

# **THE QUINARY ECONOMIC SECTOR: Linking Natural Capital, Stewardship and Economic Productivity**

## **A Draft White Paper for discussion**

### **Written by:**

**Aaron W. Perry**  
**CEO, Rocky Mountain Sustainable Enterprises**

By convention within our “dismal science,” the primary, secondary, tertiary and quaternary economic sectors describe four different ranges or components within a single spectrum of economic activity that “is seen as a continuum of distance from the natural environment.”<sup>1</sup> That is, where the primary sector, encompassing the harvesting and extraction of natural resources via agriculture, mining, fishing and fossil energy production is closest to the natural environment, the secondary, tertiary and quaternary are increasingly distant from the natural environment as they broadly encompass the manufacturing, service and information portions of our economy, respectively.

In different attempts to propose new economic thinking or to re-frame economic discourse, writers, economists, policy makers and business leaders have proposed a fifth, or “quinary” sector of the continuum to encompass any number of additional or previously undifferentiated economic activities. Most notably, some have suggested that the quinary could refer to the apex of decision-making elite throughout the business, government and institutional structures in our society, and others have suggested that the quinary relates to domestic activities and work generally under-accounted for in most conventional measures of productivity and economic activity.

However useful and even beneficial in the context of certain economic paradigms, policy discourses and business decision-making these uses of the quinary may be, they break from a certain logic that is otherwise consistent in the established uses of the primary through quaternary sectors. That is, they break from the linear/causal progression away from the natural resources that are the original value source exploited in the primary sector (to which value is added through processing and manufacturing in the secondary sector, and then further added through the service (tertiary) and yet again via the information (quaternary) sectors of the economy). Recognizing this general trend, a reasonably informed student of economics will quickly recognize that among the more advanced developed economies, greater percentages of the work force, and indeed greater portions of those economies’ productivity are concentrated farther away from the primary sector. Conversely, in less advanced, developing or under-developed economies, the concentration is closer on the continuum to the natural environment of the primary sector.

---

<sup>1</sup> Matt Rosenberg, “Sectors of the Economy” in About.com (1.29.09)  
<http://geography.about.com/od/urbaneconomicgeography/a/sectorseconomy.htm>

It is well established that the natural capital put into the economy for beneficial economic use via primary activities is done so through the deployment of human capital, intellectual capital (especially in terms of technique and the capital stock – machinery and equipment – we use to increase our per-person productivity), and, of course, the financial capital required to finance the fixed and capital portions of such value-delivery systems.<sup>2</sup> In the secondary sector human and intellectual capital is further leveraged on the natural capital (*à la* the neat models and arguments of Adam Smith) in transit across the continuum – increasing the total economic value to society (as specifically recognized and measurable in financial capital units).<sup>3</sup> The tertiary sector adds yet more to the value-chain through wholesale and retail sale of goods, along with many of the professional services and activities required to administer all of this within the rubric of our societies and economies.<sup>4</sup> Finally, the wizards of information enhance the overall productivity, capabilities and value-add potential within and among all of the sectors.<sup>5</sup>

Now where's the rub, and how does a new view on this accepted primary-quaternary value chain, point to a new quinary sector? Economics, policy and business frameworks have begun to rapidly evolve in the last decade to increasingly recognize and consider the value of the natural environment that is the source and basis of original value in the primary sector. In conventional frameworks generally used heretofore, certain types of *provisioning*<sup>6</sup> value from this inherent natural value (natural capital) is accounted for.<sup>7</sup> However, most of the inherent natural capital value, namely the other ecosystem services (supporting, regulating, cultural), hasn't been accounted for at all.<sup>8</sup> This conventional primary-quaternary system has also been insufficient by failing to include a mechanism for measuring the original potential, or principle value of natural capital undergirding the entire value chain, while focusing entirely on the increasing value-add as one transits the continuum. There has been a presumption of infinite (or non-depletable – notwithstanding the long-term insanity of fossil resource depletion tax credits that further incentivize and capitalize our use of deleterious energy resources) productivity and environmental service provisioning from our planet – perhaps the most definitive (and dangerous) presumption of our modern era.

---

<sup>2</sup> Picture a farmer harvesting cereal crops, for example.

<sup>3</sup> Consider the cereal crop harvest being processed into pasta, for example.

<sup>4</sup> The pasta is now distributed and sold to end-users, in transactions administered by accountants and legal professionals, for example.

<sup>5</sup> Data systems detail and analyze total supply chain activities, from farm to plate, including GPS/GIS tracking of information at the farm for increased productivity and economic effectiveness, for instance.

<sup>6</sup> The Millennium Ecosystem Assessment group organizes the earth's natural capital – or ecosystem services – into four distinct categories: Provisioning (ie: food, freshwater, wood, fiber, fuel); Regulating (climate regulation, flood regulation, disease regulation, water purification); Cultural (aesthetic, spiritual, education, recreational); and Supporting (nutrient cycling, soil formation, primary production) – see: [www.millenniumassessment.org](http://www.millenniumassessment.org) for more information.

<sup>7</sup> For example, foresters planting second-growth stands for future timber harvesting.

<sup>8</sup> Consider our atmosphere's ability, unimpeded, to regulate relatively constant surface temperatures; or, our oceans' ability to maintain abundant fish-stocks when not over-pressured by harvesting are two notable and very important environmental services.

Now firmly in the dawning of what Friedman has termed the “climate-energy era,”<sup>9</sup> we in policy, politics, economics and business (and indeed throughout all of society)<sup>10</sup> know that the principle balance of our natural systems – our natural capital – has been depleted to the point that natural productivity and the natural climatic and ecological regulatory services of the planet have been severely impaired. The forces of impairment will not be diminished and reversed if many of the defining trends of modern economics and human societies are allowed to persist. We need a way to identify those activities within our economic spectrum which are adding to overall productivity by adding-back and restoring the natural capital principle balance. Where, generally speaking, primary activities are eroding the natural capital and ecosystem-service base of our planet, **quinary** economic sector activities restore this natural capital and the services and value we derive from the planet. Where the extraction of petroleum, nickel, bauxite, coal, and lithium resources means (quite nearly by definition) that both: 1.) there is less natural productive potential remaining with these particular resource bases (one gallon oil extracted = one gallon less in reserve) and that 2.) in most all cases the natural services base has been impaired and diminished by this extraction activity. Conversely, quinary economic activities, by definition non-extractive, will produce value (in the form of energy, food, restored eco-systems and other goods and services) *while* increasing the natural capital principle base upon which all of our other economic activities (indeed life as we know it) entirely depend.

As we transition into the “New Energy Economy” toward which our new President Obama is leading us, let us be ever-mindful and untiringly vigilant to ensure that we: DO NOT substitute a coal extraction crisis with a lithium extraction crisis; DO NOT over burden our agriculture with non-sustainable nutrient cycling and inputs in order to grow more energy; DO NOT deploy “alternative” technologies (or, more precisely, resource management practices) that deplete and liquidate forests and biomass stocks with increasing efficiency; DO NOT EXCHANGE THE FOSSIL AGE FOR THE AGE OF THE LORAX!!!

The economy and all that it represents is not a linear continuum with a discrete beginning and ending to its spectrum. It is a circle – a complex set of cyclical activities, causal relationships and inter-dependencies. The quinary sector is the missing link in a now outdated primary-quaternary spectrum that folds the line back on itself – that closes the loop, completes the circle, recognizes and conveys that we humans understand that there is a cycle of life on our planet, and that not only are we inextricably, 100% linked to and embedded in it... we are its primary and now more than ever urgently needed stewards.

Via an unprecedented increase in quinary sector activities, we must steward our planet. We will see a massive transition of concentration in human capital, natural capital and financial capital – in developed, developing and underdeveloped economies alike – to the quinary sector. It is the wave of the future. It is also, quite possibly, the way *to* the future.

---

<sup>9</sup> Thomas Friedman, Hot, Flat and Crowded.

<sup>10</sup> Hurricane Katrina is an obvious example of society-wide awareness of the severe impacts of impaired natural services – decreased gulf sea temperature regulation via climate change and decreased coastal protection from marine storms via mangrove destruction.

