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INTEGRATION OF NATURAL RESOURCES INTO NATIONAL INCOME ACCOUNTS OF SRI LANKA WITH SPECIAL REFERENCE TO FORETSRY AND MINERAL RESOURCES

BY

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Thesis submitted to the University of Sri Jayewardenepura

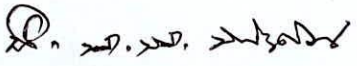
For the award of the

Degree of Doctor of Philosophy in Environmental Economics

2013

DECLARATION

The work described in this thesis was carried by me under the supervision of Dr.(Mrs.) U.A.D.P. Gunawardena of the University of Sri Jayewardenepura, Sri Lanka and the report on this has not been submitted in whole or in part to any University or any Institution for another Degree /Diploma.

Signature : 

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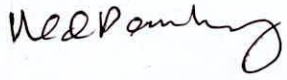

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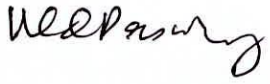

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“Dedicated to My Loving Mother” That I lost

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ABBRIEVIATIONS

AVG(E)	-	Average Cost of Extraction/Exploitation
BIM	-	Bio Mass
CF	-	Correction Factor
EVT	-	Environmental Valuation Techniques
GDP	-	Gross Domestic Product
GNP	-	Gross National Product
ICTAD	-	Institute for Construction Training and Development
IEEA	-	Integrated Environmental and Economic Accounting
IWMI	-	International Water Management Institute
HR	-	Hotelling's Rent
Mag(C)	-	Marginal Cost of Extraction/Exploitation
NAS	-	National Accounting System
NDP	-	Net Domestic Product
NP	-	Net Present
NPV	-	Net Present Value
NTFP	-	Non Timber Forest Products
OFC	-	Other Food Crops
SAC	-	Satellite Accounting System
SEEA	-	System of Integrated Environment and Economic Accounting
TEV	-	Total Economic Value
UNFCCC	-	United Nations Framework Convention on Climate Change

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Integration of Natural Resources into National Income Accounts in Sri Lanka with special reference to Forestry and Mineral Resources

C.M.M.Chandrasekara

ABSTACT

Failure to account for the numerous services and economic uses of forests, and non-inclusion of utilization of natural resources have led to many detrimental consequences. The National Accounts of any economy plays a vital role in decision making for inter-temporal decision making. Conventional accounting systems do not capture the real contribution of the natural resources sector and do not recognize the importance of environmental accounting. Therefore, for optimal resource allocation considerations on all value additions and utilization values for GDP estimation have to be accounted.

Market and policy failures can be viewed as other major issues related to resource depletion. Market failure exists when markets fail to reflect fully environmental and natural resources benefits and damages. Policy failures exist when the appropriate policy interventions necessary to correct market failures are not taken and these two failures are central to the sustainable management of natural resources in many developing countries.

The main objective of this study is to develop a theoretical model for determining the contribution of natural resources (Forest & minerals) into National Income Accounts and re-estimate the GDP of 2008, 2009 and 2010. The Total Economic Value (TEV) approach and Present value method (PV) were used to estimate the contribution from the forest and the mineral sector. At present, the conventional National Income Accounting System does not account for the non timber products and ecological benefits. This study

has used production approach to estimate the NTFP in 2008, 2009 and 2010. With regard to mineral sector, the current practice is to use 15% intermediate cost based on surveys and estimate the GDP. One of the appropriate approaches of mineral resources is to use Present Value and User Cost Approach and estimate the Present Value of reserves and adjust the value addition. This study has re-estimated the value addition of mineral for 2008, 2009 and 2010 deducting taxes, extraction costs etc. The environmental damage of gem mining, removal of river sand and other minerals have been identified as a loss to the GDP and such damages for selected minerals have also been included in the value addition.

The results show that the forest sector GDP contribution is greater than that of conventional estimates. The forest sector contribution to GDP during 2008-2010 is Rs. mn 412,750, 469,648 and 481,456 respectively showing an increase. Similarly the minerals sector also shows a value addition of Rs. 127,698, 138,949 and 155,899 mn during 2008, 2009 and 2010. Since this study has studied only selected minerals the estimated values may not be compared with the total value addition of the conventional system. However, the estimated values are quite larger than the conventional system indicating its under estimation.

The study provides important findings for decision makers, planners and researches. The GDP of the Forest sector which are not accounted at present has a significant contribution. The NTFP, Carbon, Biodiversity, water purification, hydrological values are important in this regard. If the GDP of these values taken consideration the estimated GDP is more than 50 percent of the conventional values.

The true income values of the minerals of the mining sector are also larger than the current mining value additions. The environmental damage of mineral mining has to be incorporated into the calculations which are viewed as a major problem in mining of river sand, gem and clay.

Implications for policy includes developing a mechanism to compile and establish data related to resource quantities, export prices, extraction costs to estimate the annual contribution of forest and other natural resource services and damages by institutions such as Department of Forest, the Geological survey and Mines Bureau, Department of Census and Statistics and Central bank of Sri Lanka. It is also required that these agencies cooperate and coordinate towards the estimation of true income and the long term sustainability of the natural resource sector of the country.