

Environmental Externalities

Manitoba Hydro Keeyask Generation Station Project

Manitoba Wildlands – January 2014

ABSTRACT

This report provides definitions and examples of the term Environmental Externalities and how can be applied to projects, including hydroelectric developments. Please see supplemental research materials also.



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Environmental Externalities Definitions

Definition #1: “un-priced, unintentional and uncompensated side effect of one agents’ action, that directly affects the welfare of another (Baumol and Oates 1998; Sundqvist 2004).”

Definition #2: “costs imposed on society and the environment that are not accounted for by the producers or consumers of energy (European Environment Agency 2004).”

ExternE Project

The group developed methods to measure and monetize all the externalities associated with investments in hydro power, taking into consideration all the different stages and various fuel cycles of production. From hydro developments the primary environmental burdens are not necessarily related to atmospheric pollution, but impacts to aquatic and terrestrial ecosystems. Aquatic and terrestrial burdens, horizontally impact many factors, therefore it is difficult to assess dose-response functions (European Commission 2005).

Environmental Externality Research Papers

The Natural Capital Approach - A Concept Paper

International Institute of Sustainable Development (IISD). Venema H.D., Voora V.A., 2008.

“Consequently, environmental planning and management is centred on optimizing the extraction and transformation of natural resources for the production of goods and services. Furthermore, associated pollution and wastes streams resulting from natural resource extraction and transformation processes are considered externalities (Venema and Voora 2008, pg 13)”.

“Methods for incorporating accounting adjustments for environmental degradation, resource depletion and externalities associated with human activity, imperative for linking national accounts and sustainability, are also being developed (Venema and Voora 2008, pg 28).”

“Based on the light emission analysis, the GDP in the Mackenzie watershed was totaled at \$41.9 billion while the “Ecosystem Services Product” (ESP) values for various land cover types totaled \$448 billion. Unlike the Boreal wealth accounts, this study did not include government subsidies, pollution costs or other externalities measures such as carbon emissions from industrial operations industries. These costs which can be estimated to be roughly 23 per cent of the market GDP, should be deducted as a depreciation cost. The key contributors to the ESP values include climate regulation (carbon storage and annual carbon sequestration services) and water stabilization, regulation and supply (Venema and Voora 2008, pg 13).”

“Defensive expenditures, also known as damage cost avoided, replacement cost and substitute cost, are estimated by evaluating the costs of mitigating or avoiding adverse environmental impacts or externalities such as air pollution or flooding. This method assumes that the cost of

avoiding damages or replacing ecosystem services flowing from natural capital, provide a means to estimate their value (Venema and Voora 2008, pg 66)."

Realizing Opportunities: Emissions Trading in Manitoba—Report of the Task Force on Emissions Trading and the Manitoba Economy

International Institute of Sustainable Development (IISD). 2004

"Policies that support the integration of emerging renewable energy sources (IISD 2004, pg 30)."

"A study conducted by Pembina Institute for Appropriate Development concluded that although Canada has an abundant source of emerging renewable energy sources, it is falling behind most industrial nations due to a lack of supporting market structures and the absence of appropriate government policies. ¹⁶ The report cites four types of barriers to renewable energy in Canada:

- 1. information barriers (e.g., lack of information on suppliers);*
- 2. institutional and policy barriers (e.g., interconnection and operational barriers, market barriers);*
- 3. financial barriers (e.g., lack of access to capital, lack of pricing of environmental externalities); and*
- 4. technical barriers (e.g., intermittent supply) (IISD 2004, pg 30)."*

Introduction to the Summit

Barry Gardiner MP, Globe International. 2013

"It is because classical economics treats the services that nature provides as externalities, that it fails to properly represent either the non-market benefits of ecosystems or the environmental costs of growth. He insisted that it was not just governments but businesses too that needed to make transparent their environmental externalities in their annual reports to shareholders (Gardiner 2013)".

True Natural Capital

World Wildlife Foundation (WWF). 2013

“Nature is not free. Clean air, water and fertile farmland have an economic value. For too long we’ve been capitalizing on the environment without paying for it. Over the past few months, a host of reports and studies have attempted to put data behind this pilfering of nature. In February, GreenBiz.com’s State of Green Business report tallied up \$351.6 billion in natural capital costs for U.S. companies, or about 41 percent of their net income. Earlier this month, Natural Capital at Risk, a report authored by Trucost and commissioned by the TEEB for Business Coalition found that the top environmental externalities cost the global economy about \$4.7 trillion annually. The numbers will vary but the takeaway is clear: without a true value on nature, we’re going to run out of it fast (WWF 2013)”.

The Natural Capital Declaration: A commitment by financial institutions to mainstream natural capital in financial products and in accounting disclosure and reporting frameworks

The Natural Capital Declaration (NCD). 2013

“Financial institutions are an integral part of the economy and society. As the engine of global economic growth, the financial sector can provide some of the tools required to support a transition to sustainable development and eradicating poverty by providing loans, equity, insurance and other financial products and services needed by companies, governments, organizations and individuals that consider social and environmental externalities. Since virtually every economic activity can have an impact on natural capital either directly or indirectly, through a supply chain, financial institutions have considerable indirect ecological footprints through their customers and directly through their purchasing decisions. These impacts can lead to material financial risks, but also to relevant business opportunities (NCD 2013).”

References

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