

# Appendix I

## Additional Information on the True-Cost Economy

**Economic/Ecological Context:** In the early 1990s many social movements were becoming aware of a historic restructuring of global economics that came to be identified as “**corporate-led economic globalization**”. The anti-globalization movement, a family of social movements, emerged. Some media outlets started highlighting the down sides as well as potential benefits of globalization. Yet, industrial civilization’s ecological and social catastrophe steamrolls forward. A major cause of the catastrophe remains ecological illiteracy, the globalization of markets, and unconstrained economic growth. The economic system actually fosters and profits from pollution of the commons. It has exterminated many indigenous cultures while promoting a diversity-destroying monoculture among the rest of humanity. The continued degradation of ecosystems, along with rapidly increasing climate chaos from greenhouse gas buildup, threatens future generations of virtually all life forms.

**Inadequate Response:** Social movements as well as some business leaders and elected officials are championing solutions, yet problems worsen. Those seeking solutions have not effectively employed insights from economic ecology (also called ecological economics, but we prefer to have economics be the adjective and ecology the noun). A more rigorous analysis of the economic growth imperative and the industrial model itself has finally started. Where do we want and even need growth? Where is growth killing us? We need selective growth and selective degrowth. This gets beyond the dumb “growth or no growth” faceoff.

**System Adjustment Opportunity:** Economic theory says that when an individual’s choice damages other’s interests, that damage should be reflected in the price they face. The era of climate instability and extreme weather events, the end of cheap energy, other resource depletion, and various forms of economic downturn, while tragic, also provide windows of opportunity. Such problematic events stimulate popular concern and hence kindle the political will to restructure economic rules. Thoughtful preparation and campaigning for economic incentives, true-cost pricing, ecological design, fair distribution, carrying capacity scale, and genuine economic development (where the benefits actually exceed the real costs) will help turn the tide of human civilization. In a sensible economy, the ecologically cleanest goods and services would be the cheapest ones.

The rise of a new ecological economic paradigm (economic ecology), including awareness of regional carrying capacities (scale), just distribution, and the (cleanest is cheapest) true-cost pricing system, would be as historically significant as any since the advent of the industrial revolution. This economic system would function more like a barter market system in its allocation of goods and services. Yet, this economic system could halt the shredding of the web of life – a web that supports us all.

Among other things, the new economic system needs to increase incentives, cut perverse subsidies, and institute “Internalization by Design” at the front end of the extraction/manufacturing process. This will move society toward a more steady state economy. We must launch a major media campaign. We need to commit resources commensurate with the task at hand. Done right, this would cost millions of dollars annually and should be thought of as a 25-year effort. Done right, the production of goods and services and the use of energy will become ethical and sustainable. Done right, this will increase societal happiness as we construct a better ecological and economic contract with future generations.

*Indigenous societies were never based on market economies but on a mix of reciprocal service and exchange, redistribution of resources, and gift-giving in local situations. These societies based their economic behavior on the archetypal patterns of the natural systems around them. To survive we must follow their lead without delay.*  
-- Andy Kimbrell

## **RETHINKING THE LOOK OF A TRUE-COST ECONOMY**

- There is a *new meaning of “money”* (or tools of exchange) – The current economic system is largely run by fiat money, money that is not backed by anything, other than by government decree or speculation, money that is often not worth the paper it is printed on. In order for the current economic system, (i.e., the Western capital market system) to survive, the money supply has to grow continuously, so people have to consistently consume more, steadily produce more and always use more natural resources. It puts nature up for sale. It makes more and more of nature a marketable commodity. This is not sustainable. As the industrial economy destroys the planet’s ecological systems and the fabric of humanity, it leads to wars for control of natural resources and control of people. This leads to modern slavery, to abject poverty, and to extreme injustice.
- Imagine that *the new socioeconomic system uses “no-growth-money”* – The new system employs tools of exchange that are in sync with nature, based on reciprocity, gift giving, and cooperation. Likewise, labor will be transformed into a tool of exchange that promotes societal well-being, equality and justice – always within the norms of a sustainable ecosystem.
- This implies a *change in lifestyle, education, and thought* – It requires a move away from the “me” syndrome and toward the “we” notion, abandoning the current growth fetish that strives for ever-more material goods and beginning what some call horizontal growth or steady state economy that allows everybody a seat at the table, reinventing and living the concept of synergy. It necessitates that all people know the basic principles of ecology and how nature works – ecoliteracy. Nature will no longer be seen as a special interest, but that which nourishes all things.
- The *bottom-up mobility* - Associability in groups, cooperatives and associations will become a new precondition of informed democracy. It will replace the top-down, supply-driven approach to societal structure, where the citizen waits passively and in isolation (in front of the TV) for the “market to happen” – for the leftovers and crumbs from the rich to trickle down to the poor. The new societal thinking will be based on individual cooperation, associative cooperation, and reciprocity – and always, always respect nature’s ways.
- Reinventing and actually living the *principles of “Small is Beautiful”* – Community-based, local production for local markets; trading within and among communities; new-style bartering without the traditional growth concept inherent to today’s money; and trading values for values, satisfying real needs rather than inventing new ones will become the tenants of this work.
- *A new system of life values and well-being indicators* away from growth and GDP – The yardstick of societal well-being will change. The new parameters will measure levels of public health and education, standards of nutrition, housing, intra-societal and gender equality, use of renewable resources, use of non-renewable resources, the degree of local self-reliance, and the success a closed-loop, zero-waste sustainable production and consumption system. There will be indicators of environmental protection, society’s capacity to resolve conflicts, and more.
- *True-Cost Economics emerges* as the system of long-term choice – Externalizing social and ecological costs for personal or corporate profit – “*Cheater Economics*” – is largely a thing of the past. The ecologically cleanest things are the cheapest. New oversight agencies, populated by excited young people with a merged mindset of conservation biology and economics, ensure that the public understands what the regional carrying capacities are and further ensure that externalities are internalized. This new economic philosophy or discipline is called “*Economic Ecology.*”

## **ELEMENTS TOWARDS A NEW COMPREHENSIVE ECONOMIC MODEL:**

This campaign plan would highlight the basic tenants of an economic ecology including:

1. **The Big Rethink:** The design of macroeconomic systems and micro economic enterprises should mimic healthy native ecosystems in many respects: diversity, adaptability, resilience, local self-reliance, and thermodynamic efficiency. Think biomimicry for human communities. In this rethink, we need to address the “desirable ends” the economic system is supposed to address. We have to expand the “economic” perspective to realize economics is only part of the system that meets human needs, and that as part of a broader system it must support and contribute to that broader system, not detract from it as currently it does. We have to speak about more than economics.

2. **A Steady State Economy:** This is one where we set limits to production and consumption so that they are within the carrying capacity of biophysical systems. We would identify which ecosystem services should remain outside of the financial economy. We need to require markets<sup>2</sup> to be run with full information and be genuinely competitive with no dominant players. We need to identify what products and services are a priority for economic activities (and not just focus only on whether all costs are internalized – i.e. how they are produced and priced. We need to ensure that economic activities satisfy basic human needs or common aspirations for everyone and not simply generate profits for the few.
3. **Subsidiarity, Ecological Literacy & Economic Democracy:** Economic systems are embedded in ecological, cultural, and political/legal systems. The ways & laws of embedded systems must be synchronized increasingly over time. The principle of subsidiarity, practiced well, has two key components
  - Ecologically literate people at all levels remain cognizant of the needs of the whole such as carrying capacity.
  - Economic decision-making should take place at the community or municipal level wherever feasible, and then proceed upward to the county, state/provincial, regional, national, and international levels. Relocalization is a key component of a new ecological economics paradigm. Starting from the bottom up we must replace the macroeconomic institutions and infrastructures that support the globalized system we now have. Refocusing on localization and what it has to offer can be made attractive to people in a way that discussing macroeconomic issues may not. Show how localization helps achieve fair distribution.
4. **Fair Distribution:** A holistic approach to the ecology and economy must also consider social equity and fair distribution. Foster the pursuit of well being for all. The taxation system should enhance equity and reward hard work while limiting the propensity of the well-off to have an excessive ecological footprint. Imagine a “World Bank of Over-consumption Reduction”. Think inter/intragenerational equity. Think localization.
5. **Internalization by Design:** Virtually all environmental and social costs of economic activity must be accounted for. This can best be accomplished by initially designing our economic activities to acknowledge all social and environmental costs, and engaging in activities where the benefits clearly outweigh the costs. This is internalizing externalities at the front end. Internalization by Design is done within a broader context of optimal scale (below) and fair distribution. It also has to be done with considerable humility, as we know so little about the ecosystem services nature provides for us – it is difficult to foresee (and cost) the unintended consequences of our economic activities – thus, we need some general principles to keep us within optimal scale – precaution is key; avoiding irreversibility is also critical.
6. **Optimal Scale/Carrying Capacity through Localization:** The key is to minimize or limit physical material throughput to a scale that ensures a safety margin for critical ecological functions (services). Wood fiber should not foster deforestation. Acknowledging biophysical limits brings equity issues to the foreground – equity requires sharing what is available, not more growth. Local/regional emphasis would be under the scale tenant. With localization, the production feedback is right in front of you. Do it poorly and you foul your own nest, not another’s elsewhere on the planet. Drastic demand reduction through lifestyle changes and other mechanisms must occur in industrial polluting, over-developed, and wasteful countries. A quick 50% reduction would not have to reduce quality of life and could improve it. Conservation biologists must help where market signals fail to show the worth of ecosystem life-support functions. This is easier to do when emphasizing localization and appropriate trade rules (see below).
7. **Selective Degrowth/Genuine Economic Growth:** Redirect the economic system’s overall objectives to be qualitative development in community rather than growth in production and consumption of goods and services. Much of what passes for growth is currently “uneconomic,” because the real environmental and social costs are externalized, producing more “bads” than “goods.” What is needed is economic activity that ensures the actual benefits to all parties exceed the costs. This is sometimes referred to as horizontal growth – bringing about socioeconomic equity in terms of humanity, but also in sync with nature. A focus on ecological and human well-

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<sup>2</sup> *Note: The ‘market’, as we now know it, would not likely bring fairness, even with all the parameters of ecological economics as it would seek out ‘economic distortions’ to circumvent ecological considerations. Humans have created financial markets – not by nature. Markets are bound to the growth syndrome. Nature is not. Nature is about exchange, reciprocity, giving, receiving – about cyclic equality. Modern markets are about inequality, because every exchange has to contribute to growth; exchanges are un-equal when dictated by markets, someone profits while someone lose.*

being, hand in hand with reasonable business benefits<sup>3</sup>, is essential. Think local – people know these things and they are easier to understand at a local level – easier to design and manage. Here is where true costing is useful along with a process to ensure the externalities are not displaced elsewhere. The use of general principles is superior to detailed cost accounting as it is too complex and often costly.

8. **Acknowledging Our Ignorance.** Sustainability is about preserving the functions of complex ecosystems (especially large wild systems) which we are only beginning to understand. We know our well-being is dependent on these ecosystems and preserving them is both a survival and a justice issue. The Precautionary Principle, where potentially cataclysmic consequences may occur, must play a primary role in protecting us from engaging in activities that will inadvertently damage our life support systems. Avoid irreversibility.
9. **Technology & Production:** Sustainable Business Practices should become the regulated standard. Sustainable businesses only produce goods that are either reusable, recyclable, or compostable; they strive to optimize the ecological and human well-being from every resource used (maximum resource productivity, including from energy), strive for zero waste, imitating nature, and to restore degraded ecosystems rather than continuing to contribute to that degradation. Envision a closed-loop zero waste production and consumption system. Envision the precautionary principle as a major part of technology policy. We need to go beyond sustainable business's focus on how things are produced and talk about what is produced, and for whom, especially as net energy declines with the peaking of fossil fuels. We have to be much more conscious of what we are using energy for, and we need to set priorities on real goods that actually contribute to quality and equality of life for everyone.
10. **Tax shifting:** Ensure the taxation system rewards sustainable behaviors and choices, and dissuades choices that are harmful to people or the planet. Externalities can be both negative (carbon emissions damage) and positive (riparian zone restoration). Taxes and subsidies are the primary policy mechanisms for discouraging the former and encouraging the latter. The campaign should reflect a few high profile fee/taxes (carbon, waste stream) and subsidies (green building, biodiversity preservation) to promote by sorting the relevant prices, mechanisms, and processes. A carbon pollution fee/tax is probably the most feasible. Leadership on a carbon pollution tax campaign is there for the taking right now. Regulations must also play an important role.
11. **Maximum Wage/Income Law:** Excessive personal or company earnings above a democratically established maximum would, for example, fund restoration of the planet's damaged life support systems. When we have genuine competition – i.e. lots of smaller (localized) firms and no dominant corporations, then excess profits would likely decline significantly. Encouraging genuine competition may be better route than maximum wage or income laws. This needs to have more thought put into it.
12. **Depletion Protocols & Reinvestment of Windfall Gains:** Depletion of oil, natural gas, groundwater, and minerals should be an orderly phased-out process established by international protocols that limit windfall gains by redirecting unnatural profits towards genuinely renewable alternatives. Some rationing is justified when the planet's life support systems are under threat.
13. **New indicators or Genuine Progress Accounts:** Indicators of economic performance as well as ecological and human wellbeing –for example the GPI (Genuine Progress Indicator), Gross National Happiness Index, or ISEW (Index of Sustainable Economic Welfare). Alternative economic accounting systems can take into consideration benefits associated with volunteering, higher education, housework, and public infrastructure as well as costs associated with lost forests, farmland, and wetlands, pollution GHG emissions disappearing family time, and capital exported abroad. We should engage in a crash course to develop credible global, national, and sub-national accounts of this sort as our official economic yardstick and to serve as the basis for economic policy decisions and analyses. We should start with relocalized economies, encourage them to develop their own indicators, and build up the larger measures.
14. **The Value of Things:** Another important consideration for a True Cost of Economy is the value of things as they relate to our money, our monetary system. The value of things as expressed in our monetary terms is always related to scarcity. If something is not scarce, it doesn't have a value – it costs nothing. Manipulators often create an artificial scarcity, so that the commodity or service will acquire a value and can be sold a handsome profit. This system is so ingrained in our thinking that it is hard to imagine a different world. Hence, things vital for our lives, like drinking water, clean air, fertile soil, or care for another human being have only a monetary value to the extent that they are scarce. As we can already see, the pollution of water or continuously limiting and shrinking the amount of drinking

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<sup>3</sup> Note: 'Profit' should be converted into benefits – a term that can be applied to people / societies, as well as to nature, while 'profit' fits more into the individual and corporate thinking (i.e. 'one-gets-more-than-the-other').

water available already makes water suddenly precious, privatizable, and marketable. What is in the commons becomes a commodity that can be sold for a profit. These monetary values are “enclosed values”, values captured and controlled by the banking system. When earlier societies and to a large extent still indigenous people were using barter as a way of valuing goods and services there was no bank to tell one farmer how much money he was supposed to pay for a bag of rice. The value was reciprocity. He obtained the rice he needed to feed his family by providing another good or service, which for the farmer, who gave him the rice, was also valuable at the time – perhaps fixing his shoes or hunting implement. This barter system based on reciprocity can be expanded by the issuance of “value notes” or currencies that can be used when the service or goods are needed. They are not controlled by a bank, but merely by the community. This new type of currency does not pay the electricity bill during the transition economy, but it reduces the monopoly of banks over the value of money and our dependence on the traditional money. Such movements exist already worldwide. Establishing a network of alternative systems to convey lessons learned and foster solidarity among alternative money users is already underway (<http://newcurrencyfrontiers.com/Welcome>).

15. **Public Procurement and Investment:** While it may not be possible to quickly set up global, national, or even sub-national institutions to require internalization of costs for every good or service or administer a “genuine net benefit” test, much can be accomplished through reform of public procurement and investment guidelines. Such guidelines could include stringent life cycle assessment requirements and other requirements for economic, environmental, and social sustainability. Focus on localized activities that increase self sufficiency – not export driven profit making activities]
16. **Informal Economy:** The formal, cash-based economy is only one aspect of the global economy. According to recent figures from the IMF, the value added by the informal (non-cash) economy had reached a “remarkably large amount” – up to 44% of GDP in developing nations, 30% in transition economies, and 16% in OECD economies. The informal economy of Italy recently accounted for 1/3 of GDP. Generally Italy’s economy does better (most of the time) than that of other EU countries under stress. Since so much environmental degradation is caused by profit seeking behavior in the formal economy, bolstering the scale and scope of the informal sector by promoting institutions that can be sustainable in this realm (i.e. cooperatives) may be a key strategy to consider. Note: Informal economy can also be environmentally destructive and unjust. Perhaps thinking of it in terms of social capital will help. Certainly the cooperative is one structure that does this; so are employee owned operations, and even publicly owned ones – again, all largely local. Cooperatives are a long forgotten economic tool that enhances solidarity. Cooperatives could deserve a special section – they are a key way of thinking about alternative economic systems, especially in the context of local production for local consumption.
17. **Trade Principles:** Before engaging in trade from long distances, attempt to meet needs locally. Focus on essentials that contribute to basic human needs or common aspirations over luxuries. Define and ensure all trade is “fair trade”. This is not meant to be isolationist.
18. **Other?**

### **TECHNIQUES TO INTERNALIZE ECOLOGICAL EXTERNALITIES:**

Basic ways to internalize externalities include:

1. **Eliminate Perverse Subsidies:** Eliminate existing subsidies which contribute to social and environmental costs being externalized. Cutting government subsidies to polluting industries (ex. oil, gas, industrial agriculture, nuclear or coal fired power plants, and now ethanol as well).
2. **Government Regulation requiring *Internalization by Design*:** Government regulation to require all goods and services to demonstrate, that throughout their Life Cycle they provide a genuine **net** benefit to ecological & human well-being. As *Internalization by Design* is implemented, industries can choose how to deal with their existing externalities – let them decide than over regulating. One way to foster forethought or front-end analysis is to incorporate the principles of ecological economics into social, economic, and environmental impact studies. This can be done at city, state/province and national levels with amendments to policies such the US’ NEPA (National Environmental Policy Act) and California’s CEQA laws.
3. **Government Pollution Regulation:** Regulating pollution such as scrubbers on smoke stacks is a way to force internalization. Where externalization is not allowed in the first place, such regulation becomes unnecessary. Note: It is probably best to set strict standards and let businesses make their own decisions about how to meet those standards.
4. **Government Regulated Externalization Fee Assessment:** Assess a “sin” tax on externalities at the front end of extraction/manufacturing. If we aren’t going to ban the extraction of non-renewable resources, then we

should at least have an escalating sin-tax. This is internalizing externalities (i.e. polluter pays principle). This sends the right price signal to the market that certain business activities are losers over the medium and long term. Fees can also be assessed for activities which degrade or place burdens on ecosystems. Fees can increase over time to allow companies time to adjust and to improve environmental protection. Such taxes may only be needed as an intermediate step when *Internalization by Design* is implemented. Note: We should ban most non-renewable resource extraction, and make provisions to find renewable substitutes for the ones that are most crucial to our short term well being; emphasizing recycling as a means of leaving virgin resources intact is also important – comes back to the design issue – design for recycling makes it more feasible.

5. **Valuing Priceless Ecosystem Services (or not):** This is a controversial method some favor. *Note, we prefer to call them ecosystem functions.* Encouraging payments for ecosystem functions (services) is a technique for “making the priceless financially valuable” such as watershed services, carbon sequestration, fisheries stocks, etc. We see the polluter pay principle and putting a price on ecological externalities as the better technique. It is better to commodify pollution and not nature.
6. **Unanticipated Negative Consequences Bond:** Another option to taxing is a bond that a company would have to post to ensure that unanticipated negative consequences did not occur. This would help them internalize the precautionary principle and take it seriously.
7. **Certification Systems:** Independent certification systems such as the Forest Stewardship Council, organic agriculture, fair trade internalize some externalities and can be helpful, especially as monitors. The big change has to come from something like *Internalization by Design*. Note: We do not favor after the fact reviews. The criteria need to be built into the original designs, with high transparency and an adequate community review process and a local orientation.
8. **No Net Loss provisions:** Yet another way to internalize is to ensure that as much or more habitats are “replaced” when another area is degraded or destroyed. Under Canada’s fisheries policy, there is a no net loss requirement, whereby if a project destroys fish habitat, measures must be taken “replacing the loss of fish habitat with newly created habitat or improving the productive capacity of some other natural habitat” [Note: The data must be studied as the impact of such provisions is questionable. We generally don’t know how to “replace” such loss because we mostly don’t quite understand all the implications of the loss. Better to put the emphasis on not creating the loss in the first place – better to error on preservation side. When tradeoffs are done, a two or three to one ration is worth considering.]
9. **Structure of the Law:** Legal systems must allow for internalization mechanisms. An economic system needs to be embodied in a public governance system that allows citizens to mandate internalization. This should include binding laws where citizens can say no to companies, projects or products that are insufficiently internalized. This includes international law and WTO type rules. In a redesigned True Cost Economy there would not be a WTO because it is one of the most nefarious of organizations with negative environmental impacts all around the world. Ensure agreements allow governments to impose tariffs on imports that do not meet required norms for resource stewardship and environmental protection and labor practices. For example, trade sanctions against any nation that does not institute an *Internalization by Design* program would be a strong measure. We need a new system of jurisprudence where nature is not just property, but has innate rights and it is illegal to kill the planet’s life support systems. Consider that corporate charters should only be awarded and renewed only if certain environmental and social goals are met. Such charters also could require meeting certain conditions that justify a corporation of a given size. The onus should be on the applicant to justify the need other than large profit. How does it contribute to the “desired ends” in a way that no other smaller operation could?
10. **Voluntary:** Voluntary efforts such as a company deciding to not dump chemicals into the local river and pay for proper disposal or pollution reduction technologies. This can be supported by government requiring disclosure of pollution emitted and resources consumed in annual reports filed with security exchanges. Voluntary efforts are nowhere near adequate, but can highlight what can and needs to be done. Note: In Japan what has been demonstrated as a “best practice” through voluntary means must later come into regulation as a requirement.
11. **Other?**

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