Accounting for a Sustainable World

The Sustainable World Monitor

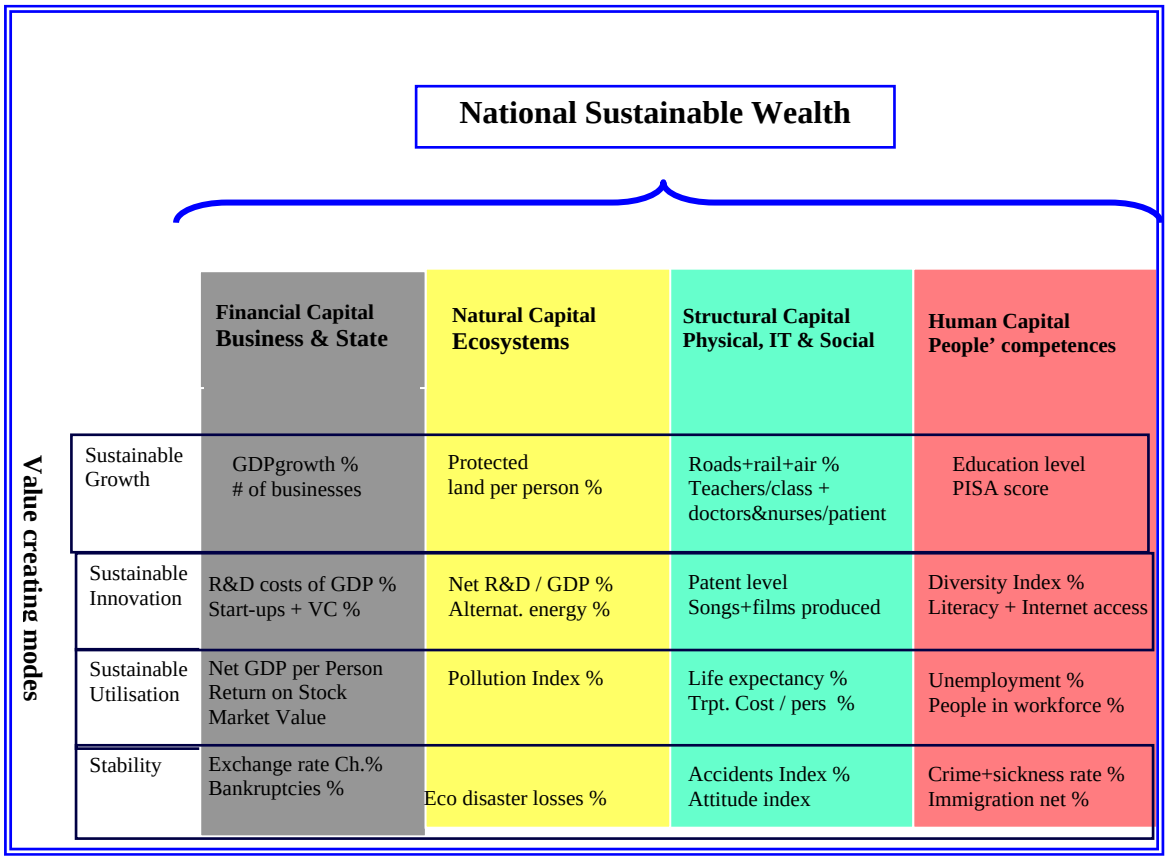
The Nhunggabarra did not need measurements. The Western world, on the other hand, requires number to function. Trouble is that we measure more than we need, but not what matters. Here follows an idea for a Sustainable World Monitor, inspired by the Nhunggabarra.

We can distinguish four available resources: the people, Human Capital; the physical and social infrastructure, Structural Capital; the ecosystem, Natural Capital and the Financial Capital in companies and the public sector.

A country has four generic ways to generate wealth from this capital; by growing them, by innovating, by utilising efficiently and finally, by increasing the stability (reduce risk) in them. The four value generating modes come from traditional stock/flow analysis in accounting theory. The four resources are the stocks and the flows between the stocks generate the four modes of value creation.

The indicators must as far as possible be standardised and comparable. Also, crucial is to report the flow, i.e. the change between indicator levels. A common mistake is to measure only the stock. Flow is measured as the change between two observations in a stock.

The first version a Monitor for a sustainable society was originally created as an input into a work group, which discussed what indicators New Zealand should follow up to become a sustainable knowledge society.



Human Capital Indicators

A simple indicator to measure growth in Human capital is the growth in number of people, but more sophisticated indicators should capture the growth in competence level, for instance through the education level of the population. This indicator can also be compared. An even better option is to use the regular international scoring of students that is made by for instance, PISA.

Innovation can be tracked by patent applications. An interesting option is diversity as measured in terms of the standard deviation in the population's origin. Diversity has been shown to be positively correlated with creativity. Literacy and Internet connections are not innovation metrics as such, but they measure a population's access to vital information.

Utilisation is best measured by proportion of population in the workforce. Unemployment is also an alternative. Both measure flows

Stability can be measured as the total crime rate, which is the risk perceived by the population. Emigration + Immigration levels indicate the turnover of the population. A high number suggests instability.

Structural Capital Indicators

Growth in physical infrastructure can be measured by increase in roads+rail+air routes. A combination index of teachers per pupil and doctors+nurses per patient give an impression of the functionality of the two most important social infrastructure, education and health sectors. ICT infrastructure growth can be measured as total ICT traffic. A good indicator for growth in social capital is harder to define.

Innovation level in social infrastructure can be measured as proportion of accepted patents and the proportion of new songs and films produced in the country per 100,000 residents. Royalty and licence income per 100,000 residents is also an indicator of the level of innovation activity in structural capital. Innovation in social capital

Utilisation of the physical infrastructure can be measured as internet traffic per 100,000 residents. An indicator of rail traffic in proportion of total traffic is also an option, since it shows how the more ecologically acceptable alternative for transport. Number of cars per km of road is the non-ecological alternative.
Utilisation of the ICT infrastructure should ideally be measured as total ICT traffic / total theoretical capacity in the ICT networks, however, it is not an easy indicator to measure. Utilisation of social capital would be an alternative, but it is even harder to define.

Stability and risk indicators in the physical infrastructure can be the proportion of total accidents per 100,000 residents. Traffic accidents (car+rail+air) in proportion of total traffic volume are also a good indicator of the health of the physical infrastructure.
Stability in the ICT infrastructure could be measured as downtime in terms of electricity blackouts, for instance # of households * blackout hours. An attitude index indicates whether the population is generally happy or not, a good stability indicator for social capital. Participation level in elections is also an alternative; however in some countries elections are mandatory.

Natural Capital Indicators

This is the most challenging area partly because it is where the Western world is deteriorating and partly because there is so much we should and could measure. One must not give in to temptation to add lots of indicators. Two in each cell is a maximum, or else the overview is lost.

Growth: How does one best measure growth in natural capital? One alternative is to measure how the areas of protected land in the form of national parks and similar are growing.

Innovation can be measured in terms of how much energy is coming from alternative resources.

Under utilisation we would measure the impact our utilisation of natural capital has on the ecosystem in terms of a pollution index.

Stability would ideally be measured in the stability of the total ecosystem. A new metric may have to be designed.

Financial Capital Indicators

There are two primary areas to cover: the business world and the state / public sector finances. There already exists a proliferation of economic indicators in this area and

Innovation level in an economy is commonly measured as total R&D spending in percent of GDP, which however, is an input metric. It does not measure what we get from the resources. What we would need is an indicator that measures the **net** innovation rate; i.e. after the negative effects, such as added/reduced pollution, and after indirect society effects. This is quite difficult to calculate on a national level, so an alternative might have to be found. Here we could also add an indicator that shows the birth-rate of new companies.

Utilisation of the financial capital is normally measured as return on capital. A proxy for the corporate sector as a whole could be the total profit generated by the companies listed on the stock exchange divided by the market capitalisation. Utilisation of public sector capital is a much more difficult indicator to define. GDP per person is one of the most common metrics, but it is notorious for including as positive values anything that is produced in a nation, i.e. also production that compensates for non-sustainable practices such as pollution clean-up, car smash repairs and crime prevention. We would need to construct a **net** GDP/person, i.e. after such costs, which is not an impossible task.

Stability in the corporate economy can be measured through the bankruptcy rate. Also Tobin's q is an alternative; Total market capitalisation divided by the replacement value of capital. The public sector economic stability can be measured as the state budget surplus/deficit.

Read more on measuring intangibles and the Intangible Assets Monitor – see Creating Value with the Intangible Assets Monitor in the Library on www.sveiby.com .