

AGENDA FOR A NEW SUSTAINABLE ECONOMY:

4. THE CULTURE OF STEWARDSHIP

History

Throughout human history, people have interacted with and shaped ecosystems for social and economic development. During the last 50 years, however, human activities have changed ecosystems more rapidly and extensively than at any comparable period of human history.

As the human population has grown (in part due to improved disease prevention), the increased demand for food and natural resources has led to an expansion of agriculture, forestry, mining, stream manipulation, and other human activities, causing large-scale changes in land cover, and loss of habitats and biological diversity. About one-half the world's population now lives in cities, and depends on connections with rural areas worldwide for food, water, and waste processing. As well, increased human mobility is spreading plants, animals, diseases, pollution, industrial products, and cultural perspectives more rapidly than ever before. This increase in global mobility, coupled with increased connectivity through global markets and new forms of communication, links the world's economies and cultures, with the result that decisions in one place often have international consequences. This globalization of economy, culture, and ecology is significant because it has modified and continues to modify the life-support system of the planet, i.e., the capacity of the planet to meet the needs of all organisms, including people.

Human society has both benefited and suffered from global changes, with increased food production, increased income and living standards (in parts of the world), improved treatment of many diseases, and longer life expectancy. These benefits are offset by deterioration in ecosystem services, the benefits that society receives from ecosystems. More than half of the ecosystem services on which society depends for survival and a good life have been degraded — some deliberately, but most not deliberate. The inadvertent degradation has occurred as people seek to meet their material desires and needs.

Background

Change creates both challenges and opportunities. People have amply demonstrated their capacity and willingness to alter the life-support system of the planet. With appropriate stewardship, this human capacity can be mobilized to not only repair but also enhance the capacity of Earth's life-support system to support societal development.

Changes in the Earth System are highly interconnected, highly integrated. None of these changes is purely physical, ecological, or social. Therefore, understanding current and future change requires a broad interdisciplinary framework that draws on the concepts and approaches of many natural and social sciences. In line with the vision of the BC Institute of Social Ecology, we must understand the world, region, or community as a *social-ecological system* in which people depend on resources and services provided by ecosystems, and ecosystem dynamics are influenced, to varying degrees, by human activities.

Although the relative importance of social and ecological processes may vary from forests to farms to cities to neighbourhoods, the functioning of each of these systems, and of the larger regional system in which they are embedded, is strongly influenced by physical, ecological, economic, and cultural factors. They are, therefore, best viewed, not as ecological *or* social systems, but as integrated social–ecological systems that reflect the interactions of physical, ecological, and social processes.

The integration of these ideas provides communities, policy makers and managers with an increasingly sophisticated and flexible tool kit to address the challenges of sustainability in a directionally changing world. The term *resilience-based ecosystem stewardship*¹ has been posed to focus attention on sustaining functional properties of social-ecological systems over the long term despite perturbation and change. These issues represent the core challenges of managing social-ecological systems sustainably.

Many communities are recognizing that they have a role to play in the conservation and preservation of their local natural capital. As part of this responsibility, they are developing a culture of stewardship which will translate into planned and meaningful strategies and actions in support of local ecosystems and the new sustainable economy. There is no standardized approach to developing community-based stewardship, thus leaving communities the flexibility to develop, adapt, and/or adopt stewardship principles as needed.

Definition

Historically, stewardship was the responsibility given to household servants to bring food and drinks to a castle dining hall. The term was then expanded to indicate a household employee's responsibility for managing household or domestic affairs. Stewardship later became the responsibility for taking care of passengers' domestic needs on a ship, train and airplane, or managing the service provided to diners in a restaurant. The term continues to be used in these specific ways, but it is also used in a more general way to refer to a responsibility to take care of something owned by someone else.

In Canada, *stewardship* is defined as an ethic by which Canadians care for the land, water and air as parts of a natural life support system, acting to sustain and enhance it for generations to come. Stewardship embodies cooperative planning and management of environmental resources with organizations, communities and others to actively engage in the prevention of loss of habitat and facilitate its recovery in the interest of long-term sustainability (e.g., Fisheries and Oceans Canada – Stewardship in Action,² and Stewardship Canada³). A good example of a community-based environmental stewardship is a group called the Manitoulin Streams Improvement Association⁴ located on Manitoulin Island, Ontario. They bring landowners, farmers, fisherman and the general public together in a community-driven initiative to rehabilitate streams rivers and creeks for the sake of water quality and the fisheries resource on Manitoulin Island and the Great Lakes.

¹ Chapin III, F.S., G.P. Kofinas, and C. Folke (eds.), 2009. Principles of ecosystem stewardship: resilience-based natural resource management in a changing world. Springer-Science, New York, NY.

² Fisheries and Oceans Canada, Stewardship and Community Involvement – Supporting community programs and initiatives (www-heb.poc.dfo-mpo.gc.ca/community/programs_e.htm)

³ Stewardship Canada – Supporting a stewardship and knowledge network (www.stewardshipcanad.ca)

⁴ Manitoulin Streams Improvement Association (www.manitoulanstreams.com)

Stewardship Principles

Most of our ecological systems are disturbance-adapted systems. Competition within and between species, and natural disturbance regimes of fire, insects, disease, wind, flood, and herbivory creates mosaics of vegetation cover and structure that change over time and space. The native biological diversity of the landscape is adapted to these dynamics. In this context, habitat diversity is important. The alteration of disturbance regimes (through the control of disturbance or resource use) can lead to a simplification of vegetation patterns and riparian systems, which may impair watershed functions and jeopardize the persistence of many native species. Processes which result in simplification increase the risks for larger-scale disturbances (such as uncontrolled fire, insects and disease outbreaks).

A convenient unit by which we can locate our ecosystems and landscapes is the watershed. Every part of British Columbia is part of one particular watershed or another. In terms of watersheds, stewardship principles provide a framework to exercise continuing responsibility for maintaining and enhancing watershed conditions. In some areas, restoration is needed to re-establish both structure and function within the watershed. These principles guide the development of specific management recommendations, and facilitate the collaborative efforts already taking place in the community.

Stewardship efforts should be guided by the following principles:

- Begin with analysis of the current and historic ecological conditions at the watershed level – ridge-top to ridge-top, headwaters to outflow.
- Incorporate the social, cultural, and economic and land-use dynamics of the community.
- Maintain spatial and temporal patterns of species composition, structure, and seral stages which are within the natural range of resiliency for the landscape.
- Address not only the symptoms, but also the causes of habitat loss and modification which exceed normal ranges and cycles for these disturbance-adapted systems.
- Avoid strategies likely to entail recurring high maintenance costs.
- Define clear, achievable and measurable management objectives.
- Use adaptive and flexible management which is supported or modified by feedback from monitoring – with multi-party monitoring programs being an important tool for collaborative processes on public lands.

Stewardship Science – Extension is the Key

The local stewardship efforts should support the kind of practical science and extension which can, for example, help farmers develop environmentally and economically sustainable systems of food and fiber production. Citizen-based science that takes a holistic approach to helping balance production with stewardship can provide some exciting innovations in agriculture:

- Developing a monitoring tool box as a comprehensive resource for farmers and other land managers who want to monitor the impacts of various land uses on everything from water quality to a family's quality of life.
- Producing and distributing pamphlets and developing web sites describing how sustainable farming systems can produce various public goods. The web site would include fact sheets, scientific papers, articles and reports.
- Providing tools to assist the restoration of a relationship between farming and the natural world which improves the sustainability of both.
- Providing other tools and resources for planning and managing farming operations utilizing holistic, whole farm approaches.

All of the above extension activities and products can be prepared for other resource-based industries (e.g., forestry, mining, and fish farming), service industries (e.g., gas stations, garages, recycling depots), and sectors of society (e.g., economic developers, community planners)

Stewardship Responsibilities

Community-based stewardship programs cannot succeed without complete community participation. Stewardship is not only about ecosystem protection and conservation but it is also about (i) utilization of our natural resources more effectively and efficiently, (ii) reduction of our rates of consumption and waste production, (iii) supporting local industries, businesses and community groups, (iv) becoming more energy smart and self-sufficient, and (v) creating clean communities. In order for a culture of stewardship to evolve, there must be complete community buy-in.

The resource-based industries, the manufacturing industries, the retail and merchandizing industries, the service industries, local neighbourhoods, and rural residents, for example, all have a role to play. The following principles of responsibility are intended to guide development of product stewardship policies and legislation that governs multiple products. It is primarily aimed at provincial legislation but is also intended as a guide for local and federal policy.

Industry: Industry and business responsibilities are critical, and include the following:

- All resource industries utilizing natural capital are responsible for designing, managing, and financing a stewardship program which addresses the lifecycle impacts of their activities and products, including end-of-life management.
- Producers have flexibility to meet these responsibilities by offering their own plan or participating in a plan with others.
- In addressing end-of-life management, all stewardship programs must finance the collection, transportation, and responsible reuse, recycling or disposition of covered products. Stewardship programs must:
 - cover the costs of new, historic and orphan-covered products; and
 - provide convenient collection for consumers throughout and between the communities.
- Costs for product waste management are shifted from taxpayers and ratepayers to producers and users.

- Programs are operated by producers with minimum government involvement.

Shared Responsibilities: Some responsibilities have to be shared between various business sectors, governments, and consumers:

- Retailers only sell products from producers who are in compliance with stewardship requirements.
- Provincial and local governments work with producers and retailers on educating the public about the stewardship programs.
- Consumers are responsible for using return systems set up by producers or their agents.

Governance: There is an important role for governments in successful community-based stewardship programs (especially local and regional governments, and the provincial government):

- Government sets goals and performance standards following consultation with stakeholders. All programs within a product category are accountable to the same goals and performance standards.
- Government allows producers the flexibility to determine the most cost-effective means of achieving the goals and performance standards.
- Government is responsible for ensuring a level playing field by enforcing requirements that all producers in a product category participate in a stewardship program as a condition for selling their product in the jurisdiction.
- Product categories required to have stewardship programs are selected using the process and priorities set out in framework legislation.
- Government is responsible for ensuring transparency and accountability of stewardship programs. Producers are accountable to both government and consumers for disclosing environmental outcomes.

There will be a limited role for the federal government with particular reference to exports and trade, cross boundary waterways, and off-shore activities.

Community-based stewardship programs will mean greater responsibility for land and resources most community members have never seen or used. Such responsibility does not connote ownership. Stewards are not owners – they are caretakers, in this case, working to an ecological agenda as opposed to an economic or industrial agenda. Stewardship responsibility can mean greater if not complete local control of the natural capital in the relevant watersheds. Again, control does not connote ownership – it means ecologically effective local governance for the benefit of the natural capital and human/social capital in the community and its surrounding rural areas.

Financing: Producers finance their stewardship programs as a general cost of doing business, through cost internalization or by recovering costs through arrangements with their distributors and retailers. End-of-life fees are not allowed. Costs for product waste management are shifted from taxpayers and ratepayers to producers and users.

Environmental Protection: Environmental protection rules are an integral part of a successful community-based stewardship program:

- Framework legislation should address environmental product design, including source reduction, recyclability and reducing toxicity of covered products.
- Framework legislation requires that stewardship programs ensure that all products covered by the stewardship program are managed in an environmentally-sound manner.
- Stewardship programs must be consistent with other provincial sustainability legislation, including those items which address greenhouse gas reduction and the waste management hierarchy.
- Stewardship programs include reporting on the final disposition, (i.e., reuse, recycling, disposal) of products handled by the stewardship program, including any products or materials exported for processing.

Why ‘Culture’ of Stewardship

The unique feature of the changes described above is that they are directional. In other words, they show a persistent trend over time. Many of these trends have become more pronounced since the mid-twentieth century and will probably continue or accelerate in the coming decades, even if society takes concerted actions to reduce some rates of change. This situation creates a dilemma in planning for the future because we cannot assume that the future world will behave as we have known it in the past or that our past experience provides an adequate basis to plan for the future. This issue is especially acute for the sustainable management of natural resources. It is no longer possible to manage systems so they will remain the same as in the recent past, which has traditionally been the reference point for resource managers and conservationists. We must adopt a more flexible approach to managing resources – management to sustain the *functional* properties of systems that are important to society under conditions where the system itself is constantly changing. Managing resources to foster resilience – to respond to and shape change in ways that both sustain and develop the same fundamental function, structure, identity, and feedbacks – seems crucial to the future of humanity and the Earth System. *Resilience-based ecosystem stewardship* is a fundamental shift from steady-state resource management, which attempted to reduce variability and prevent change, rather than to respond to and shape change in ways that benefit society. ‘Resilience’ must be emphasized as a concept which embraces change as a basic feature of way the world works and develops, and therefore is especially appropriate at times when changes are a prominent feature of the system.

A systems perspective provides a logical framework for managing changes in social – ecological systems. The dynamic interactions of ecological and social processes that characterize most of today’s urgent problems necessitate a social – ecological framework for planning and stewardship. Any sustainable solution to a resource issue must be compatible with current social and ecological conditions and their likely future changes. A resource policy that is not ecologically, economically, and culturally sustainable is unlikely to be successful. Sustainable resource stewardship must therefore be multi-faceted, recognizing the interactions among ecological, economic, and cultural variables and the important roles that past history and future events play in determining outcomes in specific situations. In addition, systems undergo cyclic changes in their sensitivity to external perturbations, so management solutions that may have been successful at one time and place may or may not work under other circumstances. The complexity of these dynamics helps frame the types of stewardship approaches that are most likely to be successful.

It is unlikely that a rigid set of rules will lead to successful stewardship because key decisions must frequently be made under conditions of novelty and uncertainty. Moreover, under current

rapid rates of global environmental and social changes, the current environment for decision-making is increasingly different from past conditions that may be familiar to managers or the future conditions that must be accommodated. The more rapidly the world changes, the less likely that rigid management approaches will be successful. By considering the system properties presented above, however, we can develop resilience-based approaches that substantially reduce the risk of undesirable social – ecological outcomes and increase the likelihood of making good use of unforeseen opportunities. This requires managing for general system properties rather than for narrowly defined production goals.

Because our future on the planet involves some considerable life-style changes, we cannot look upon stewardship as a ‘nice-to-have’ phenomenon, as we have seen with the on-again, off-again nature of past stewardship and sustainability programs in British Columbia and Canada. Stewardship and sustainability must become a philosophy engrained in our way-of-life, much as it was for the generations of First Peoples and for the settlers who arrived over the past 200 years.

Compiled and synthesized by:

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