Integrated Profit & Loss ("IP&L") as a Capitals-based Framework for Measuring Social Value and Integrated Corporate Performance

The term "capital" is an economic metaphor for "value". It implies the existence of stocks of assets which have value and will, if used appropriately, generate or secure flows of benefits, such as income. The most popular economic definition of "income" was by Hicks (1946)[1], who equated an individual's 'income' in any given period to the amount of expenditure in that period which still left the individual's *capital* intact. A sense of 'sustainability' is captured here, as only *sustainable* spending (i.e. spending which *leaves capital intact*) is a measure of income.

Unfortunately, we live in a world in which many capitals face risks of depletion. *Natural capital* is at risk from numerous directions as 'Planetary Boundaries' are rapidly approached and even breached, *social capital* is being battered by increasing intolerance and polarization abetted by irresponsible politics, and human health, the mainstay of *human capital*, is increasingly damaged by pollution and indeed by our diets, which, delivered through an unsustainable food system, have become the main risk factor driving the global burden of disease[2].

We are also aware that these impacts on all these capitals are being driven by the economy's main agent – the private sector - which accounts for two-thirds of global output and jobs. Despite that, today's corporation is required to measure, report and manage *only* its impacts on *shareholder financial capital*, and not its impacts or dependencies on any other capitals (human, natural, etc) belonging to various sections of society including important *stakeholders* such as employees, customers, suppliers, regulators, governments, citizens, the youth, etc. This makes very little sense from any perspective, be it that of transparency, or justice, or sustainability. We cannot manage what we do not measure, and without measuring *sustainable* corporate performance – i.e. performance that integrates natural, human and social capital externalities – how are we to succeed in achieving corporate sustainability? And if corporations are not sustainable, then how can the economy, of which they are the dominant part, ever become sustainable?

"Integrated Profit and Loss Reporting" or <IP&L> evolved as a corporate initiative in sustainability leadership, in response to the publication of the <IR> or Integrated Reporting Framework of the IIRC and the need to devise and use a wider-lens, 'stakeholder' view of corporate performance. This approach has been used (and in some instances, published) by

[1] *Value and Capital: An Inquiry into some Fundamental Principles of Economic Theory,* J.R.Hicks (1946), p.174
[2] *Global Nutrition Report: From Promise to Impact* (Int. Food Policy Res. Inst., 2016) (quote) "Diet is now the number-one risk factor for the global burden of disease"

many sustainability leaders around the world, such as Akzonobel (a European chemicals giant, in 2014), Amata (a forestry company in Brazil, in 2015), Yarra Valley Water (Melbourne's water utility, in 2016), Sveaskog (Sweden's largest forestry company, in 2018) and others. It is an approach and framework which draws from the Integrated Reporting Framework[3] ("<IR>", 2013) of the International Integrated Reporting Council ("IIRC") and incorporates lessons for discovering & measuring *natural capital* impacts and dependencies from the Natural Capital Protocol (2016)[4], a universal process guideline and framework prepared by the "Natural Capital Coalition" ('Coalition')[5]. The Natural Capital Coalition has grown from its origins as the "TEEB for Business Coalition" (2012) into a wide-ranging community of practice which targets a deeper understanding of corporate impacts and dependencies on natural capital. The consensus built by the Coalition has helped to support, replicate, and scale 'best-of-breed' work done by corporate leaders in sustainable business practice.

The four dimensions of the wealth ('capital') of third-parties (who could be individuals, or communities, or the public at large) most impacted by businesses are summarized in the table (below), with a few examples given of each asset class and type of ownership.

Table : **Capital Classes & Ownership Categories: Examples from a Business Context**

Ownership Categories / Capital Classes	Produced Capital	Human Capital	Natural Capital	Social Capital
Private Ownership: ('Private Goods')	• Factories • Securities • Software • Patents	• Health • Education • Job Skills	• Mines • Fields • Private Forests	
	• Market design, regulations, rules, etiquette • Civil & Criminal Laws; Judicial systems			Social Capital
Community Ownership: ('Club Goods')	• Community Centres • Community Schools	• Traditional Community Knowledge	• Community Forests • Grazing Commons	
	• Community rules, norms, customs, culture			Social Capital
Public Ownership: ('Public Goods')	• Roads • Bridges • Public Hospitals	• Public Databases • Non-patent Knowledge	• High Seas Fisheries • National Parks/ Forests	
	• Constitutions; Judiciaries; Law & order; Tax systems • Social equity; Communal harmony; Cultural diversity			Social Capital

[3] https://integratedreporting.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf
[4] http://naturalcapitalcoalition.org/protocol/
[5] http://naturalcapitalcoalition.org

The above capitals framework at the micro-economic level uses only four capitals. This is consistent with mainstream literature in environmental economics as well as the 'inclusive wealth' approach adopted by United Nations University and UN Environment in their Inclusive Wealth Report[6], which presents such capitals analysis at a macro-economic level. In that report's *foreword,* Prof. Partha Dasgupta explains the four capitals eloquently thus;

"Inclusive wealth is the social value of an economy's capital assets. The assets comprise (i) manufactured capital (roads, buildings, machines, and equipment), (ii) human capital (skills, education, health), and (iii) natural capital (sub-soil resources, ecosystems, the atmosphere).

Such other durable assets as knowledge, institutions, culture, religion – more broadly, social capital – were taken to be enabling assets; that is, assets that enable the production and allocation of assets in categories (i)-(iii). The effectiveness of enabling assets in a country gets reflected in the shadow prices of assets in categories (i)-(iii)"

Is "Intellectual Capital" a Separate Class of Capital?

Some literature (incuding the <IR> guidelines of IIRC) also recognizes a fifth class of capital, viz, "Intellectual Capital". However, we live in an age dominated by technology and information, therefore intellectual capital is ubiquitous, and in fact is usually found *embedded* in other forms of capital. It could either be embedded in privately owned *produced capital* (eg: in the form of Intellectual Property ("IP") such as patents, copyrights, trademarks, brands, etc, and incorporated into numerous consumer goods) or community owned *human capital* (eg: traditional knowledge of tribal communities about their local herbal remedies) or *human capital* in the public domain (eg: wikipedia, non-copyrighted knowledge and technology). In all these cases, it is found that 'intellectual capital' is in fact embedded into assets which are part of one of the four classes of capital (usually *produced* or *human* capital) held in some category of ownership (private, community, public) and thus it is not necessary to create a separate "capital class" to capture "intellectual capital".

What do Ownership Categories tell us about the Ethics of Offsets?

In the table above, community-owned wealth is referred to as "club goods"[i], and it should be noted that the "communities" we refer to may be as varied as tribal villages, city precincts, or country golf clubs: the key point here is that they exercise *shared* ownership rights and the ability to exclude others from accessing or benefiting from their club goods. This is not the case for *public goods,* which by definition are non-excludable and non-rival, in other words, no one

[6] http://www.ihdp.unu.edu/docs/Publications/Secretariat/Reports/SDMs/IWR_SDM_2014.pdf

can be prevented from using them and use by one party does not prevent use by another. Whilst capital classes are widely considered by corporate managers when evaluating externalities and designing mitigation strategies, more attention needs to be paid to ownership categories.

When evaluating impacts and considering offset strategies, companies would be well advised to ask *"whose capital is it anyway?".* Merely attempting to create (for example) natural capital value for one group of stakeholders (eg: general public in the prosperous north) when the actual corporate externality affects quite a different group of stakeholders (eg: access to unpolluted natural resources for a poor rural community in the south) could be at best contentious as an 'offset' strategy, and at worst morally offensive. Thus, a Canadian mining company afforesting empty land near its head office in Toronto would not have an ethical case for calling that a *"natural capital offset"* for its pollution damage to river waters and soils caused by its mining operations in distant Ecuador, because the *costs* are being inflicted on the health and incomes of poor village communities in Ecuador, whereas the *benefits* are accruing to the prosperous citizens of Toronto in terms of a better quality of urban life.

To avoid ethical pitfalls and reputational risks from formulating offset strategies that are either ethically or scientifically questionable, careful consideration needs to be paid to *both* the capital class *and* the ownership category of affected third-parties.

1. Proposed Capitals-Based Valuation Framework for Business Externalities

Business externalities can result in positive or negative impacts on third-parties. These impacts can be observed as third-party changes in one of four ***categories of capital*** (***natural, physical, human, social***) belonging to one of three ***classes of ownership*** (i.e. ***private ownership*** – such as job skills and health; ***community ownership*** – such as village schools, community groves, neighborhood security systems, etc; or ***public ownership*** – such as climate stability, national parks, law & order, etc.). Materiality (i.e. economic or social size and significance) is the main reason for including a particular impact, but materiality of particular drivers and impacts differs significantly from sector to sector.

1.1 **What to Value**: *Valuation of externalities is about measuring the economic value of changes in* ***any*** *of the four kinds of capital belonging to* ***any*** *of the three categories of third-parties as a result of the activities of a business. Valuation must focus on material externalities, determined as material in social and economic terms for the owners of the capital category being impacted. Furthermore, where a business undertakes activity to "offset" its negative externalities, the impacts of such "offsets" must also be valued and set off against the externality.*

1.2 Why to Value: *Valuation informs and improves business decision-making along the value-chains that generate externalities, by assisting business managers in designing appropriate responses. It enables business responses to their externalities to be prioritized, appropriate, effective and efficient in reducing or offsetting negative externalities and increasing positive externalities. Valuation similarly also informs a range of stakeholders, from investors to civil society, supporting their interests to seek such business responses, to reduce risk to the business in the long term, and reduce negative impacts to society in the short and long term.*

It is important for business sectors, by a process of examination and elimination, to determine which third-party impacts deserve their closer attention, measurement, disclosure and management on the basis of *materiality*.

In evaluating third-party impacts across these classes of capital and categories of ownership, we find that there are ***eleven major drivers of externalities*** arising from typical business activities, which most commonly generate the most significant third-party impacts.

Of these eleven drivers, six of them are "environmental drivers" (viz, GHG emissions; freshwater extraction; waste generation; land-use change; air pollution; land & sea pollution). These six environmental drivers were first proposed by Trucost plc & PwC in their advisory work, and formed the basis of their "EP&L" (Environmental Profit & Loss) calculation for Puma, in an externality statement published by the company in May 2011. It should be noted that the actual 'impacts' referred to in "EP&L" are not only natural capital externalities- there are also human capital externalities (eg: health impacts of pollution and waste).

Two corporate drivers in the space of employee human capital are **employee training programs** and **employee health and safety** (**EHS) standards** which, if managed well and to scale, can lead to large positive human capital externalities (see example in Chapter 5, "Corporation 2020"[ii], describing the work of GIST Advisory to estimate the human capital externalities of Infosys).

Three corporate drivers that create potentially large social capital externalities - positive and negative – such as impacts on institutional and social architecture, employment opportunity, social inclusion, etc - are primarily due to **CSR programs**, **business models**, and **company policies**. (see **Natura** example in Chapter 5, "Corporation 2020" for an example of a business model that generates positive social capital externalities.) It should be noted that companies do account for ('internalize') the *costs* of CSR programs, but there is no compulsion to measure or report the positive externalities or *benefits* – positive impacts on third-party social, human, or natural capital – precisely because these are 'externalities'. Sometimes, CSR program benefits

may be targeted as 'offsets' to known negative externalities, which is why measuring and reporting the one ought to be accompanied by measuring and reporting the other.

It should also be noted that the eleven drivers are selected based on the area of business activity that generates them and the materiality of impacts they create, rather than their easy fit into the three categories of ownership and four categories of capital.

Classification ambiguities might arise due to confusions between what is a *driver*, *outcome*, or *impact*, and such ambiguities should be addressed consciously, with context and assumptions disclosed. For example, "waste generation" is an *environmental* driver, even though its real impact is on human health, i.e. *human capital*. Furthermore, within the *environmental driver* category, the waste management process might be such (eg: incinerating plastic waste) that the driver could be classified either as "waste generation" or as "air pollution", so a decision needs to made - a 'framework' choice as it were - on a standard classification so that comparability and consistency across industries and companies is ensured.

A further point to note is that, in general, a company's societal impacts and externalities can either be classified "by business driver" or "by impacted capital". The former approach is usually more useful for business management, enabling response strategies to be formulated by the business unit driving the impact. The latter is more useful for impact analysis at the level of the company, industry or sector, providing high-level perspectives for regulators and policy makers as well as industry benchmarks for analysts and investors.

An agreed universal valuation framework such as we have described here would ensure that *one* approach is followed by everyone, allowing results to be compared across business sectors, and within business sectors across corporations. This is a common ask from analysts, investors, Civil Society Organizations, company regulators and from corporate management themselves.

Pavan Sukhdev

(CEO & Founder – GIST Advisory, www.gistadvisory.com)

The author gratefully acknowledges reviews of the original 'GIST Advisory' discussion paper (of 2013, www.gistadvisory.com which led to this article) by Joshua Bishop (WWF-Australia, & 'TEEB for Business' Coordinating Lead Author); the late Ernst Ligteringen (erstwhile CEO, Global Reporting Initiative); Richard Mattison (CEO, Trucost plc); and Holly Dublin (The B-Team)

---

[i] For example, see Cornes, Richard and Sandler, Todd, [1986] 1996, "The Theory of Externalities, Public Goods, and Club Goods", 2nd ed. Cambridge University Press.

[ii] "Corporation 2020: Transforming Business for Tomorrow's World", Island Press, 2012, by Pavan Sukhdev

Annexure: Definitions of Terms

1. Business Externalities

These are the third-party impacts of business. They can be both positive (e.g.: third-party impacts of technological innovation, staff training, community building, CSR programmes, etc.) and negative (e.g.: third-party impacts of GHG Emissions, Freshwater Extraction[1], Air Pollution, Waste Generation, Land Use Change, etc). For more examples see www.corp2020.com, or Ch.4. and Ch.5 of "Corporation 2020" (Pavan Sukhdev, 2012). Externalities lead to the increase or decrease of capitals owned by third-parties.

2. Capital Classes and Ownership Categories

Business externalities result in positive or negative impacts on the well-being of third-parties. These impacts can be observed as changes in one of *four classes of capital* (natural, produced, human, social) belonging to third-parties with *three categories of ownership* (i.e. capital in *private ownership* such as job skills and health; *community ownership* such as village schools, community groves, neighbourhood security systems, etc.; or *public ownership* such as climate stability, national parks, law & order, etc.).

Table 1 Definitions of Capital Classes

Capital Class	Definition
Natural Capital	The Economics of Ecosystems and Biodiversity (TEEB) defines Natural Capital as "*An economic metaphor for the limited stocks of physical and biological resources found on earth, and of the limited capacity of ecosystems to provide ecosystem services*"[2].
Social Capital	Social Capital refers to the productive value of social connections, where productive is understood not only in the narrow sense of the production of market goods and services (although this is an essential component) but in terms of the production of a broad range of well-being outcomes[3].
Human Capital	Organization of Economic Co-operation and Development (OECD) defines human capital as "the knowledge, skill, competencies and attributes embodied in individual that facilitate the creation of personal, social and economic well-being" [4]
Produced Capital	Organization of Economic Co-operation and Development (OECD) states that produced capital "*Incorporates all built capital such as buildings,*

[1] To the extent that freshwater extraction by a company deprives other users: such extraction is a "driver", water scarcity is an "outcome", pre-emption and the resultant loss of others' well-being is the "externality"

[2] TEEB (2010), Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB

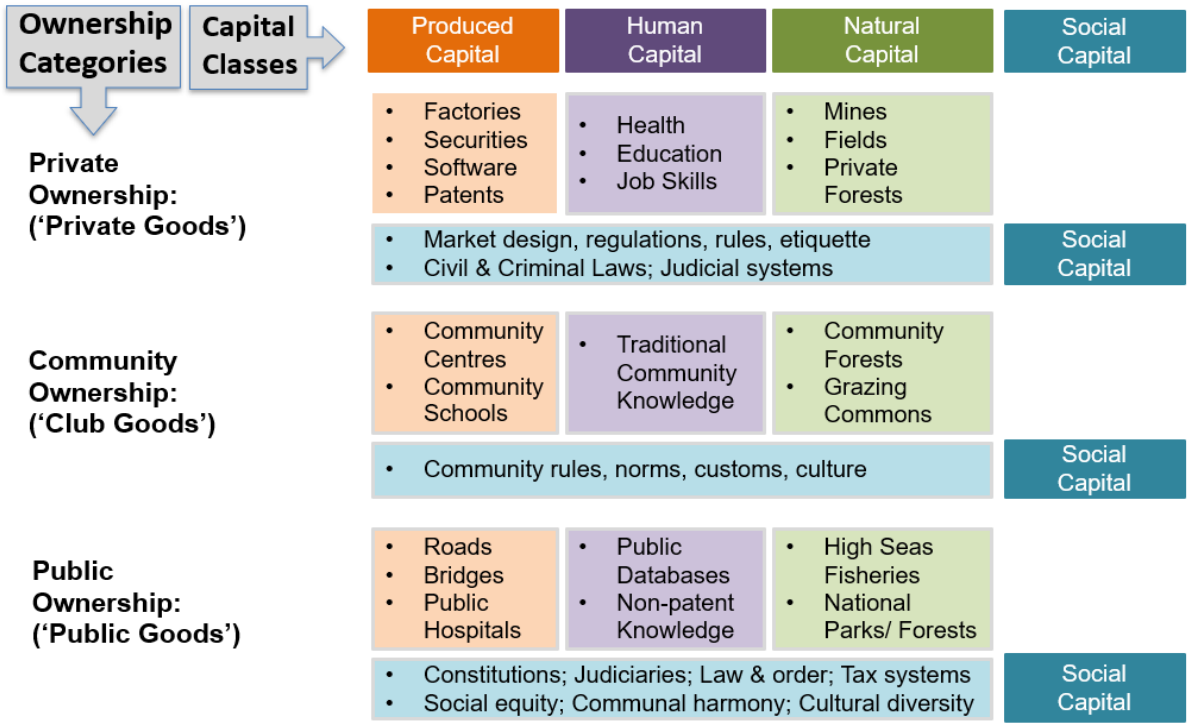
3 Scrivens k., S. C. (2013). Four Interpretations of Social Capital: AN AGENDA FOR MEASUREMENT, OECD Statistics Working Papers, 2013/06. OECD Publishing, Paris

[4] Lui, Gang. 2011. Measuring the stock of Human Capital for comparative analysis: An application of the lifetime income approach to selected countries. OECD.

Capital Class	Definition
	machines and equipment, physical infrastructure (roads, water systems); knowledge and intellectual capital embodied in, for example, software, patents, brands, etc.; and financial capital"[5].

Definitions of capital classes are in *Table 1* (above), and examples of capital assets of all Capital Classes & Ownership Categories are provided in *Figure 1* (below).

Figure 1 Examples of Capital Classes and Ownership Categories
(Source: GIST Advisory, 2018)



It should be noted that the lexicon of capitals defined here for the *'micro'* or corporate level is consistent with that defined for the *'macro'* level by academic literature in economics and national accounting, such as the Inclusive Wealth Report[6] of the United Nations University and UN Environment. The nature of these capitals and the manner in which they interact and generate human well-being is well expressed by Prof. Partha Dasgupta in the following paragraph from this report, which also highlights a key difference between three revenue-generating capitals (human, natural, produced) and one enabling capital (social capital):-

"Inclusive wealth is the social value of an economy's capital assets. The assets comprise (i) manufactured capital (roads, buildings, machines, and equipment), (ii) human capital (skills,

[5] OECD. (2006). Creating value from intellectual assets, OECD Publications, Paris
[6] http://www.ihdp.unu.edu/docs/Publications/Secretariat/Reports/SDMs/IWR_SDM_2014.pdf

education, health), and (iii) natural capital (sub-soil resources, ecosystems, the atmosphere). Such other durable assets as knowledge, institutions, culture, religion – more broadly, social capital – were taken to be enabling assets; that is, assets that enable the production and allocation of assets in categories (i)-(iii). The effectiveness of enabling assets in a country gets reflected in the shadow prices of assets in categories (i)-(iii)"

3. Drivers, Outcomes & Impacts:

Business externalities can have many *drivers*[7] which can be environmental drivers (e.g., GHG emissions - from energy used in manufacturing processes) or human & social drivers (staff training programs; CSR programs; etc). Each driver could have one or more significant *outcomes* (e.g., for GHG emissions, three main outcomes are climate change, ocean acidification, & coral reef losses). Each outcome could have material *impacts* on human well-being (respectively, the economic & social costs of climate change; ocean fisheries decline; and reduced reef tourism & coastal protection due to reef losses). When such impacts are measured and valued as a decrease/ increase in various forms of capital (natural, produced human, social), owned in different ways (private, community, public) then that is a valuation of the "externalities" of business.

4. Evaluation Framework: (i.e. "*what* to measure & value, and *why*?")

There is a need to create ONE global evaluation framework, that reflects the asks of an international integrated reporting framework. This is to ensure that first-movers across various business sectors, as they discover and begin to measure their most material externalities, follow a methodical approach to discover and value their externalities and do not each invent their own valuation terminologies & classifications, or their own reporting frameworks. The purpose is to ensure consistency and comparability across companies, for people (e.g. investors) who seek to understand how much external risk/opportunity is at stake. It is worth noting that a single world standard for financial accounting (i.e. IFRS) emerged for the same reason. Valuation frameworks defined to evaluate externalities are shown below.

Natural Capital Externalities - NCX™

Natural capital externalities (NCX™) refers to third-party costs or benefits that are a result of the environmental impacts of an enterprise, in both its operations and its value chain.

The key drivers of NCX™ are:

- GHG Emissions,
- Air Pollution,
- Water Consumption,
- Water & Land Pollution,
- Waste Generation
- Land Use Change.

[7] GRI and others use the term "outputs" for "drivers"; we prefer "driver" as it is more commonly used, and is more commonly understood as that which causes an "impact".

Human Capital Externalities - HCX™

Human capital externalities, (HCX™) refers to third-party costs or benefits of the human capital created by an enterprise, resulting from its human resource development, and its employee health and safety policies.

The drivers of HCX™ include

- Employee training programs,
- Employee health and safety (EHS) standards.

Social Capital Externalities - SCX™

Social capital externalities (SCX™), refers to the third-party costs or benefits of the social impacts of an enterprise, resulting from its business model, CSR programs, and policies.

The drivers of SCX™ include

- CSR programs,
- Business model and supply chain features
- Company policies.

Financial Value Addition - FCX™

Financial value addition (FCX™), refers to the 'level 1' (excluding outsourced/ sub-contracted value-add) contributions by the firm towards GDP, based on the "income-method" of GDP computation.

The drivers of FCX™ include

- Profit after tax (PAT),
- Taxes payable,
- Staff compensation,
- Net interest,
- Net rentals and
- Depreciation.

Example of Evaluation Framework- for NCX™

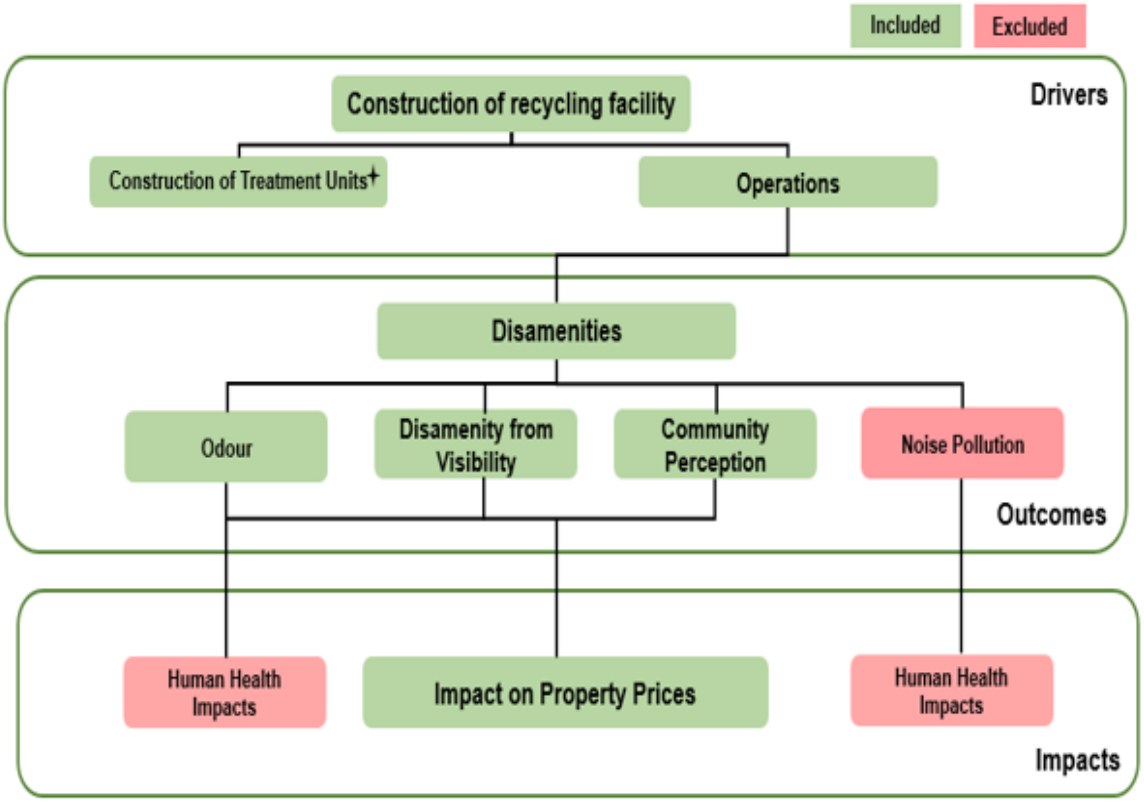
An example of a typical framework followed for NCX™ evaluation is shown in Figure 2 (below).

Here, the overarching **'driver'** for social and environmental impacts is establishment of a new *urban sewage treatment & waste water recycling facility* in a community neighbourhood. From setting up such a treatment facility, possible '**outcomes'** will include odour, noise and visual obstruction or apparent ugliness of visible water recycling plant structures. These dis-

amenities (from odour, noise, etc) are negative '**impacts'** on the well-being of third-parties who live close to such a plant. The many benefits of such a facility (reduced transportation cost of sewage; reduced demand on distant water sources; lower GHG emissions; etc) may accrue to the water utility, its owners, a wide swathe of customers who get cheaper water; etc) but benefits to them needs to be evaluated whilst considering costs to others, in particular, those who suffer the dis-amenities of this facility.

Figure 2 Evaluation framework for assessing dis-amenity values of the Operational phase of an above-ground sewage treatment & water recycling facility, clearly indicating which impacts are measured & evaluated, and which are not

(Source: GIST Advisory, 2018)



5. Valuation Methodology (i.e. "how to measure, how to value?")

Once a comprehensive and relevant valuation framework is established, the next stage is providing a scientific and robust approach for measuring impacts (monetary or non-monetary) under different capital classes i.e. Human, Social, Natural and Produced, using economic valuation techniques. For example, for estimating the *value losses* associated with dis-amenities such as odour, noise and reduced visibility for local home owners, we can apply a 'Hedonic Pricing' method (a form of valuation based on 'revealed preference') and determine the correlation between local property prices and identified material dis-amenities – to demonstrate whether these dis-amenities generate material value impacts or not.