on environment and or natural resource management between FY 2000 and FY 2012?

	200 0	200 1	200 2	200 3	200 4	200 5	200 6	200 7	200 8	200 9	201 0
nment and/or l resource gement diture											

11. Do you think the budget allocated to environment and/or natural resources management adequate?

YES_____

NO_____

12. If NO explain why and how much you think should be allocated?

13. Revenues:

(a) How much revenue was collected by the Central and Local Government during FY 2001/02 and FY 2012/13 from the following environmental resources? Fill in the table below please: Specify source of revenue (e.g. tax, fees, royalties, etc

ENVIRONMENTAL RESOURCE 2001/02 2002/03

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
eral resource														
eries resource														
stry resource														
dlife resource														
rist resource, etc.														

14. How much was lost by the Central and Local government due to failure to undertake environmental intervention (e.g. by undercharging tax on timber products, wildlife hunting, mining royalties, etc.).

---

15. How much was gained by the Central and Local Government by undertaking environmental intervention.

---

16. How much is the government (Ministry of environment and forestry) spending annually on capacity building for environmental management (E.g. human resource development, training, etc.). What do you think are the requirements for capacity building in the area of environment?

---

17. What elements do you think should be included in the capacity building programme in order to have sustainable/continuous utilization of Public environmental Expenditure?

---

18. What is the existing multilateral/bilateral environmental agreements being implemented at national level ?

---

19. How much/what proportion of external aid was received from donor agencies for implementing those agreements?

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
nment and/or resource gement diture														

10. Is the existing institutional framework (physical, legal etc.) up for environmental Management / monitoring adequate and efficient?

Yes ----------

No ----------

11. Indicate Environmental Priorities in your organization

---

12 Categories for environmental protection expenditures

Salaries----------

Maintenance and operation cost----------

others----------

---

13. Are your organization has audited? ----------

14. Are the audit report made published?----------

15. If yes by what means

Website----------

News paper----------

Media like radio, Tv----------

Declaration

I, the undersigned, declare that the thesis is my original work, has not been presented for a degree in any university and that all sources of materials used for the thesis have been duly acknowledged.

Declared by: Confirmed by:

Abdulhamid Bedr

Candidate Advisor