Where We Meet Nature:
Two Options for the Development Agenda

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Good morning ladies and gentlemen on this Mother Earth Day. Thank you for this opportunity to address this prestigious body.

Please allow me to start with two analogies to frame this talk.

A colleague of mine in the biology department tells me that our individual body's connection to the environment, where our physiology meets Nature, is through the endocrine system – the system where hormones naturally occurring in the blood system communicate with cells in our body and trigger specific reactions to grow, divide, or die. Toxic pollutants, such as DDT, PCBs, POPs, and dioxins, mimic or block the effect of hormones on human cells. They either impede communication with the cell or they trigger the cell to grow, divide, or die. The risk of endocrine disruption is a function of the amount of toxins in the environment and lifestyle choices, or how we live. Science is helping us realize that our bodies are literally coupled with the environment, something we often overlook when it comes to development options.

But similarly, in the context of sustainable development, where humanity meets Nature is through the economy. If we reduce the economy to its bare essentials, we can imagine the business and consumer sectors exchanging payments for goods and services, and labor in exchange for wages. Economic growth is the increase in these exchanges. But the economy of course does not live in isolation; other flows are needed for a more complete picture. There is a larger, greater system that sustains the economy. The economy's relationship with Nature is one of parent and sub-system. The parent is regenerative but non-growing; the sub-system pursues growth often without any other consideration.

As we struggle to find development options that are in harmony with Nature, there are at least two important strategies that can be identified from these analogies. The first can be considered a top down strategy to identify environmental thresholds and the second a bottom-up strategy to identify cultures that avoid reaching beyond environmental limits. I will take these in turn.

A Top-Down Option for Sustainable Development

First, we must acknowledge that along with creating wealth, economic growth also produces its opposite – illth. When the production of illth is as great as or greater than wealth, growth becomes, as Herman Daly has said, non-economic. Illth comes in the form of environmental pollution, degradation, and risk. Science can help us identify the production of environmental illth in relation to our economic system.

A particularly effective field of study in this regard is sustainability science. Sustainability science can provide efforts to achieve sustainability a solid analytic and scientific grounding. The field is young, a decade old, but it is established at places like Harvard University and in journals, such as the Proceedings of the National Academies of Science. A large part of sustainability science is focused on establishing the limits or thresholds in the environment under which economic activity can operate without eroding the resilience of the Earth, or what Oxfam International has called, "A Safe and Just Space for Humanity."[1]

More specifically, Rockström et al. attempt to compile "the pre-conditions for human development" using nine ecological thresholds that can serve as targets for decision makers.[2] You can see here they estimate we have already exceeded three thresholds, and two remain un-quantified.

When scientists frame their findings in a format that allows decision makers to assess risk, such as the famous "burning embers" graph[3] for climate change, science is more useful to achieve sustainability. Sustainability science works on identifying environmental limits so that policy makers can develop mechanisms to maintain economic activity under those limits. Sustainability science is inquiry with intent; an interdisciplinary field targeted at solving the problem of sustainable development.

A Bottom-up Option for Sustainable Development

A second consideration of our relationship with Nature as parent and sub-system is that Mother Earth is finite and mothers, as we all know, impose limits. Here I focus on mature cultures that avoid exceeding limits. The good news is that they exist now, have existed for a long time, and are already sustainable. The symbiotic relationship between ancient civilizations and indigenous cultures with Nature has been recognized by this body.[4] They offer a bottom-up approach to development that is promising to living in harmony with Nature.

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[1] Raworth, Kate. 2012. "A Safe and Just Space for Humanity: Can we live within the doughnut?" Discussion Papers, Oxfam International.
[2] Rockström, Johan, et al. 2009. A Safe Operating Space for Humanity. Nature **461**: 472-5.
[3] Smith et al. 2009. Assessing dangerous climate change through an update of the Intergovernmental Panel on Climate Change (IPCC) "reasons for concern." Proceedings of the National Academy of Sciences **106**(11): 4133-7.
[4] UN resolution 65/164. Preamble.

I would like to focus on what I have learned with my research with indigenous subsistence villages in Alaska, villages being impacted by rapid climate change. We have been studying two villages – Savoonga and Shaktoolik – that exemplify this second point.

These subsistence cultures are drawn from the land, … from which they not only gather food, but identity and meaning. These cultures live within the limits of Nature. Subsistence activities are dictated by the cycles of Nature, its seasons, its migrations of fish and caribou, the blooming of tundra greens. This cyclic phenology represents their budget which they know through traditional knowledge. They respect ecological thresholds, already knowing what sustainability science discovers. Subsistence is a home economics system embedded in the land. They are economically rich as long as their land is abundant and accessible. Subsistence economics means independence, autonomy, self-sufficiency, non-expansionism, and being self-reliant.[5] They are prime examples of living in, not just promoting, harmony with nature as stated in paragraph 39 of the Rio+20 outcome document, *The Future We Want*. Their traditional knowledge and cultures "are something for the future, not the museums."

Sustainability is embedded in the languages of subsistence cultures. For example, while Sami reindeer herders do not have a term for sustainable development, they live by a different term, *ealát*, meaning life coupled with reindeer and grazing plants. The term means living as one unit in concert with Nature. It has proven to be a resilient strategy. Their traditional knowledge and cultures "are something for the future, not the museums."[6]

To a large degree, however, the purpose of the development agenda, not unlike its predecessor colonialism, has been to supplant subsistence; it is what we want to avoid. Subsistence is often seen as regressive; perhaps an ideology for Luddites or a temporary escape for hippies.

But listen to some of its main features found all over the world, some of which can be found in the *Harmony with Nature* initiative:[7]

- Subsistence cooperates with Nature;
- The impacts of technology are short-lived and allow Nature to recover;
- Its economy is seen as a subsystem of the environment and society;
- Its markets are decentralized, localized, or regional with a diversity of products;
- Its production is for exchange, barter, or direct use; and
- Subsistence economies are often long-established local economies, something municipalities worldwide are attempting to establish.

[5] Quoted in Bennholdt-Thomsen 1999. The Subsistence Perspective: Beyond the Globalised Economy. Zed Books: London, p. 138.

[6] Vladimir Sangi, Saami reindeer herder presenting at the 2013 Arctic Science Summit Week in Krakow, Poland on April 18, 2013.

[7] Adopted from Bennholdt-Thomsen, Veronika and Maria Mies. 1999. The Subsistence Perspective: Beyond the Globalised Economy. Zed Books: London, pp.62-3.

The ultimate goal of subsistence is the production and regeneration of life. In fact if you were to look at the 4th or 5th definition of subsistence in the dictionary, you will find it means life.

The Inupiaq of Shaktoolik wrap these characteristics into values that flow through their culture and the education of their young (Box 1).

Box 1: Inupiaq values from a poster in Shaktoolik, Alaska

Every Inupiaq is responsible to all other Inupiaq for the survival of our cultural spirit, and the values and traditions through which it survives. Through our extended family, we retain, teach and live our Inupiaq way. With guidance and support from Elders, we must teach our children Inupiaq values:

Knowledge of Language
Knowledge of Family Tree
Sharing
Humility
Respect for Others
Love for Children
Cooperation
Hard Work
Respect for Elders
Respect for Nature
Avoid Conflict
Family Roles
Humor
Spirituality
Domestic Skills
Hunter Success
Responsibility to Tribe

Sharing is particularly important to many subsistence cultures. Whether it is shelter, equipment, know-how, parenting, names, hunting spots, campsites, dances, songs, or food, sharing builds resilience with a durable safety net to draw on when needed. Sharing, especially in Savoonga, binds these communities together in to one super-household, a network of extended family and relations that acts as an insurance system, sharing benefits and burdens. A system you can tap in to when times are hard. A system that makes them more resilient and less vulnerable to the climatic changes they are facing. Sharing assures "that all community members [have] a minimal level of subsistence." For these reasons these cultural systems are often called the "moral economy."[8] The IPCC recognizes the importance of the moral economy in the context of adaptation to climate change:

> Although the concept of moral economy is generally associated with pre-capitalist societies and those in transition to capitalism (in the past), significant features of moral economy, such as reciprocity, barter, crop sharing, and other forms of cooperation among families and communities or community-based management of agricultural lands, waters, or woods are still part of the social reality of developing countries that cannot be considered anymore as pre-capitalist… [and] are still present… [and] remain important.[9]

[8] IPCC. 2012. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Cambridge University Press: Cambridge, UK, p. 309.
[9] *Ibid*., p. 309.

In fact anywhere the moral economy is diminished we are more vulnerable to climate change and more dependent on disaster relief making the impacts of climate change more expensive.

These networks of reciprocal kinship exist all over the world, and we are all within one or two generations of this mode of living. Many of us retain or have relearned elements of subsistence and, in my experience, many of our young people in this country are interested in this way of life. Communities all across this country are reclaiming their subsistence-like cultures, but they are hampered by, among other things, land-use regulations, health regulations, and restrictions to the commons.

Subsistence under threat

Viable subsistence or moral economies, however, are under threat. The IPCC goes on to point out that social security networks among pastoralists in Kenya or chiefs in northern South Africa once reallocated surpluses in times of need. Now with the introduction of the cash economy, surpluses are sold. Structures such as the *Suqe*, or "big men," of Vanuatu who accumulated "wealth" in the form of shell money or pigs donated to them assumed obligations that could be banked in time of need was abandoned with colonization and the introduction of the cash economy and religious conversion.[10]

The dismantling of these cultures in the name of economic development, or even well-intentioned sustainable development, can only, in hindsight, be considered mal-development. Mal-development takes many forms, laws, regulations, conceptions of progress, ignorance… Particularly harmful to Nature has been development where individual needs once determined by necessities are now determined by insatiable desires; for many people undergoing "development" the idea of needs, as Ivan Illich has written, has been transformed in to being needy with the expectation that unlimited wants must be satisfied.[11] Physical scarcity is no longer the limiting factor to this type of development, but arising because of unlimited wants. A development agenda focused on accumulation and growth reminds most of the people on the planet "what they are not."[12] That type of development devalues subsistence skills, tradition, wisdom, freedom, and knowledge, in fact redefines those skills as indicators of what they lack.

Mal-development in Alaska comes in the form of state and federal regulations that inhibit subsistence activities, especially for big game, such as musk ox, caribou, and moose, and increasingly so for fishing. Subsistence economies increasingly have to compete with commercial interests for these "resources."

In addition, climate change is exposing the costs of mal-development.

Traditionally people lived all along the coast and rivers near what is now the village of Shaktoolik. They lived where it was safe and they had access to plants and animals that provided for their needs. But their seasonally nomadic lifestyle was supplanted by permanent settlement.

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[10] *Ibid*., p. 309.
[11] Illich, Ivan. 1992. "Needs" in *The Development Dictionary*, Wolfgang Sachs (ed), Zed Books: London.
[12] Esteva, Gustavo. 1992. "Development" in *The Development Dictionary*, Wolfgang Sachs (ed.) Zed Books: London, p. 6.

In the name of assimilation, the federal government moved Shaktoolik to the coast in the 1950s so that staffing a school and establishing a post office could be done more easily. It now turns out they were placed in harm's way with storm intensity increasing in the Arctic with climate change. Traditionally known as a calm area, storms in 2005, 2009, and 2011 nearly wiped this village out. They need a road to higher ground, but do not have the resources necessary to build it. They cannot move on their own with the land tenure system established when Alaska became a state.

Why should Shaktoolik and subsistence cultures worldwide be preserved? They are hot-spots of cultural significance of how to live in harmony with Nature. They long ago acknowledge the rights of Mother Nature, her nurturing abundance, her structural integrity, and her limits.

Development agenda

Member states may wish to consider strategies that focus on where we meet Nature for the post-2015 development agenda. I encourage member states to:

1. Consider the emerging field of sustainability science in decision making. Specific outcomes could include establishing a network of information sharing of ecological thresholds among member states or asking that the next Global Environmental Outlook report assess the available sustainability science and frame the report accordingly; and

2. Enable and support those who are already living sustainably. Such an approach offers relief from trying to find a grand solution to sustainable development. It focuses on what is already working. Developed countries can take the lead in promoting and replicating subsistence communities in their own countries to help pull themselves back from over-stepping their limits. Sustainable cultures in developing countries can be held up as models for development. And this is not just a rural strategy. For example, urban neighborhoods all across the world are intentionally organizing their lives with the rhythms of Nature for food, energy, and their identity.

At a deep level, I think we all know how to live in harmony with Nature. Those that want to live this way now should be enabled, encouraged, and promoted.