



2016年(第25回) ブループラネット賞  
受賞者記念講演会

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2016 Blue Planet Prize  
Commemorative Lectures

パバン・シュクデフ氏  
講演スライド集

未来を垣間見る " 持続可能性 " の検証

Mr. Pavan Sukhdev

Slides for the Lecture

Measuring Sustainability

*Glimpses of the Future*



## Measuring Sustainability *Glimpses of the Future*

**Pavan Sukhdev**

Founder-CEO, GIST Advisory  
& Goodwill Ambassador for UN Environment

17<sup>th</sup> November 2016

## Measuring Sustainability *Glimpses of the Future*

- ❖ Context: Sustainable Development Goals, 2030
- ❖ Measuring Sustainability for a Nation's Economy
- ❖ Measuring Sustainability for Agri-Food Systems
- ❖ Measuring Sustainability for a Corporation

- ❖ Context: Sustainable Development Goals, 2030
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## What is the *Structure* for SDG’s?

**“Development” = “Improving Well Being for All”**



- ❖ **Structure: How do SDG’s relate to each other?**
- ❖ **In what sequence, and why, should SDG’s be implemented?**

Source: From J. Rockström/P. Sukhdev presentation to EAT Forum, Stockholm, 2016

URL: <http://www.stockholmresilience.org/research/research-news/2016-06-21-looking-back-at-2016-eat-stockholm-food-forum.html>

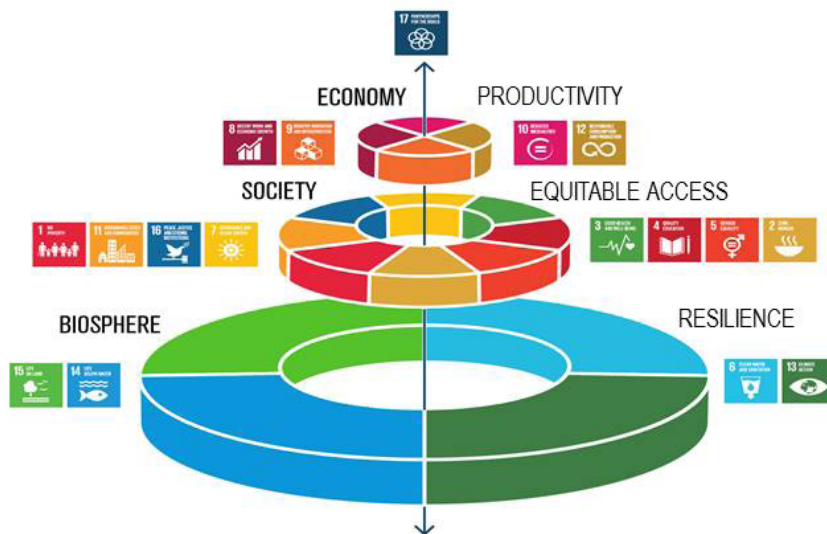
## "Development" = "Improving Well Being for All"

- Improving **along** Three Axes of Sustainability
  - **Security:** *Resilience* against shocks; *Avoidance* of shocks
  - **Access:** *Resource sufficiency*; *Resource access*; *Distributional equity*
  - **Productivity:** *Agricultural & Industrial productivity*; *Resource efficiency*

Source: From J. Rockström/ P. Sukhdev paper to OWG, 2014

URL: [http://www.icsu.org/science-for-policy/sustainable-development-goals-1/pdfs/Rockstrom%20Sukhdev%20input%20OWG%20UNEP\\_FINAL.pdf](http://www.icsu.org/science-for-policy/sustainable-development-goals-1/pdfs/Rockstrom%20Sukhdev%20input%20OWG%20UNEP_FINAL.pdf)

## "Development" = "Improving Well Being for All"



Source: From J. Rockström/ P. Sukhdev presentation to EAT Forum, Stockholm, 2016

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### *“Development” = “Improving Well Being for All”*

- Improving *in* Four Dimensions of Wealth (“Capital”)
  - **Human Capital:** *Citizens Health; Education; Skills*
  - **Social Capital:** *Norms & Customs; Law & Order; Taxation systems*
  - **Physical Capital:** *Energy; built infrastructure; patents ; finance*
  - **Natural Capital:** *Ecological infrastructure; Resource scarcities*

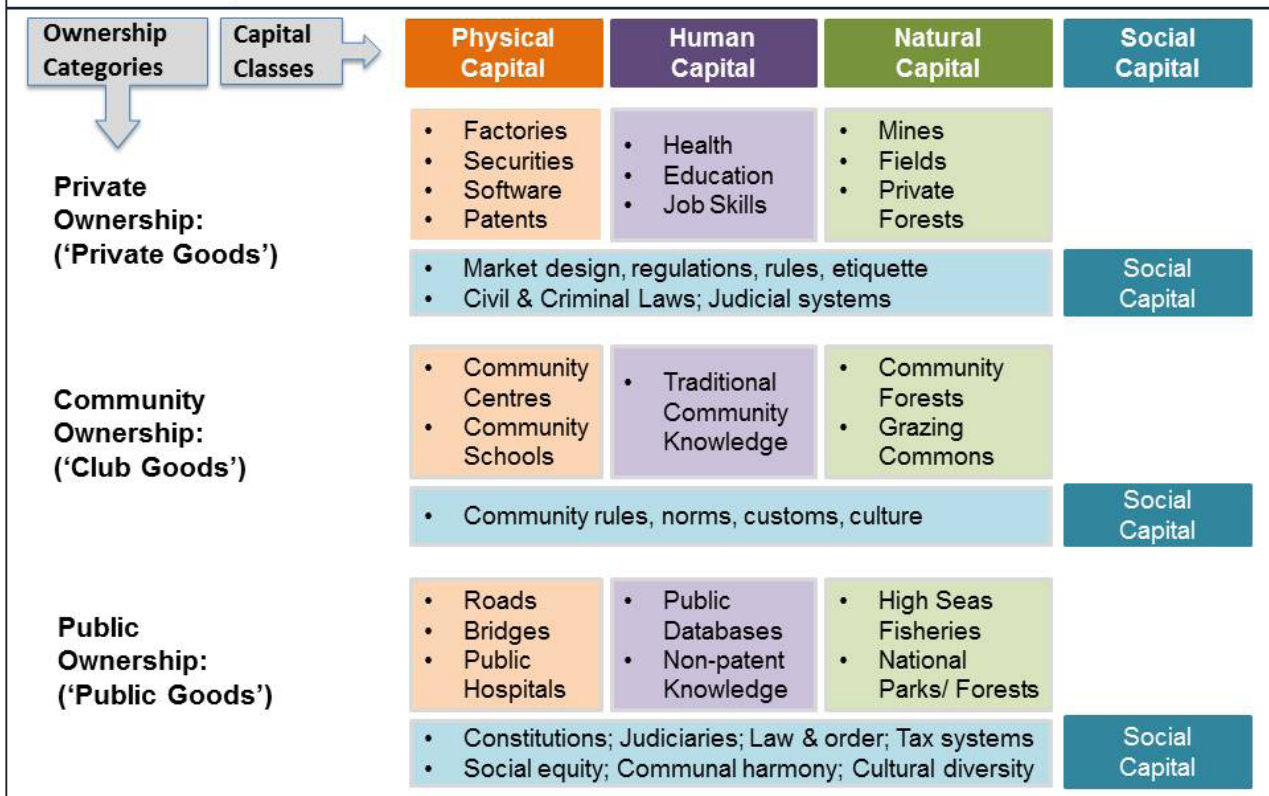
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URL: [http://www.icsu.org/science-for-policy/sustainable-development-goals-1/pdfs/Rockstrom%20Sukhdev%20input%20OWG%20UNEP\\_FINAL.pdf](http://www.icsu.org/science-for-policy/sustainable-development-goals-1/pdfs/Rockstrom%20Sukhdev%20input%20OWG%20UNEP_FINAL.pdf)

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## Dimensions of Wealth



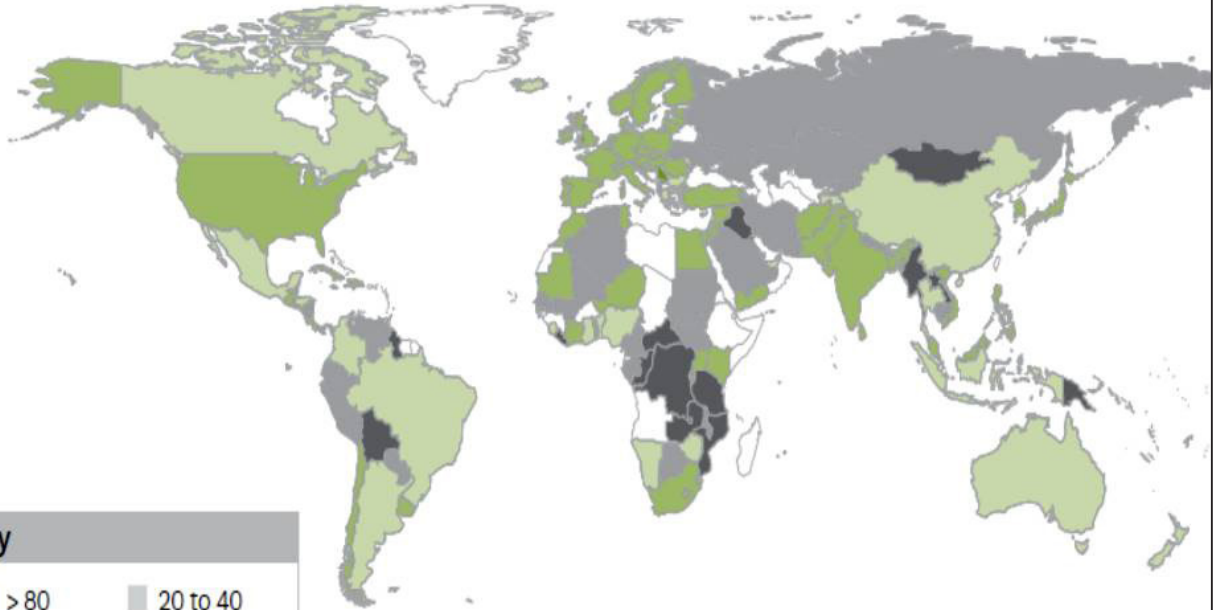
## "Inclusive Wealth": a True Balance Sheet of Nations









The UN ("Inclusive Wealth Report, 2014") calculates human capital based on average years of schooling, workers wages, and the number of years they can expect to work before they retire (or die)<sup>1</sup>.

Sources: <sup>1</sup>Inclusive Wealth Report 2014 URL: [http://www.ihdp.unu.edu/docs/Publications/Secretariat/Reports/SDMs/IWR\\_SDM\\_2014.pdf](http://www.ihdp.unu.edu/docs/Publications/Secretariat/Reports/SDMs/IWR_SDM_2014.pdf)  
 Chart from: <http://www.economist.com/node/21557732>

## Percentage of Human Capital in Nations' Wealth



### Key

 > 80	 20 to 40
 60 to 80	 < 20
 40 to 60	 no data

Source: : [http://www.ihdp.unu.edu/docs/Publications/Secretariat/Reports/SDMs/IWR\\_SDM\\_2014.pdf](http://www.ihdp.unu.edu/docs/Publications/Secretariat/Reports/SDMs/IWR_SDM_2014.pdf)

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- ❖ **Measuring Sustainability for Agri-Food Systems**
- ❖ Measuring Sustainability for a Corporation





# TEEB for Agriculture & Food

## The *visible* flows of agriculture

### AGRICULTURE & FOOD SYSTEMS



teebweb.org  
teeb.agfood@unep.org

Source: [http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood\\_Interim\\_Report\\_2015\\_web.pdf](http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood_Interim_Report_2015_web.pdf)



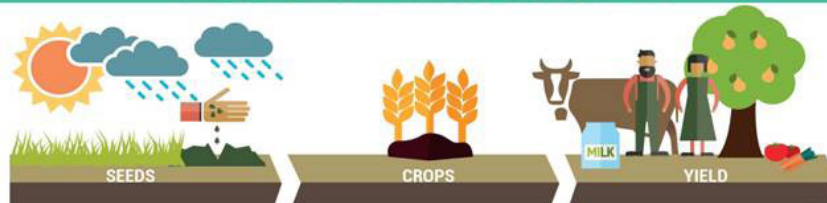
# TEEB for Agriculture & Food

## The *visible and invisible* flows!

### HUMAN SYSTEMS



### AGRICULTURE & FOOD SYSTEMS



### BIODIVERSITY & ECOSYSTEMS

■ Inputs ■ Outputs ■ Invisible positive flows ■ Invisible negative flows

teeb.agfood@unep.org

Source: [http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood\\_Interim\\_Report\\_2015\\_web.pdf](http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood_Interim_Report_2015_web.pdf)



## Why has TEEBAgriFood proposed a Comprehensive Valuation Framework?

"VALUE- ADDITION"		Production		
Value Chain Stages	Natural Landscape	Infra & Mfg	Farm	
Visible & Invisible Flows				
Captured in SNA (Profits, Wages, Taxes - Subsidies, etc)		The narrow field of view of "per hectare productivity" ...		

The narrow field of view of "per hectare productivity" ...

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Source: <http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood Interim Report 2015 web.pdf>

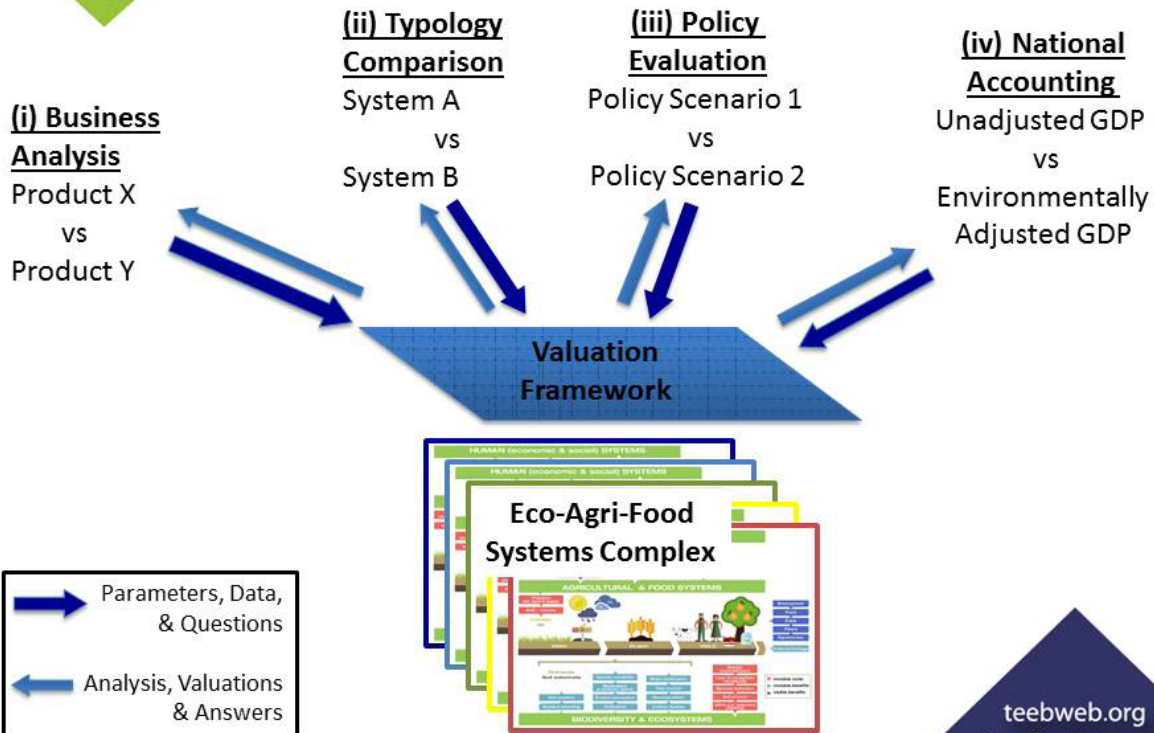


## Why has TEEBAgriFood proposed a Comprehensive Valuation Framework?

"VALUE- ADDITION"		Production			Processing & Distribution			Consumption	
Value Chain Stages	Natural Landscape	Infra & Mfg	Farm	Wholesale	F & B	Retail	Industry/ Household/ Hospitality	Waste Mngmt	
Visible & Invisible Flows									
Captured in SNA (Profits, Wages, Taxes - Subsidies, etc)		The narrow field of view of "per hectare productivity" ...							
Provisioning Services (Materials, Energy, etc)									
Regulation & Maintenance (Soil, Water, Habitat, etc)									
Cultural (lifestyle, heritage...)									
Health (Nutrition, Diseases, Antibiotic Resistance, etc)									
Pollution (Nitrates, Pesticides, Heavy metals, etc)									
Emissions (CO <sub>2</sub> ; CH <sub>4</sub> ; etc)									
Social Values (food security; gender equity; etc )									
Risks & Uncertainties (Resilience; Health; etc)									

Source: <http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood Interim Report 2015 web.pdf>

**Applications of a Universal “Valuation Framework”**



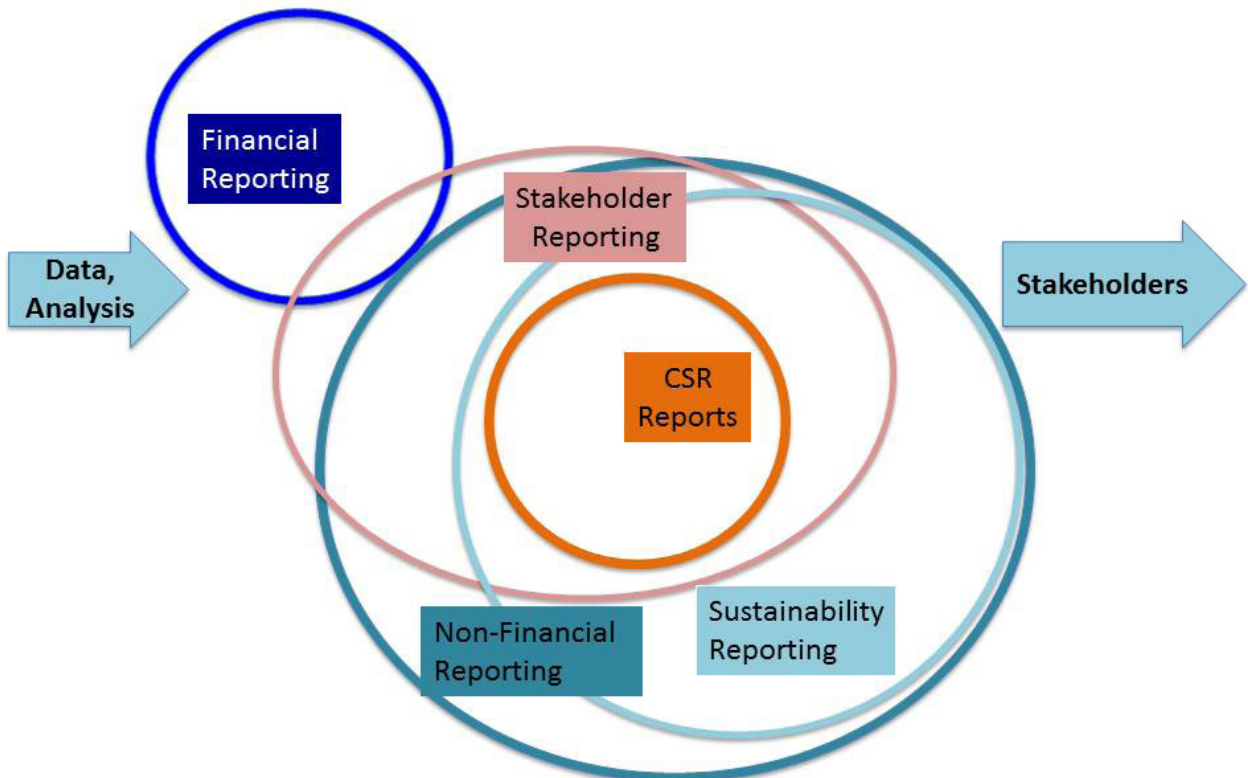
Source: <http://img.teebweb.org/wp-content/uploads/2016/01/TEEBAgFood Interim Report 2015 web.pdf>



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*Glimpses of the Future*

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## Reporting by Public Companies *From Today's World ...*



## Reporting by Public Companies *...To The Future We Want !*



- Sustainability Considerations are *Integrated* into Reporting
- Sustainability in terms of *dimensions of wealth*, hence *capitals*
- Sustainable Development Goals:
  - Productivity, Equitable Access, Security of *capital classes*
  - *Four Capitals : Physical, Human, Natural, Social*

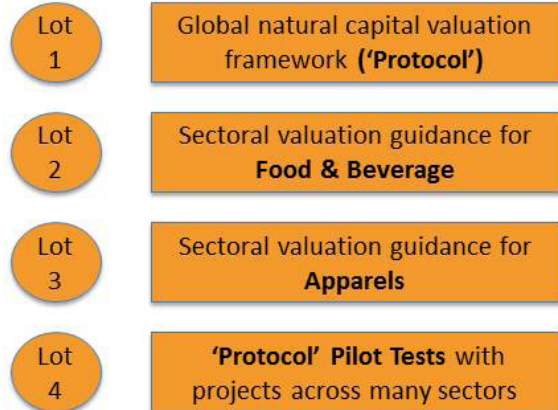


## Natural Capital Protocol

Natural Capital Coalition (NCC), *earlier* TEEB for Business Coalition, in 2014 launched a 2-year project to prepare and test a global framework and guidelines for measuring and valuing environmental impacts (externalities) and dependencies.



### Work-streams



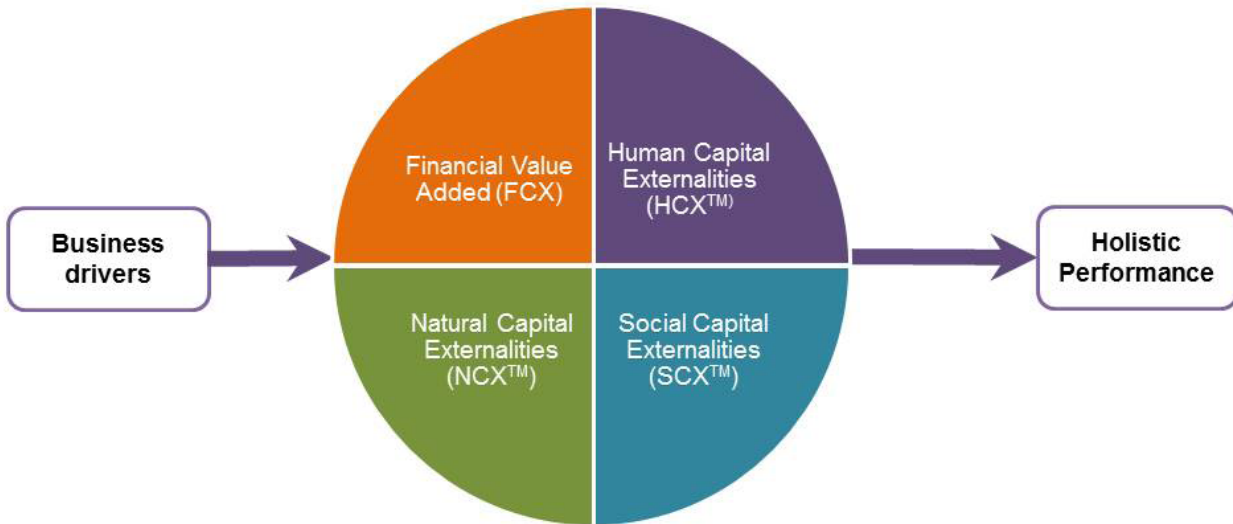
These work-streams were coordinated by two groups of experts led respectively by WBCSD and by IUCN



## Dimensions of Wealth

Ownership Categories	Capital Classes	Physical Capital	Human Capital	Natural Capital	Social Capital
Private Ownership: ('Private Goods')		<ul style="list-style-type: none"> <li>Factories</li> <li>Securities</li> <li>Software</li> <li>Patents</li> </ul>	<ul style="list-style-type: none"> <li>Health</li> <li>Education</li> <li>Job Skills</li> </ul>	<ul style="list-style-type: none"> <li>Mines</li> <li>Fields</li> <li>Private Forests</li> </ul>	
			<ul style="list-style-type: none"> <li>Market design, regulations, rules, etiquette</li> <li>Civil &amp; Criminal Laws; Judicial systems</li> </ul>		Social Capital
Community Ownership: ('Club Goods')		<ul style="list-style-type: none"> <li>Community Centres</li> <li>Community Schools</li> </ul>	<ul style="list-style-type: none"> <li>Traditional Community Knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Community Forests</li> <li>Grazing Commons</li> </ul>	
			<ul style="list-style-type: none"> <li>Community rules, norms, customs, culture</li> </ul>		Social Capital
Public Ownership: ('Public Goods')		<ul style="list-style-type: none"> <li>Roads</li> <li>Bridges</li> <li>Public Hospitals</li> </ul>	<ul style="list-style-type: none"> <li>Public Databases</li> <li>Non-patent Knowledge</li> </ul>	<ul style="list-style-type: none"> <li>High Seas Fisheries</li> <li>National Parks/ Forests</li> </ul>	
			<ul style="list-style-type: none"> <li>Constitutions; Judiciaries; Law &amp; order; Tax systems</li> <li>Social equity; Communal harmony; Cultural diversity</li> </ul>		Social Capital

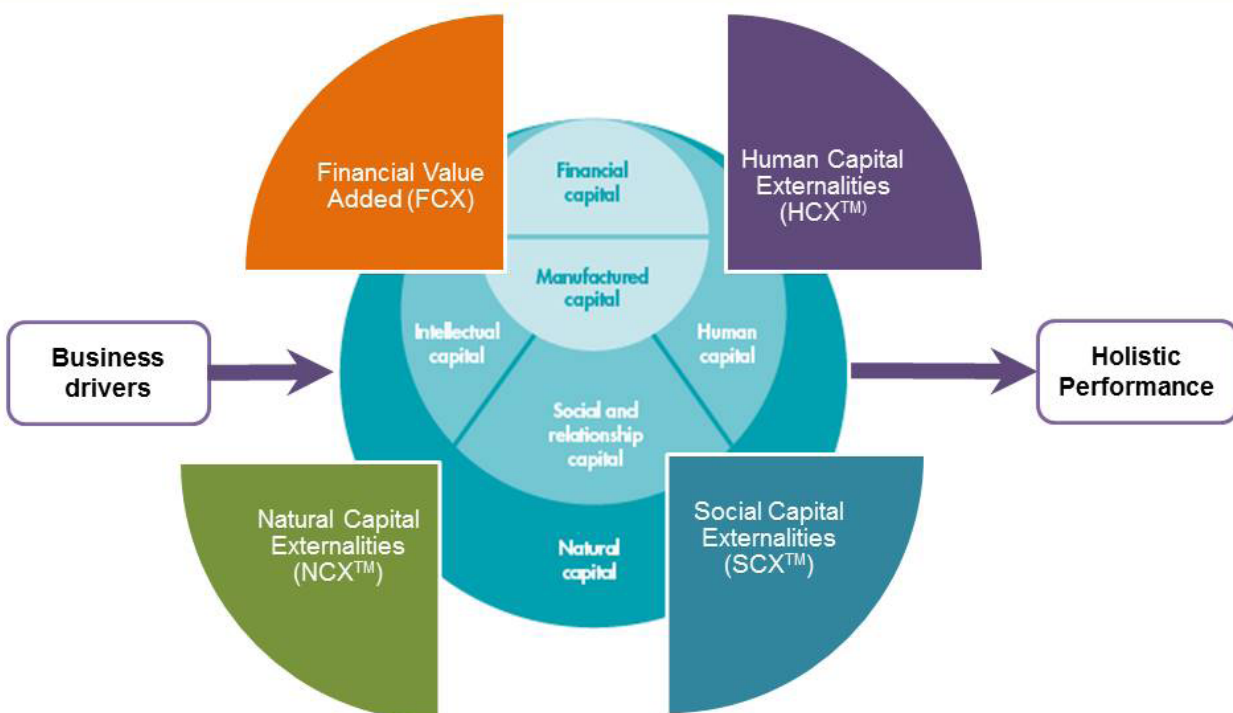
## IIRC vs GIST Categorization of Capitals



Source: Adapted from [www.theiirc.org](http://www.theiirc.org) & [www.gistadvisory.com](http://www.gistadvisory.com), "Towards a Valuation Framework for Business Externalities"

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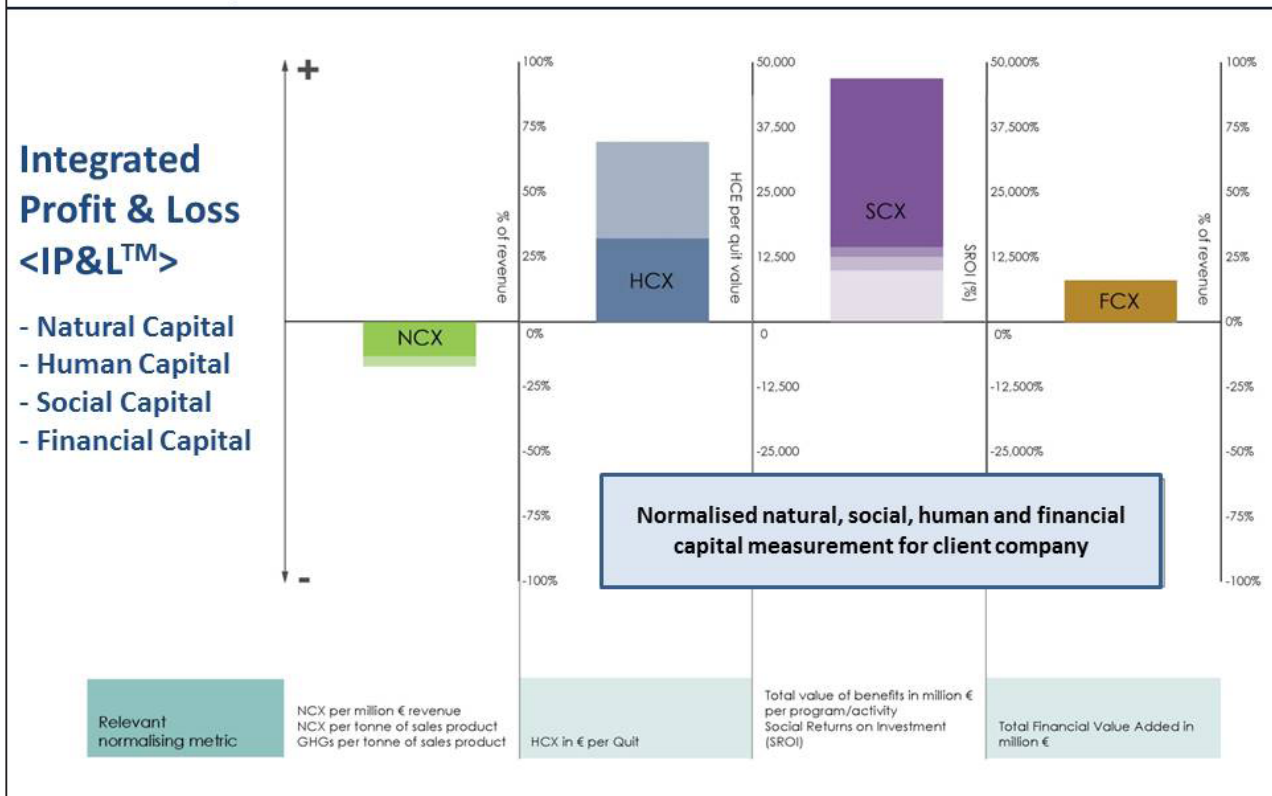
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# Response: Economic Valuation of Stakeholder Impacts



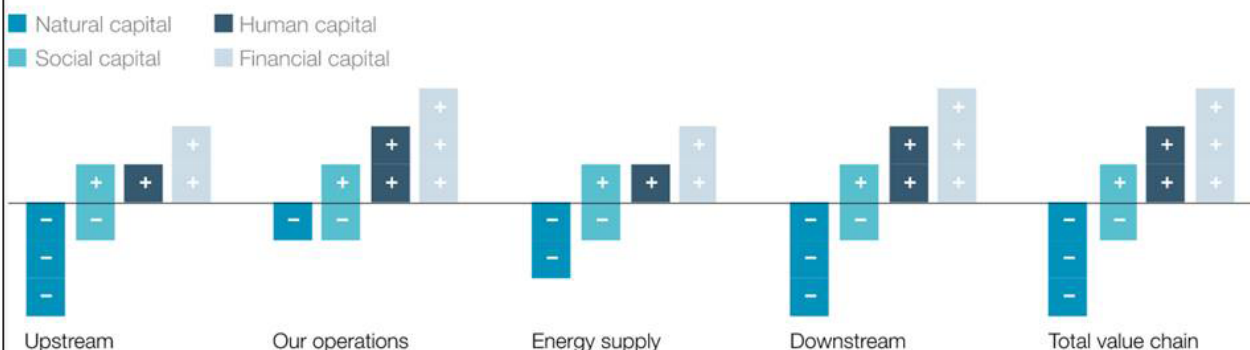
# Valuation in Practice: AkzoNobel 4D-P&L



AkzoNobel (AN) wanted to develop an understanding of how their business impacts the environment, people and society at large. Understanding these aspects better – and attaching a monetary value to them – will enable them to identify possible improvements and ultimately increase business value.

The pilot study of AN's Pulp and Performance Chemicals business in Brazil looked at their environmental, human, social and financial impact. By measuring these four dimensions across the whole value chain, they were able to identify where they can improve. This will enable them to make better decisions by reducing the negatives and building on the positives.

### Monetized impact across the whole value chain (indicative<sup>1</sup>)



Source: <http://report.akzonobel.com/2014/ar/case-studies/sustainable-business/measuring-our-impact-in-4d.html>

### AMATA

A Brazilian forestry and forest products company that promotes the use of low-impact forestry techniques.



Source: [www.amatabrasil.com.br/arquivos/integratedannualreportamata2015\\_EN.pdf](http://www.amatabrasil.com.br/arquivos/integratedannualreportamata2015_EN.pdf)

### Structure of the report

#### About the Company

History | Employees | Governance | Assets Development | 2015 Updates

#### Operations

Objective + Learning + 2015 Milestones + Challenges; by region of operation

#### Integrated Analysis of Externalities

Natural Capital | Social Capital | Human Capital | Financial Capital

#### More Results

Further Sustainability Indicators | Financial Statements | GRI G4 Compliance | Acknowledgements

# AMATA <IP&L™> 2015

## All Capital Classes

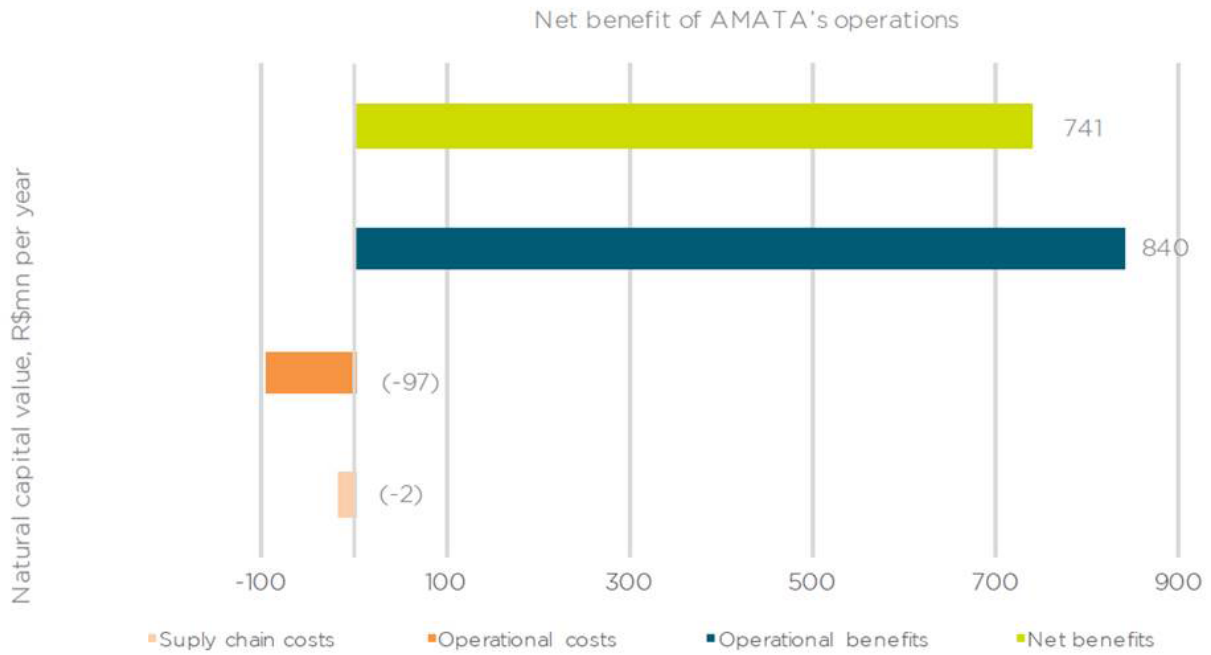


Approach used to evaluate each capital was:

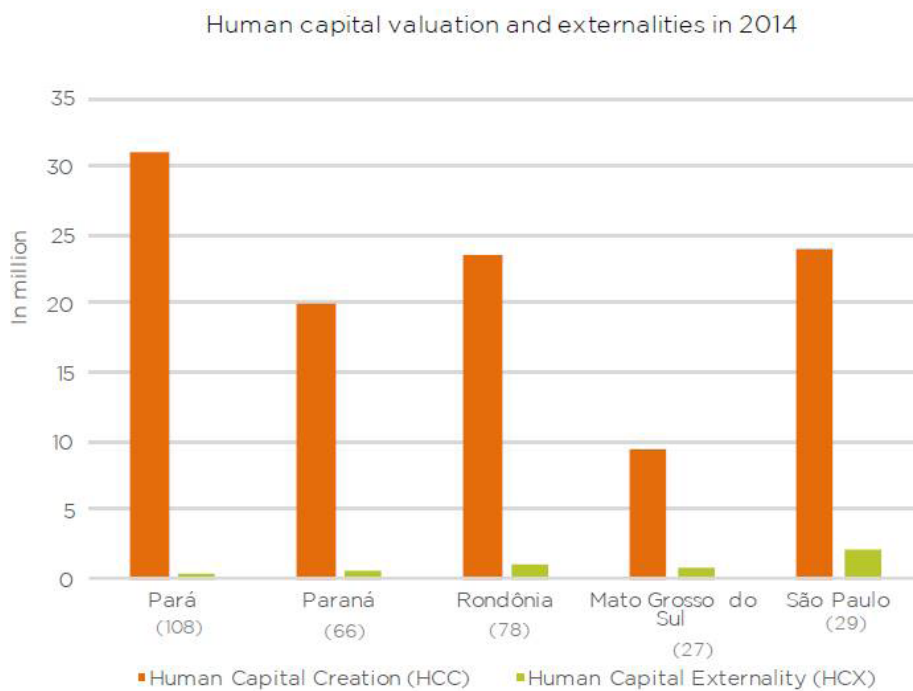
I-P&L

Natural Capital (NCX™)	Human Capital (HCX™)	Social Capital (SCX™)	Financial Capital (FCX™)
<ul style="list-style-type: none"> <li>• GHG emissions</li> <li>• Water usage</li> <li>• Air pollution</li> <li>• Land pollution</li> <li>• Waste production</li> <li>• Water pollution</li> <li>• Ecosystem services</li> </ul>	<ul style="list-style-type: none"> <li>• Hiring and training of employees</li> <li>• Health and safety of employees</li> </ul>	<ul style="list-style-type: none"> <li>• Business model centered on stakeholder</li> </ul>	<ul style="list-style-type: none"> <li>• Profit after tax</li> <li>• Fees paid</li> <li>• Remuneration</li> <li>• Net interest rate</li> <li>• Net rental fee</li> <li>• Depreciation</li> </ul>



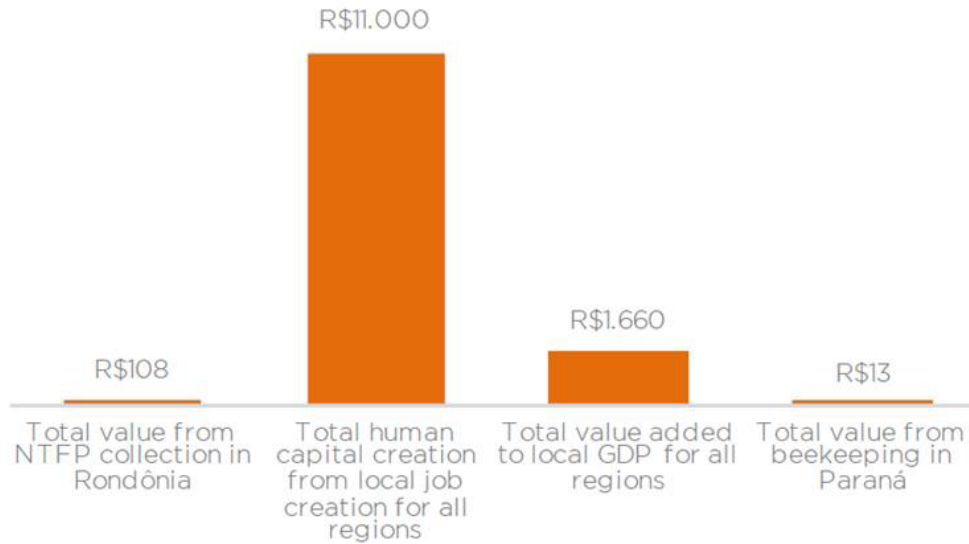


Source: [www.amatabrasil.com.br/arquivos/integratedannualreportamata2015\\_EN.pdf](http://www.amatabrasil.com.br/arquivos/integratedannualreportamata2015_EN.pdf)



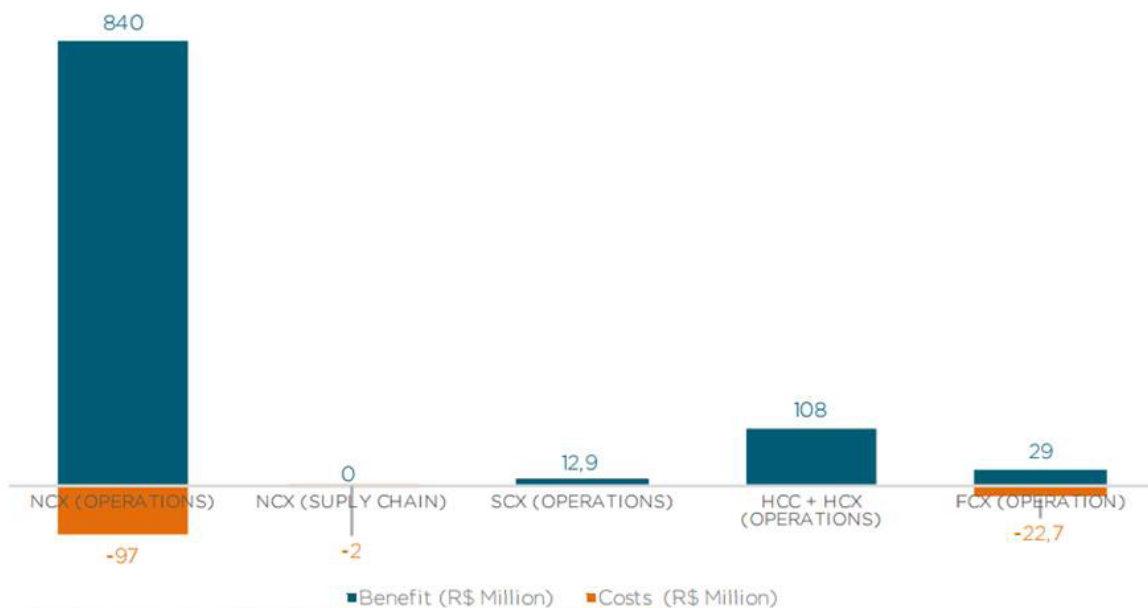
Source: [www.amatabrasil.com.br/arquivos/integratedannualreportamata2015\\_EN.pdf](http://www.amatabrasil.com.br/arquivos/integratedannualreportamata2015_EN.pdf)

Total value of social capital externalities for AMATA in 2014 (R\$ Thousands)



Source: [www.amatabrasil.com.br/arquivos/integratedannualreportamata2015\\_EN.pdf](http://www.amatabrasil.com.br/arquivos/integratedannualreportamata2015_EN.pdf)

Balance of the positive and negative externalities of AMATA in 2014



Source: [www.amatabrasil.com.br/arquivos/integratedannualreportamata2015\\_EN.pdf](http://www.amatabrasil.com.br/arquivos/integratedannualreportamata2015_EN.pdf)

# Thank You!

[www.gistadvisory.com](http://www.gistadvisory.com)

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& Goodwill Ambassador fr UN Environment

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