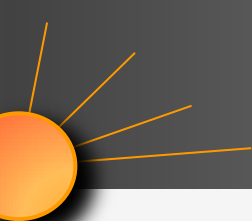




achieving  
sustainable competitiveness



## About this report

Research, calculation and compilation by SolAbility

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[The Global Sustainable Competitiveness Index : Full Report](#)

[Sustainable Competitiveness](#)

[Methodology Brief](#)

[Sustainable Competitiveness vs. Davos Man Competitiveness](#)

[Achieving Sustainable Competitiveness](#)

[Ranking Tables](#)

## About SolAbility

SolAbility is a sustainability advisory consultancy based in Korea, providing sustainable management tools & services to corporate clients and advanced sustainable investment research covering Pan-Asian equities for institutional investors.

Three corporate clients who have implemented sustainability strategies and management systems developed and designed by SolAbility have been recognised as global sustainability leaders ("global super-sector leader") in their respective industry sector by the Dow Jones Sustainability Index (DJSI), an honour that is awarded to only 19 of the annually evaluated 2'500 companies world-wide.



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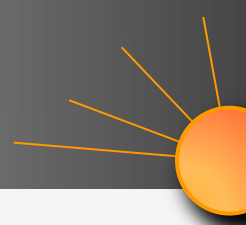
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### **Sustainable development , competitiveness, and wealth creation**

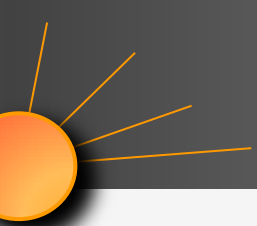
The leading nations according to the Sustainable Competitiveness Index mostly present high-income countries, suggesting a certain correlation between sustainable competitiveness and GDP per capita or income levels (high income = high sustainability). While a certain similarity between GDP rankings and sustainability levels seems to be visible, the correlation is superficial and refuted by too many exceptions to the rule. This indicates that the correlation is not from GDP to sustainable competitiveness, but rather from sustainable competitiveness to income levels. In other words: higher sustainable competitiveness can be associated with higher income levels.

However, the correlation or the influence of the sustainable competitiveness on the GDP or income level is not immediate - it is time deferred. Like every endeavor or project, an upfront investment is required; the seeds have to be planted, the plants need to be cared for before the fruits can be harvested. In addition, the sustainable competitiveness level can be "cheated on" for a certain amount of time through exploitation of the natural capital in the presence of large natural resources (e.g. the oil-rich countries of the Middle East). However, such wealth is highly unsustainable and the wealth generated will diminish with the depletion of the natural resources in the absence of development of an adequate alternative sustainable economy and the underlying fundamental requirements for such an economy.

The time-delay impact of sustainable competitiveness on wealth levels works both ways. A country that in the past has achieved a comparable high level of economic development will decline over time in the absence of initiatives and performance supporting sustainable competitiveness (as currently seems to be the case with the USA or the UK, for example). A country can sustain its current level for only a limited time by exploiting the historically accumulated sustainable capital (natural capital, efficiency capital, human capital, equality, and income). However, the decline in actual income level will occur at a later point (delayed) compared to the decline in actual sustainable competitiveness. By the time the decline commences to be felt in actual economic terms, it will be difficult to recuperated sustainable competitiveness because the weight of the momentum is pulling in the opposite direction. Politicians tend to turn to extremes and/or introduction of drastic economic policies in such moments. However, failure to consider the full long-term impacts of such policies often leads to a worsening of the situation rather than improvement and causes an even faster decline. The sustainable competitiveness level of an economy therefore can serve as an early warning indication for misguided development and policies.

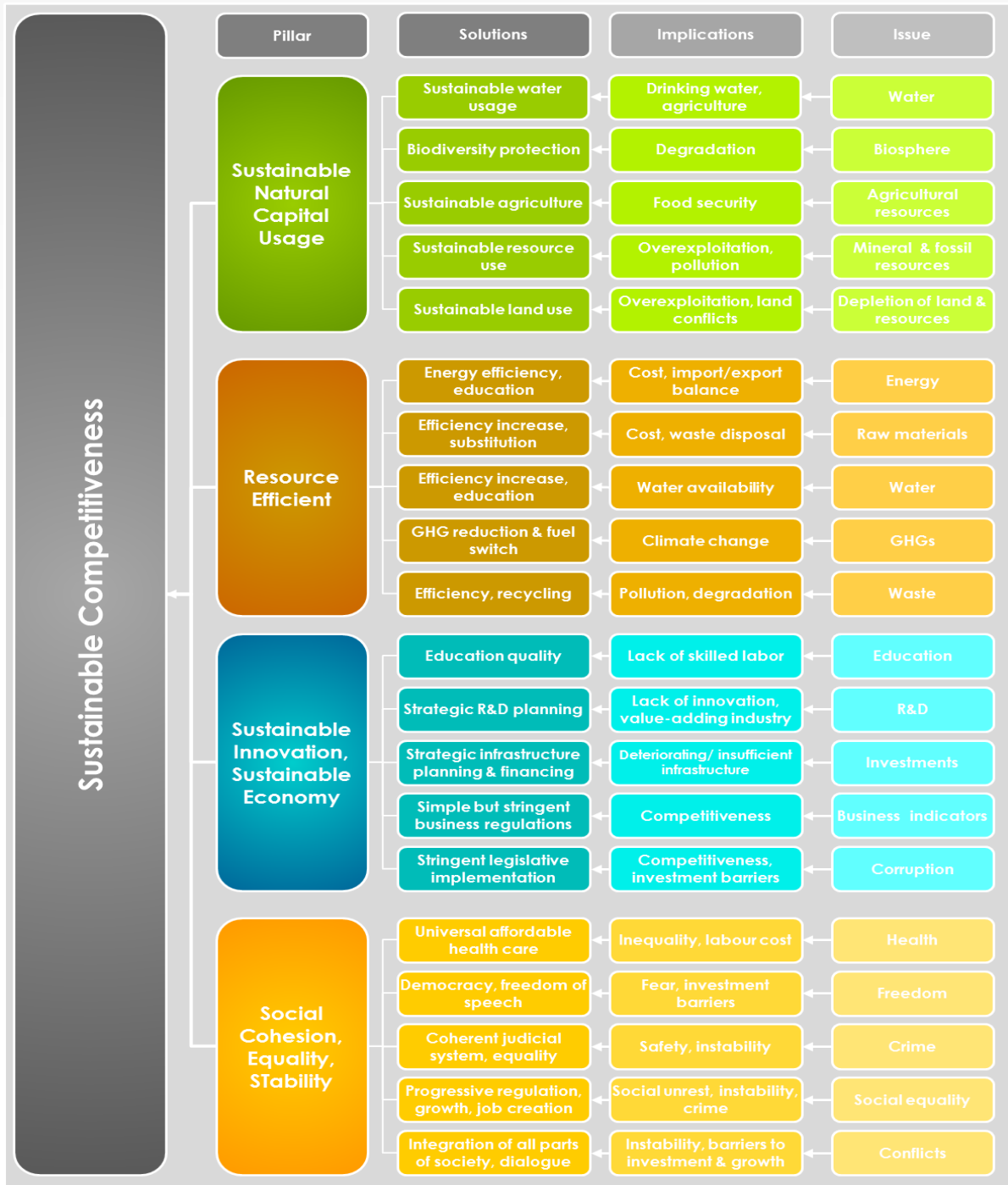
For countries with low current income or GDP levels, a low sustainability competitiveness score indicates low potential to achieve sustainable development in the short and mid-term future in the absence of significant changes to development and investment policies.

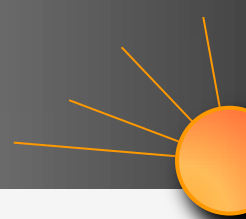
Low-income countries with a comparable high sustainability competitiveness score, on the other hand, have the potential to improve their income and well-being levels based on sustainable fundamentals.



# Elements of Competitiveness

## Problem-Solution Tree





### Maintaining the four basic pillars of competitiveness

Sustainable competitiveness is the accumulated result of development policies and strategies, designed and implemented by governments, authorities, economic entities (businesses), individuals, and other players.

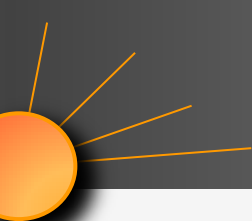
Sustainable competitiveness is therefore subject to human influence and can be improved for the better, or will change for the worse in the absence of thoughtful and intelligent guidance. While short-term success might be achieved through limited initiatives in a single area, long-term sustainable competitiveness – i.e. the ability to sustain growth and wealth creation into the future – can only be achieved through policies, regulations, standards and incentives balancing all areas of national sustainable competitiveness. According to the methodology used for the Sustainable Competitiveness Index, these include:

- **Natural Capital:** fostering sustainable agriculture, protecting biodiversity and biomass (forest areas), protecting surface water and water reservoirs, and ensuring sustainable use (management) of renewable and non-renewable natural resources.
- **Resource Intensity:** increasing industrial efficiency through regulations and intelligent incentives, advocating of efficient technologies, products and services, regulating through mandatory efficiency standards, and de-materialisation of production.
- **Sustainable Innovation:** increasing universal availability and quality of education, defining key national industrial and economic growth areas with supporting programs and policies, incentives fostering entrepreneurship, and eradicating corruption.
- **Social Cohesion:** Improving availability and affordability of health care services, guaranteeing equal economic opportunities, gender equality, integrating neglected communities, and crime counter-measurements, ensure freedom of thought.

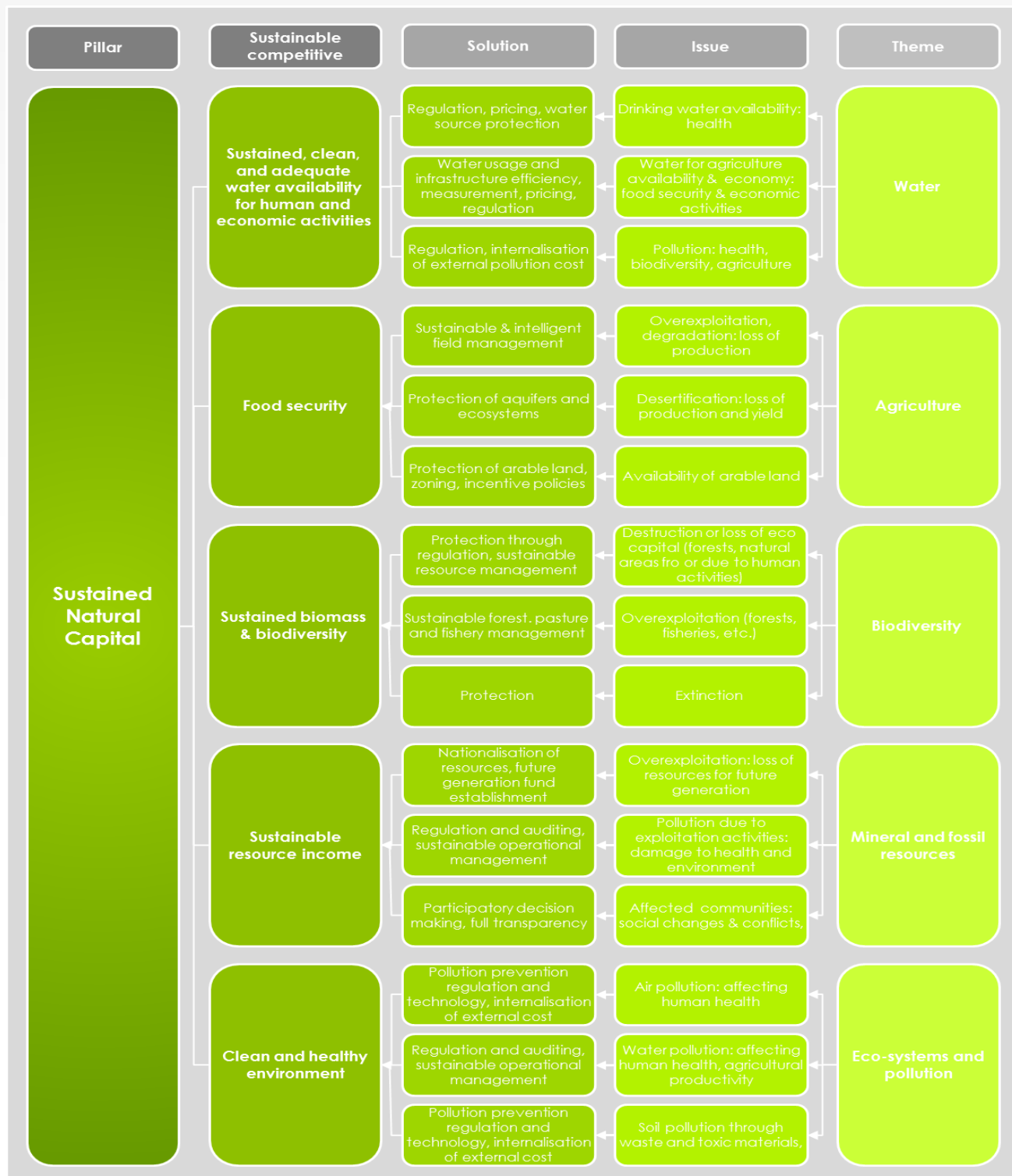
Achieving sustainable competitiveness requires a combination of thoughtful policies that both regulate and stimulate the environment in a way that allows for both businesses and society to thrive while preserving the natural environment, i.e. sustainably manage natural environment and resources which in turn form the basis for continued business operations and social stability in terms of food security.

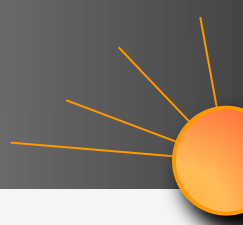
Considering that many of the elements of competitiveness are inter-linked and directly or indirectly correlate with one another (e.g. quality and availability of education determines future innovation capabilities), it is vital to include all aspects in an intelligent model. Neglecting any of the pillars of sustainable competitiveness, on the other hand, will lead to decreasing competitiveness because of these inter-linkages. Increasing inequality, for example, is leading to higher crime rates and insecurity with the associated cost for policing and the judicial system as well as cost for security for businesses, and ultimately shrink the domestic market due to lack of power purchasing parity, in turn a barrier to new investments – a vicious cycle as austerity-lead economies such as the UK or Greece are currently finding out the hard way.





# Natural Capital Problem-Solution Tree





### **Positive and negative incentives to protect and sustain the natural capital**

Most top ranked nations – with a few exceptions – are countries with a comparably low population density, coupled with sufficient water availability. Water availability in turn is the basis for a rich biodiversity and agricultural yield. The countries on the bottom of the natural capital ranking (which includes China and India, i.e. a significant percentage of humanity) are highly likely to face barriers to sustainable and sustained development. These obstacles might include water constraints, affecting agriculture, human needs, and the economy, ultimately leading to conflict over resources (the Darfur conflict, for example, is in its essence a conflict over water resources and pastures coupled with increasing population density).

The natural capital of a country is mainly determined by factors beyond the influence of humanity: geography, climate, water resources, mineral resources. However, the efficient and sustainable use – and therefore the level of depletion – is a result of human activity and therefore can be directed through positive and negative incentives.

#### Negative natural capital protection incentives

- Setting mandatory efficiency standards (possibly coupled with fines for non-compliance)
- User-pays and polluter-pays principles: defining prices of resources (e.g. water) that reflect the inclusive value of the resource or internalizes non-financial depletion and/or pollution costs. This measurement can be coupled with positive incentives, whereby the revenues so gained are redistributed in relevant R&D efforts, support for technology, subsidies, or other programs
- Introduction of environmental regulations, designation of protected areas
- As a drastic measurement of last resort: introduction of contingents

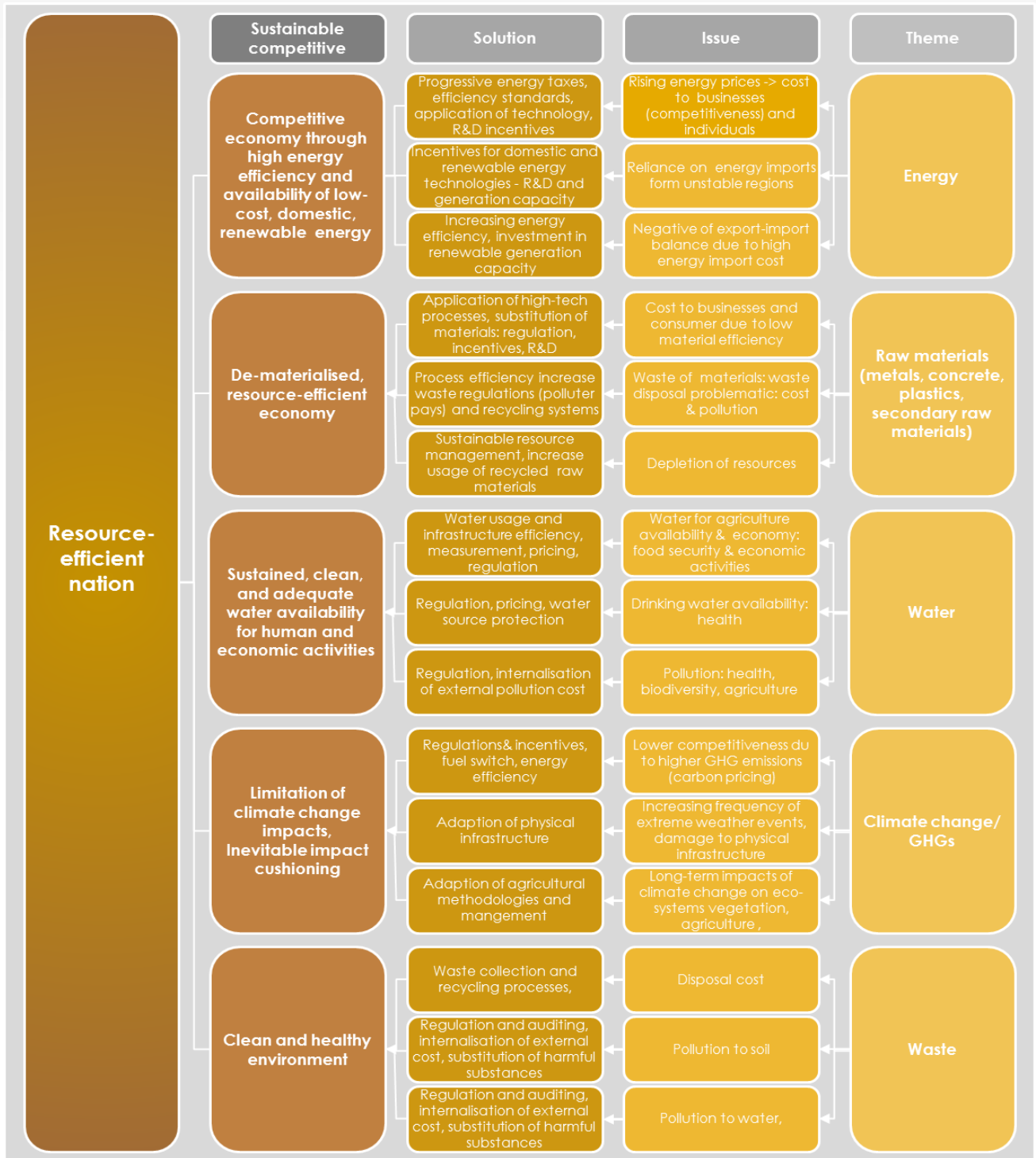
#### Positive natural capital incentives

- Targeted R&D and policies conveying resource-efficiency technologies (a growth market with large economic potential)
- Investment in restoring natural capital (e.g. forests) with long-term benefits for renewable resources (such as groundwater), and possibly, tourism
- Designation of sustainable development demonstration projects and areas, and support for sustainable agriculture and resource management
- Market tools such as cap-and-trade systems unfortunately have proven to be ineffective due to the complexity of cap definition and administrative overheads requirements

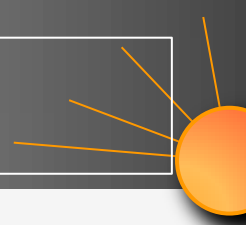
#### Compensation through technology

Despite very limited natural resources, Israel (rank 155, excluding West Bank and Gaza) has achieved and maintained a high level of economic prosperity compared to other countries with similar characteristics. Israel has developed and applied intelligent technology (in particular in terms of irrigation) which allows to extract high yields from limited resources: the country is a net agricultural exporter. However, Israel's natural water reservoirs are limited and diminishing despite the technology applied, posing a serious challenge to the long-term sustainment of current output levels. Israel's example demonstrates both the positive impact on the development level as well as the limitations of technology to guarantee long-term sustained development.

# Resource Intensity Problem-Solution Tree







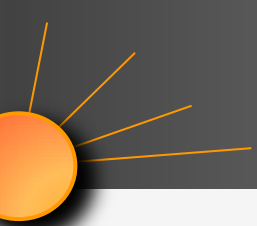
### **Incentives and taxes to educe resource intensity, and increase resource efficiency**

Countries with high resource intensity and low efficiency are likely to face a number of challenges, including higher costs compared to other nations to achieve or sustain growth and wealth, faster depletion of domestic resources, and higher dependency on imports of energy and raw materials form the distinctively volatile global commodity markets.

While the top of the resource intensity rankings are dominated by countries that are generally referred to as "less developed", the analysis of the overall rankings finds countries from all regions and all development levels next to each other in the ranking with no obvious correlation to the economic or financial power. In other words, countries that would be expected to have a similar resource intensity based on development level and characteristic of their economies have fairly different resource intensity scores. This inclines that the resource intensity and resource efficiency is not directly correlated to the level of economic development and output. The absence of such correlations suggests that resource intensity and resource efficiency are to a considerable degree influenced by the nature of economic and industrial policies, regulations and incentives, and technology applied.

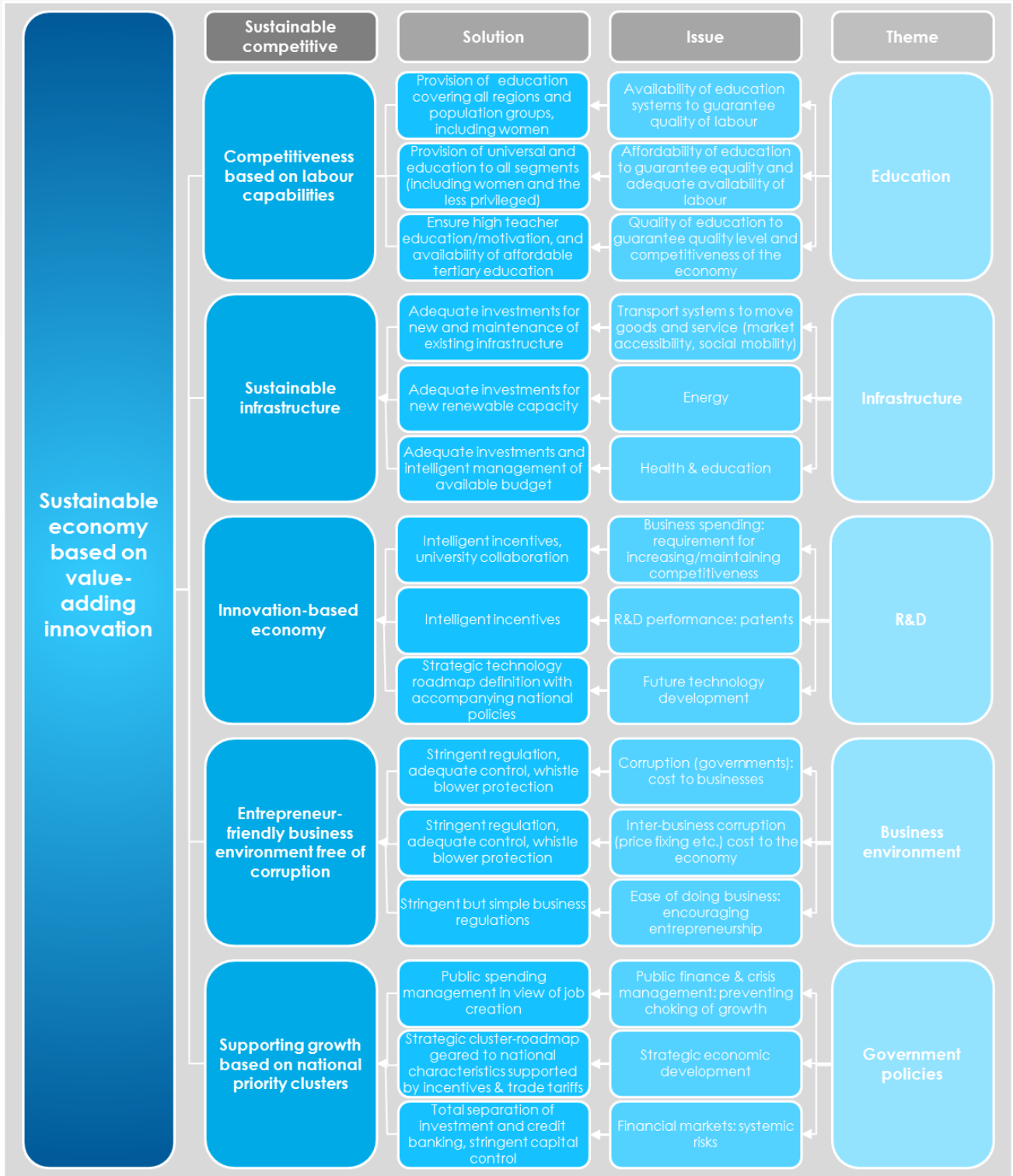
A decade of intelligent polices can therefore make immense differences to the national efficiency and resource intensity of a country – an ultimately, the economic competitiveness of an economy. Amongst the tools available to increase resource efficiency are:

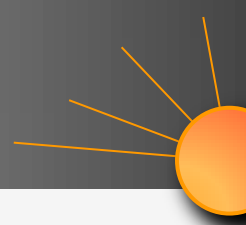
- **Taxes:** higher resource taxes increase incentives to increase efficiency. Countries that have introduced resource taxes in the past have higher resource efficiency (e.g. Japan) than similar economies with lower taxes. Economic actors in countries where resources (in particular energy) have been or are subsidised have even less incentives to increase efficiency. In addition, countries with higher taxes have more room for leveraging fluctuations and spikes in the global energy markets through temporary easing of taxes. However, it might be argued that this measurement is currently not opportune considering the expected rise of costs of resources in the near- to mid-term future
- **Infrastructure investment:** upgrading existing or building new efficient infrastructure (transport, power, buildings) increases efficiency, while lowering long-term operational cost and reduces dependency on resource imports. In addition, this measurements can have positive impacts on the job market and unemployment figures
- **Targeted R&D support and other measurements for key growth industries**
- **Mandatory efficiency standards** (cars, electronic appliances, buildings, etc.)
- **Mandatory efficiency labels, public awareness campaigns**



# Sustainable & innovative economy

## Problem-Solution Tree





### **Education, R&D, and investments to foster an innovation-based economy**

South Korea, Singapore, China and Japan are all found on the top of the innovation ranking. Interestingly, decline is equally reflected as progress in this ranking. The USA (formerly considered powerful not only in size but also in terms of innovation & competitiveness) is ranked low in relation to its global status in most innovation and competitiveness indicators – in line with the widely perceived industrial decline of the country.

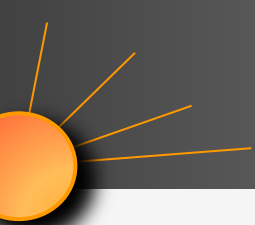
Know-ledge and innovation are key success factors for adding value and achieve sustained growth in an increasingly complex and globalised economy. Countries with low sustainable innovation competitiveness on the other hand are facing difficulties to achieve meaningful growth as nations due to the lack of the basic fundamentals:

- Limited availability and quality of education, leading to limited R&D capabilities and a lack of highly qualified workforce, in turn limiting economic opportunities and development
- Lack of modern transport and communication infrastructure, leading to limited and costly access to markets
- Insufficient R&D spending, limiting opportunities to develop value-adding industries

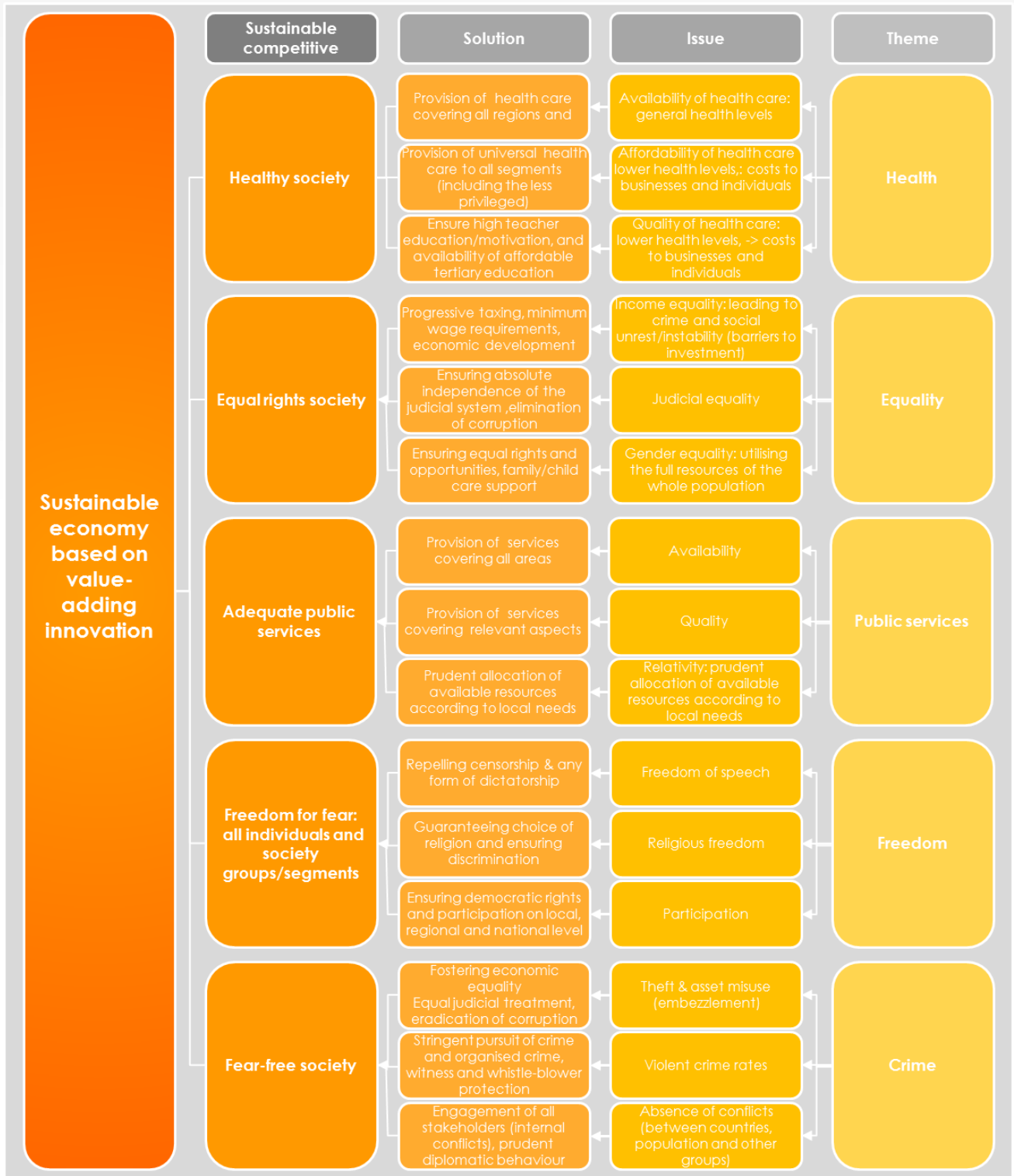
In order to achieve sustainable economic development through innovation, countries have a number of tools at their disposal. However, there is no one-size-fits all solution. Policies have to be designed intelligently and specific to the circumstances and characteristics of a country:

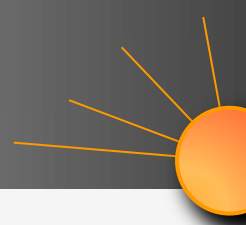
- Increasing budget allocation for education, and raise incentives for school attendance. However, increasing financial allocation alone is never sufficient without careful and localised planning that also ensures quality, not only quantity
- Formulate policies and incentives to increase allocation for R&D in areas key to a country's characteristics. In many Asian countries, formulating strategic industrial development priorities (priority clusters) on the national level has shown to be highly effective
- Protective measurements: protecting key national industries (including agriculture) to allow the national industries to reach international competitiveness before competing on global markets
- Increase allocation for the development of modern and intelligent infrastructure (which has the positive side-effect of creating employment in countries with high unemployment) to kick-start the economy. However, developing prestige projects that often turn into white elephants and investment ruins is a waste of time & money
- Eradicating corruption on all levels.
- Cutting unnecessary bureaucratic and administrative obstacles for businesses.
- Regulating and attaching conditions to the flow of international capital, and regulating the financial market as so it does not grow into a systemic risk

Unfortunately, development strategies are too often driven by economic theories and ideology instead of pragmatism (a phenomena that can currently be observed in Europe). While the above measurements have been highly successful in Asia, they are in direct contradiction to what dominant players such as the World Bank and the IMF have been demanding from borrowing countries. Considering that development in most debtor countries (particularly Africa) has stalled over the last 50 years while Asian countries have boomed, it is probably fair to state that World Bank/IMF's ideology-driven free market approach has not been particular helpful.



# Social Cohesion Problem-Solution Tree





### Ensuring equal opportunities to facilitate social stability

Social Cohesion does not seem to be an absolute necessary ingredient for short-term economic development, but facilitates economic growth. It is questionable, however, to what extent long-term economic development can be sustained without a certain level social cohesion.

The calculated social cohesion scores show a certain correlation to GDP per capita level, raising the question whether social cohesion is the result or the cause of increased economic wealth. However, the correlation cannot be observed throughout all countries. The exceptions to the rule, such as the USA (high GDP per capita, but comparably low social cohesion score) seem to indicate that social cohesion is not a default outcome of economic success – or an indication of the beginning decline of a society. Leaving aside the individual human tragedies, countries with a low social cohesion are likely to face constraints in achieving sustainable and sustained development and wealth:

- Higher cost of labour and lower labour efficiency to businesses due to ill health both on the lower end (poor man's sicknesses, e.g. malaria etc.) and at the higher end (e.g. obesity, frequency of cardiac diseases)
- Lack of economic equality and equal opportunities leads to lack of incentives to follow an ambitious career path and low work motivation and identification, which in turn negatively affects the efficiency and profitability of economic entities. Combined with large income and asset ownership gaps, lack of economic opportunities is likely to increase crime rates. In extreme cases this can lead to the breakdown of order, effectively rendering development impossible.
- Unbalanced demographic structure (aging population) affects a country's social structure and constraints social services.

Social cohesion and the social consensus within a society or country is determined by a number of factors, including history and culture, i.e. there is no one-size-fits all solution to improve social cohesion in a specific country. However, countries with high social cohesion and high income levels have some common characteristics that can be influenced through adequate policies:

- Increasing access to adequate health care in geographical terms (i.e. in rural areas), using modern technology and communication coupled with innovative business/financing models to simultaneously increase affordability of health care
- Increase the affordability and quality of public services, including family and child care support to fully capitalise on the capabilities of the female population
- Designing intelligent policies that limit income and asset ownership gaps. However, such policies have to be designed to allow sufficient room for awarding individual performance and accomplishments that serve as drivers for the overall economy and development
- Increasing community development programs with a focus on fostering alternatives to criminal career paths
- Adapt legislation to reduce criminality and incentives for criminal behaviour (for example treating drug addiction as a sickness rather than a crime)
- Introducing incentives to increase birth rate in aging societies resp. incentives to decrease birth rate in countries with high birth rates
- Avoiding unnecessary confrontations with internal minorities and in terms of geo-political engagement and foreign relations



# THE GLOBAL SUSTAINABLE COMPETITIVENESS INDEX 2013

