

Sustainable Human Development Index—a pragmatic proposal for monitoring sustainability within the affordable boundaries

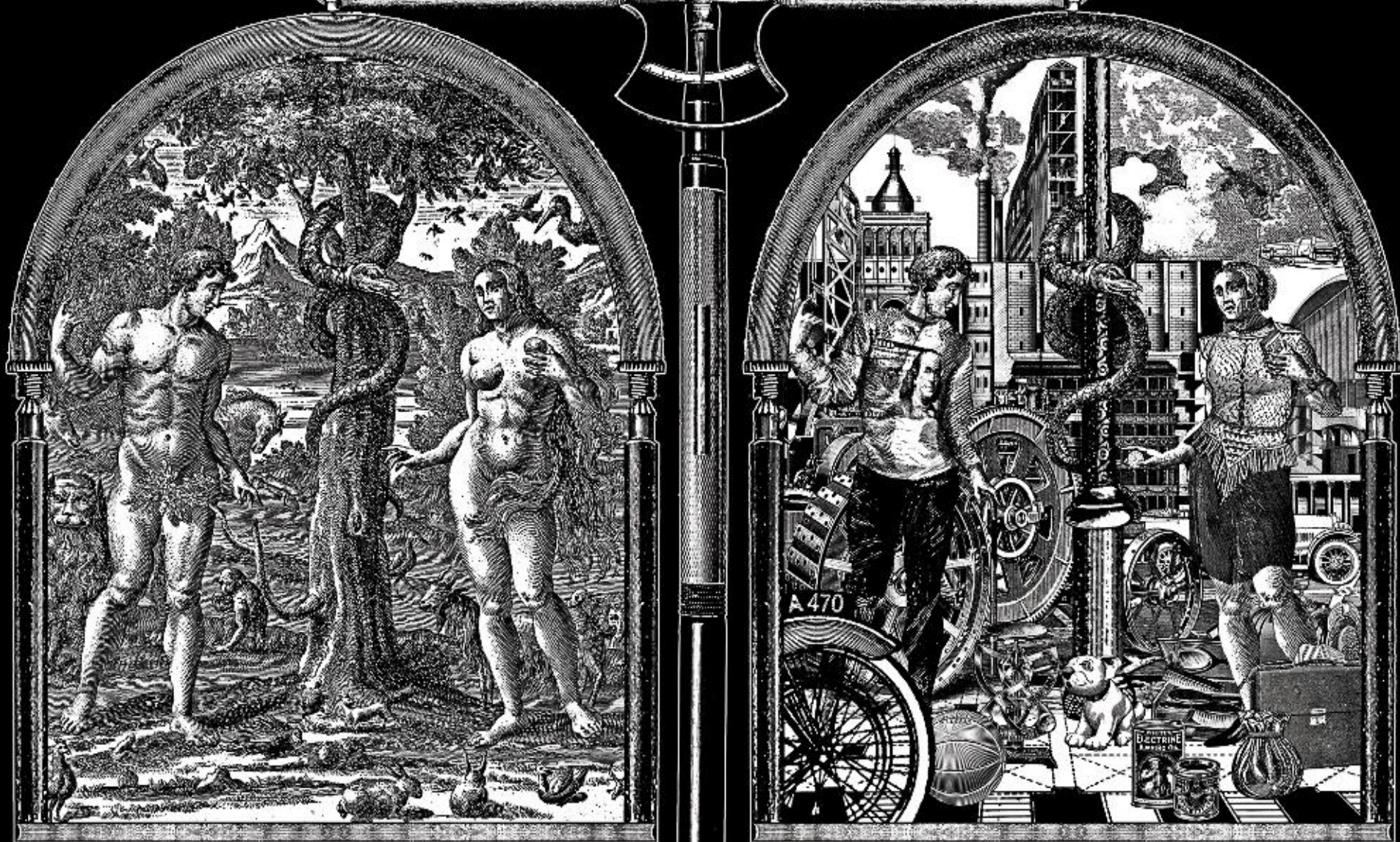
Mihail Peleah, United Nations Development Programme

Andrey Ivanov, European Union Agency for Fundamental Rights

IARIW-Bank of Korea Conference “Beyond GDP: Experiences and Challenges in the Measurement of Economic Well-being,”

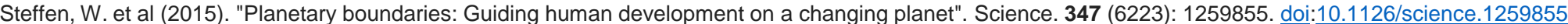
Seoul, Korea, April 26-28, 2017

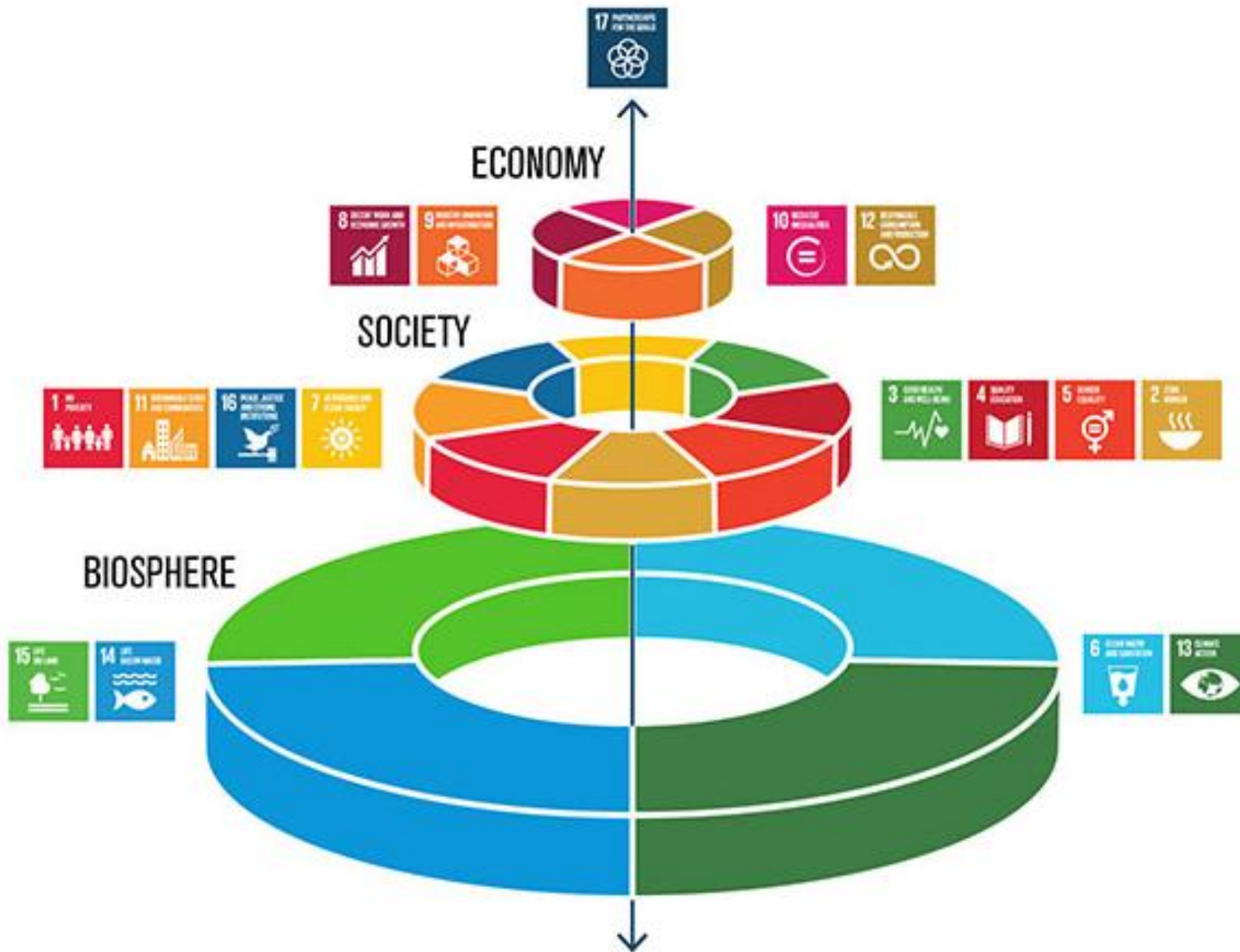
SUSTAINABILITY



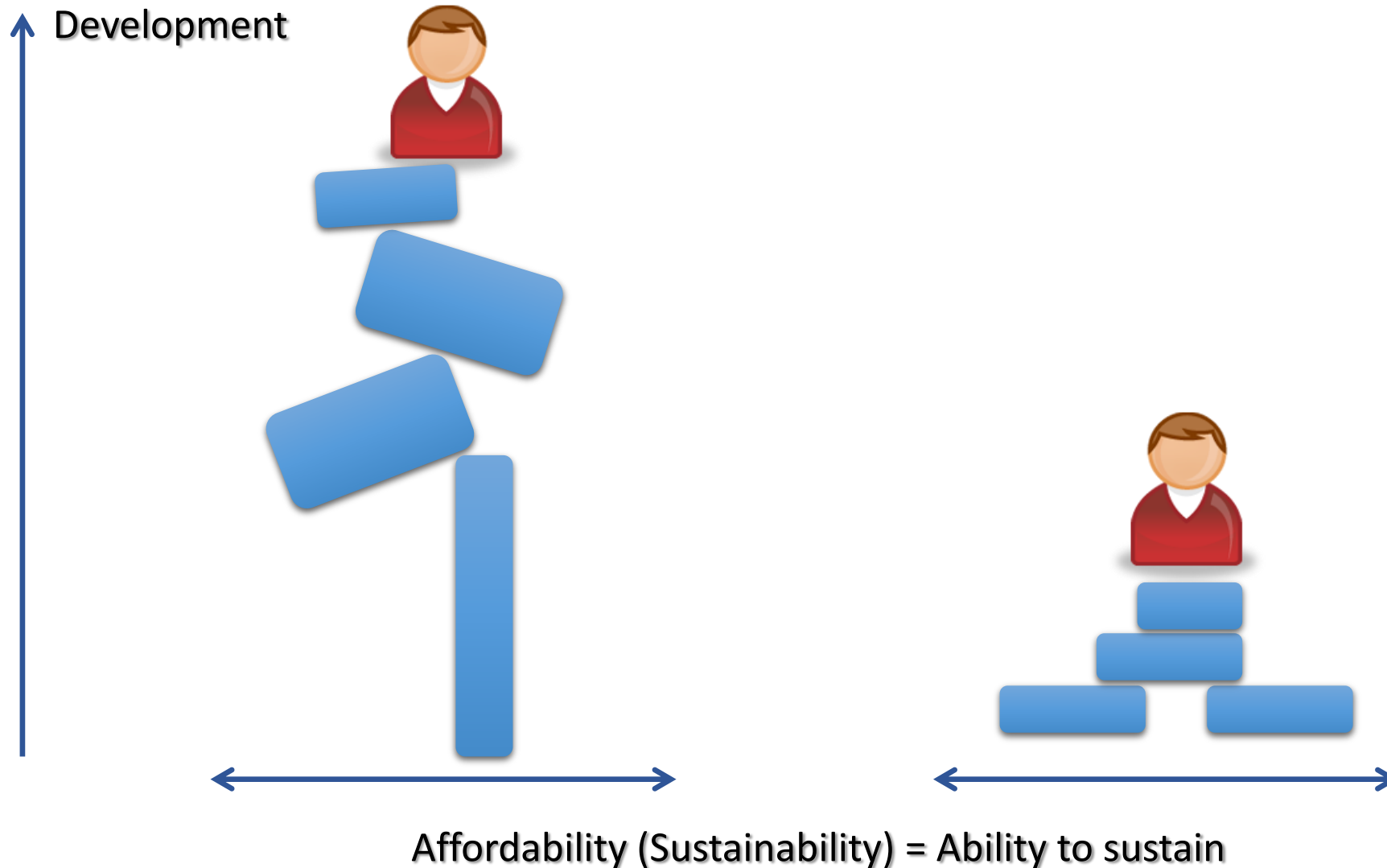
BALANCING BETWEEN EXTREMES

Concepts by Audrey, Emma, Catherine & Design by Vincent Proulx

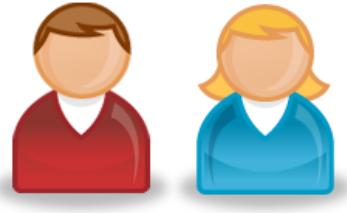




What we measure: development *or* sustainability?



SHDI-A Construction



Status

HDI

EHDl

Affordability

SHDI-A

Context



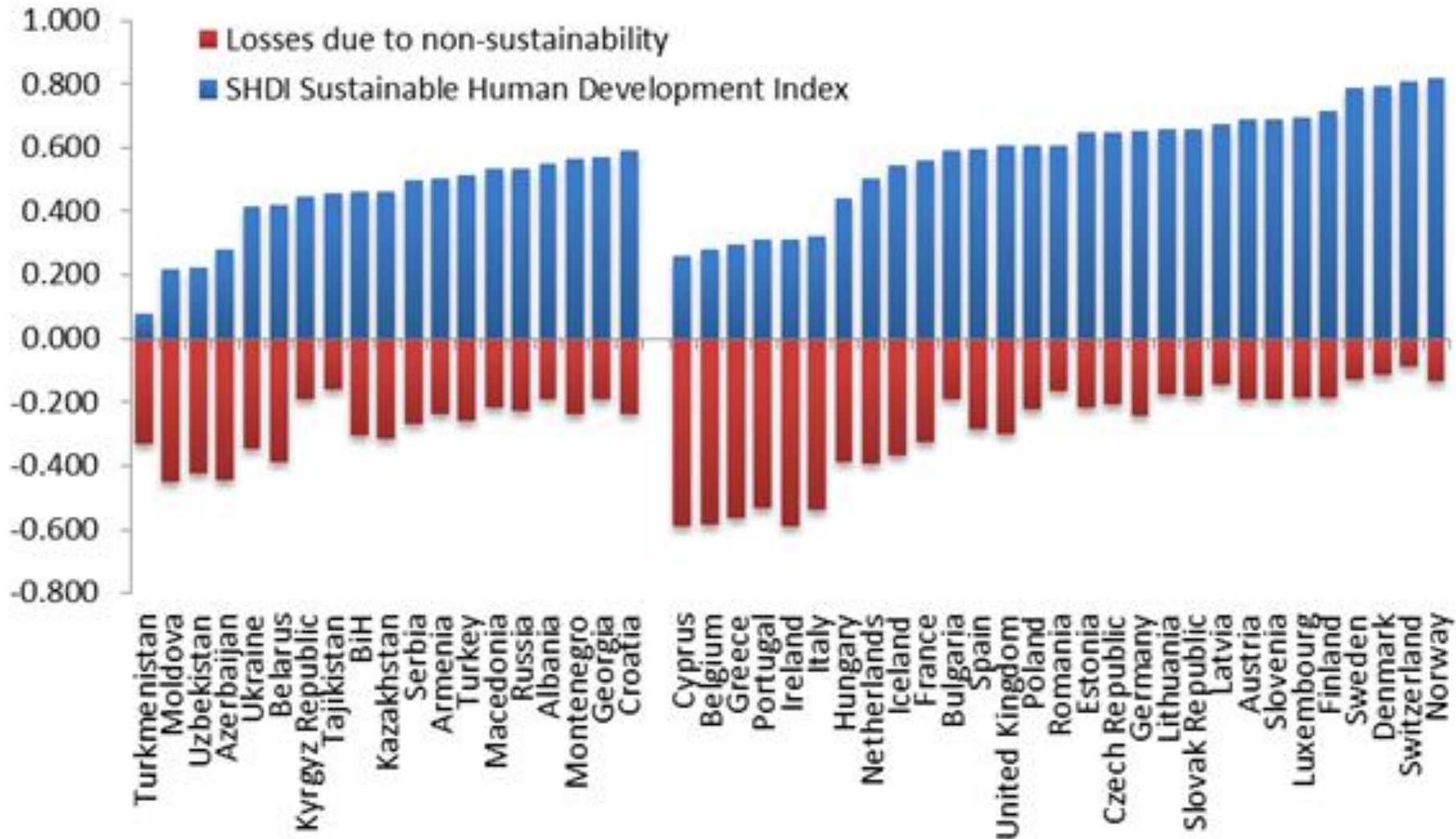
Selection of indicators for SHDI-A: Status indicators

Dimension	Ideal indicators	Available indicators
Long and healthy life	Life expectancy at birth	Life expectancy at birth
Knowledge	Mean Years of Schooling	Mean Years of Schooling
	Expected Years of Schooling	Expected Years of Schooling
A decent standard of living	GNI per capita (USD PPP)	GNI per capita (USD PPP)
Clean and balanced environment		
• Water	Quality of water	Water pollution: Access to improved water source
• Air	Quality of air	Air pollution: Air pollution PM2.5
• Soil	Share of degraded soils	Not available
• Forest	Loss of forestation relative to base year: Forest area, % relative to reference year (1990)	Loss of forestation relative to base year: Forest area, % relative to reference year (1990)
• Biodiversity	Loss of biodiversity	Not available
• Habitat	Quality of habitat	Share of population covered by waste collection and processing: Access to improved sanitation facilities

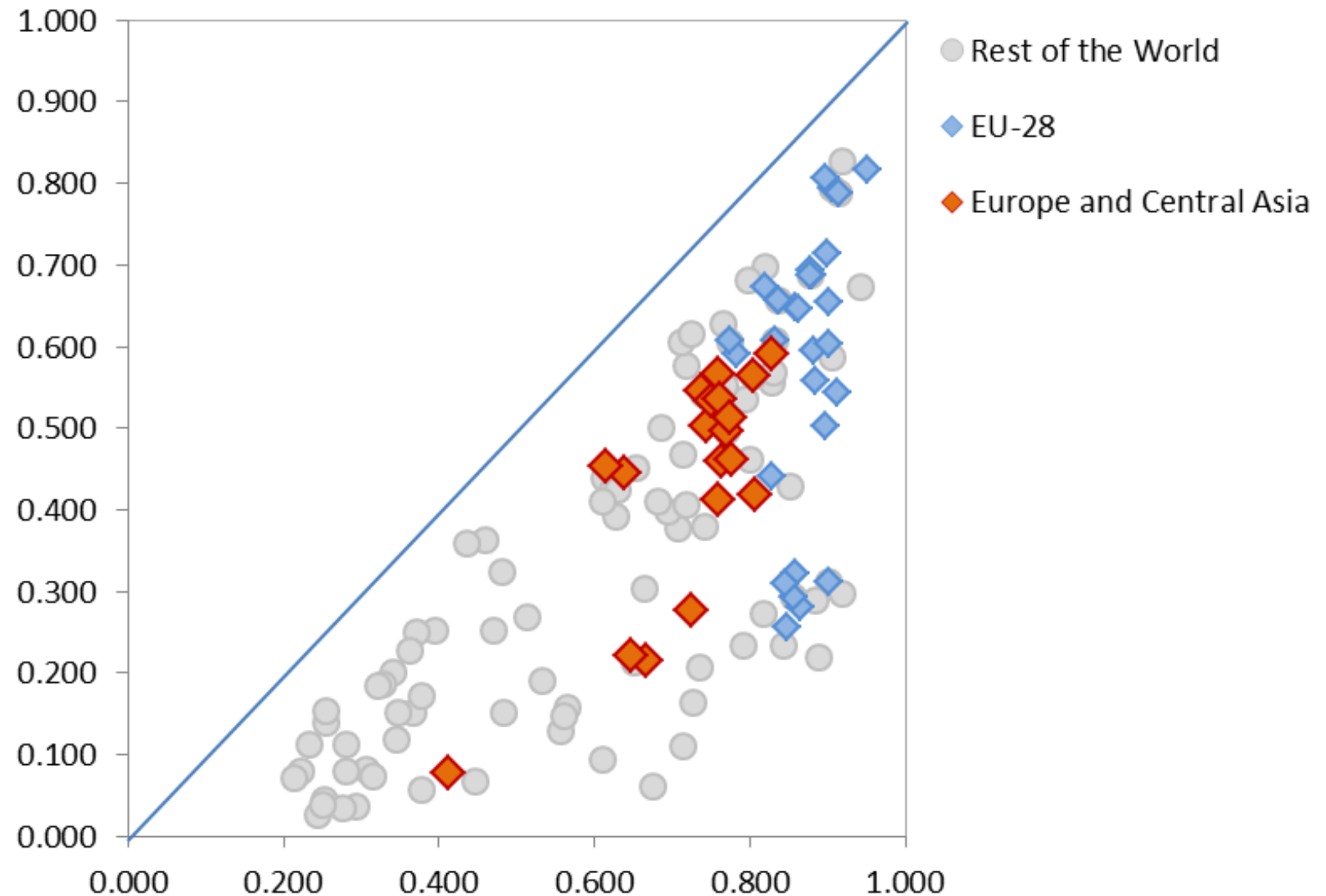
Selection of indicators for SHDI-A: Sustainability

Dimension	Ideal indicators	Available indicators
Long and healthy life	Healthy Life Expectancy	Disability adjusted life years
Knowledge	Quality of education and its equal distribution	Survival rate to the last grade of primary education, both sexes (%)
A decent standard of living	Costs incurred / Debts accumulated in achieving standards of living	<ul style="list-style-type: none"> • General government gross debt (% of GDP) • Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2005 PPP)
Clean and balanced environment		
• Water	Sustainability of water resource use	Water withdrawal as share of internal resources
• Air	Purification of air emissions	Not available
• Soil	Rate of soil degradation	Not available
• Forest	Rate of forestation loss relative to base year	Rate of forestation loss relative to base year
• Biodiversity	Measures to protect biodiversity	Share of terrestrial and marine protected areas
• Habitat	Share of waste processed or recycled	Share of renewable and sustainable energy

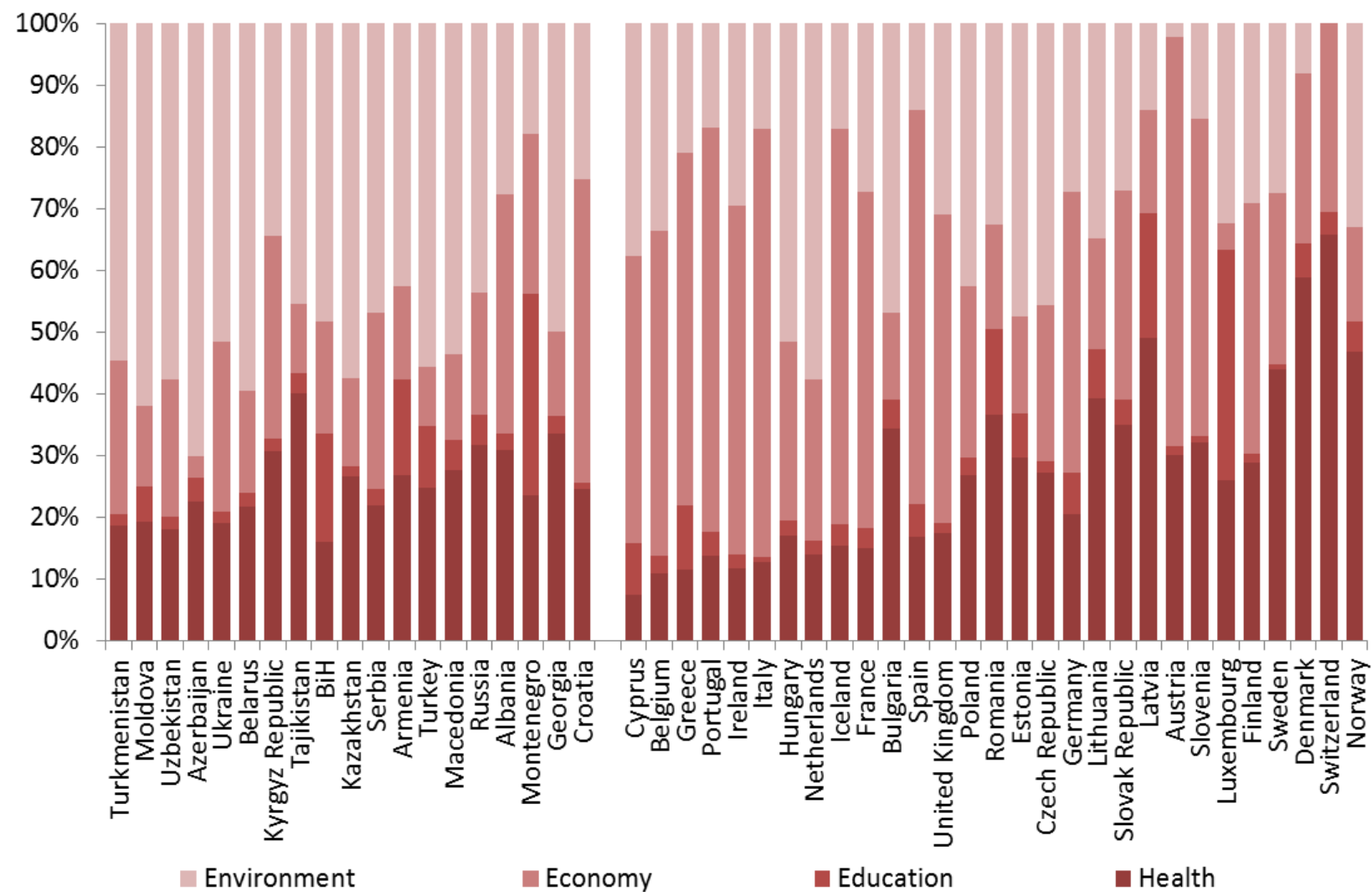
EHDI, SHDI-A and losses due to non-sustainability for countries of the region



To what extent the level of human development achieved in 2013 was within the 'affordable boundaries'?



Contribution to non-affordability



Korea

2013

Human Development Index

Extended Human Development Index (EHDI)

Sustainable Human Development Index (SHDI)

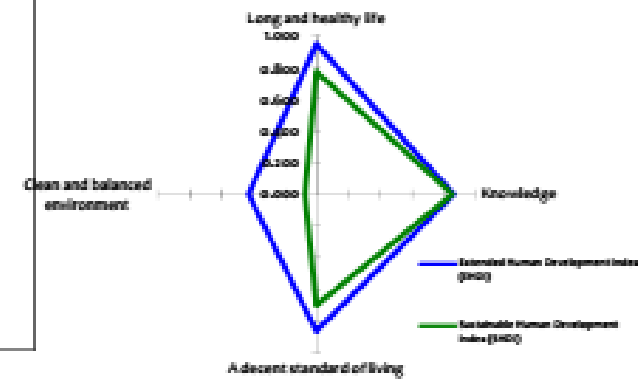
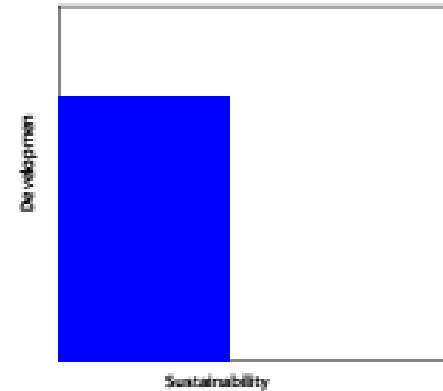
% losses due to non-sustainability

0.891

0.742

0.426

32%



Long and healthy life			Knowledge		A decent standard of living		Clean and balanced environment	
Status	Life expectancy index	0.947	Education index	0.866	GINI index	0.863	Environment index	0.428
	Life expectancy at birth	81.5	Mean Years of Schooling	11.8	GINI per capita (USD PPP)	39,345	Improved water source (% of population with access)	97.6
			Expected Years of Schooling	17			PM2.5 air pollution, mean annual exposure (micrograms per cubic meter)	29.1
							Forest area (% of base year, 1990)	107.3
							Waste management, improved sanitation facilities (% of population with access)	100.0
Sustainability	Health Sustainability	0.815	Education Sustainability	0.992	Standards of living Sustainability	0.812	Environmental Sustainability	0.166
	Healthy life expectancy at birth, years	73.0	Persistence to last grade of primary, total (% of cohort)	99.6	General government gross debt (% of GDP)	34.5	Water withdrawal - Annual freshwater withdrawals, total (% of internal resources)	39.3
					Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2011 PPP)	16.0	Terrestrial and marine protected areas (% of total territorial area)	5.3
							Share of energy from renewable sources	1.6
Context	Health expenditure, private (% of GDP)	3.3	Government expenditure on education as % of GDP (%)	-	HDI Loss due to inequality in income (%)	18.4	EFF Total Ecological Footprint (global ha per capita)	4.5
	Health expenditure, public (% of GDP)	3.8	HDI Loss due to inequality in education (%)	16.8	Income share held by lowest 20%	N/A	EFF Total Biocapacity (global ha per capita)	0.7
	Health expenditure, total (% of GDP)	7.1	Pupil-teacher ratio in primary education (headcount basis)	23.6	GINI index	-	EFF Biocapacity (Deficit) or Reserve (global ha per capita)	-9.8
	HDI Loss due to inequality in life expectancy (%)	3.9	Pupil-teacher ratio in secondary education (headcount basis)	18.1	Electric power transmission and distribution losses (% of output)	3.3	Bird species, threatened	30
	Physicians (per 1,000 people)	-	Internet users (per 100 people)	84.8	Informal payments to public officials (% of firms)	-	Mammal species, threatened	10
	Nurses and midwives (per 1,000 people)	-	Mobile cellular subscriptions (per 100 people)	111.0	Unemployment, total (% of total labor force)	3.1	Plant species (higher), threatened	8
	Hospital beds (per 1,000 people)	-	Firms offering formal training (% of firms)	-	Unemployment, youth total (% of total labor force ages 15-24) (modeled ILO estimate)	9.2		
	Improved water source (% of population with access)	97.6			Informal employment (% of total non-agricultural employment)	-		
	Improved sanitation facilities (% of population with access)	100.0			CO2 emissions (metric tons per capita)	11.8		

Armenia

2013

Human Development Index

Extended Human Development Index (EHDI)

Sustainable Human Development Index (SHDI)

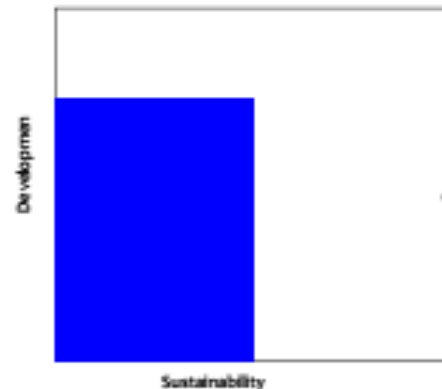
% losses due to non-sustainability

0.730

0.744

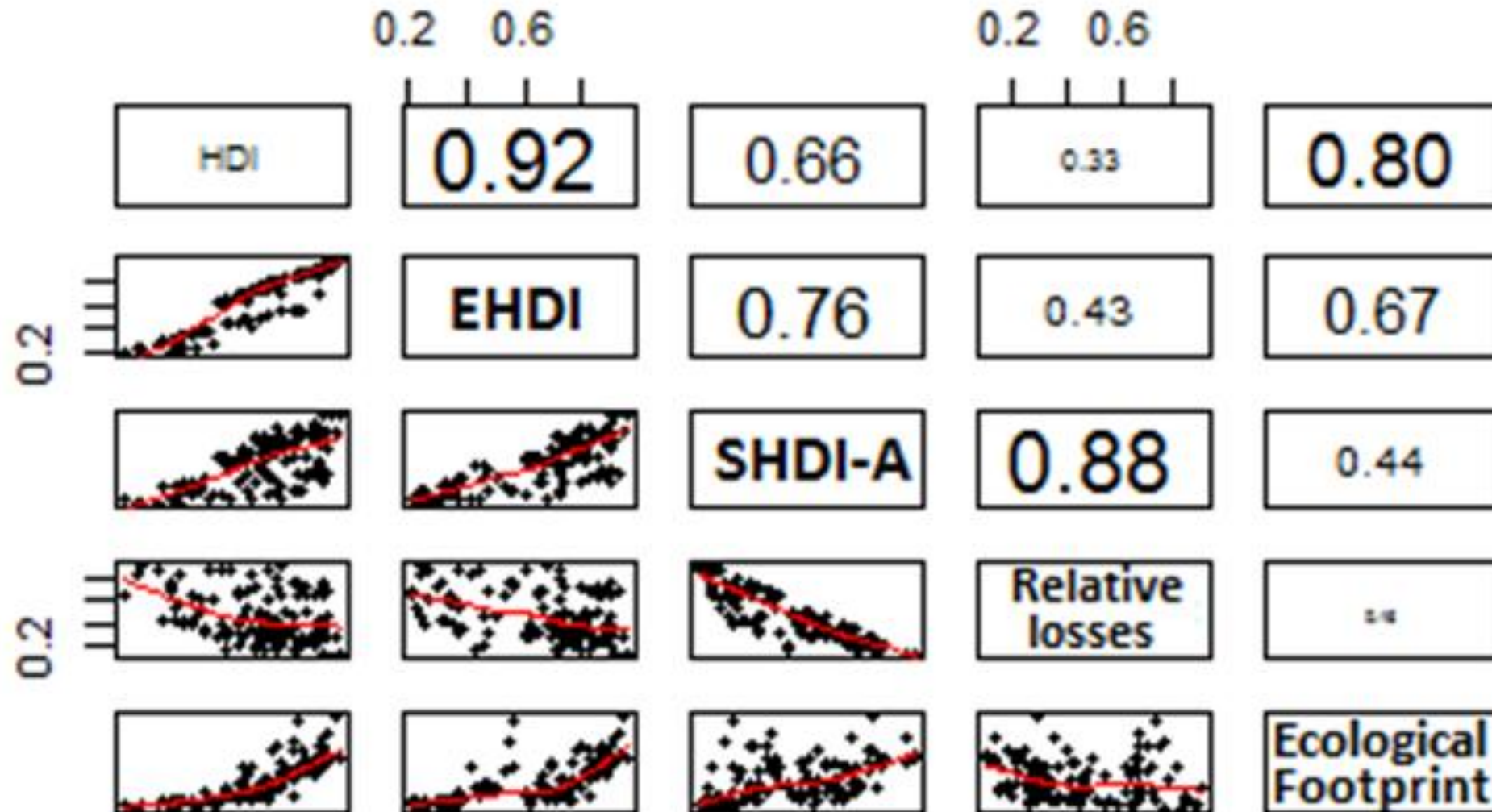
0.503

24%

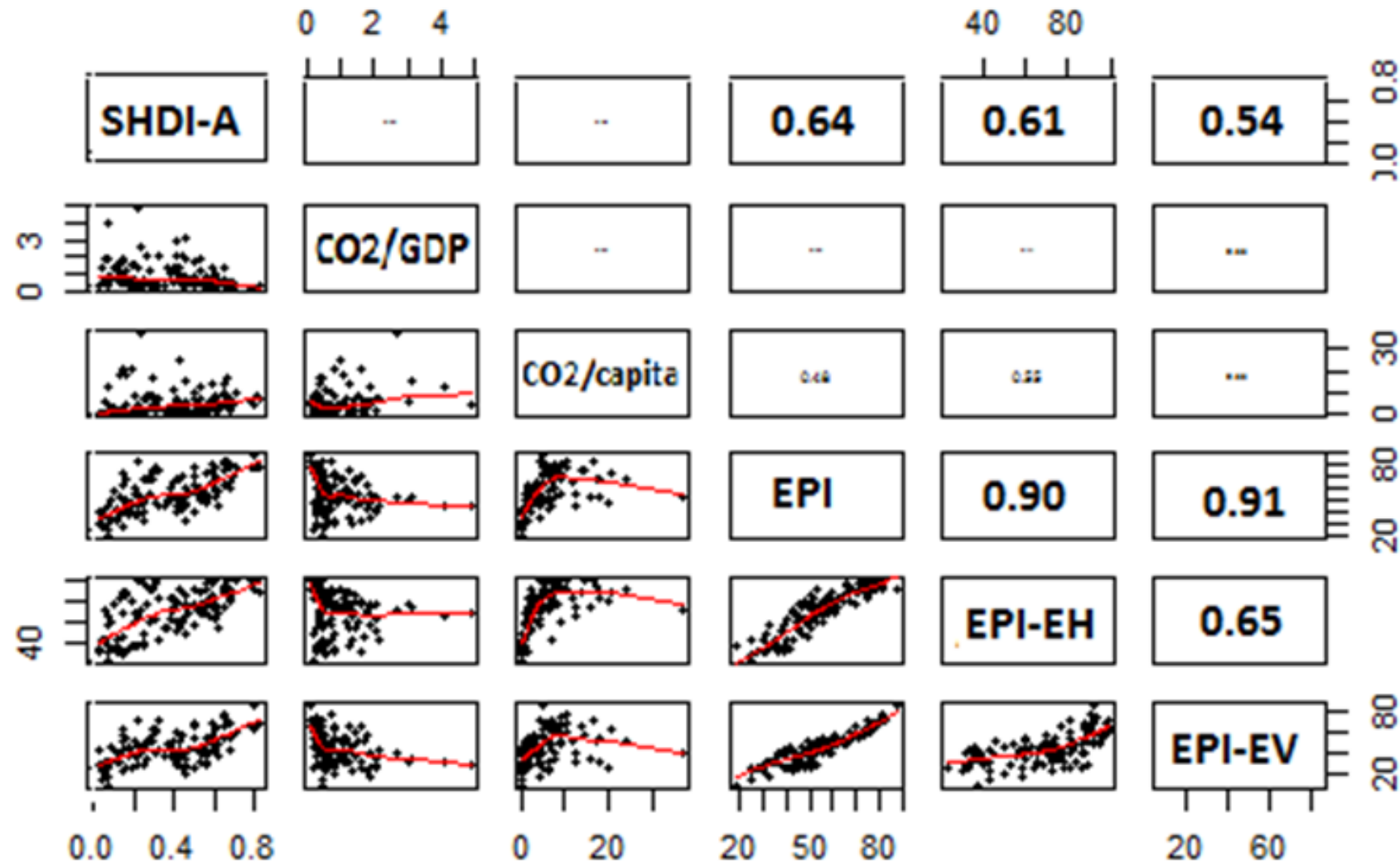


Long and healthy life			Knowledge		A decent standard of living		Clean and balanced environment	
Status	Life expectancy index	0.839	Education Index	0.702	GNI index	0.661	Environment Index	0.785
	Life expectancy at birth	74.6	Mean Years of Schooling	10.8	GNI per capita (USD PPP)	7,952	Improved water source (% of population with access)	99.9
			Expected Years of Schooling	12.3			PM2.5 air pollution, mean annual exposure (micrograms per cubic meter)	17.8
							Forest area (% of base year, 1990)	99.0
							Waste management, improved sanitation facilities (% of population with access)	89.5
Sustainability	Health Sustainability	0.646	Education Sustainability	0.804	Standards of living Sustainability	0.817	Environmental Sustainability	0.492
	Healthy life expectancy at birth, years	62.0	Persistence to last grade of primary, total (% of cohort)	90.2	General government gross debt (% of GDP)	38.0	Water withdrawal - Annual freshwater withdrawals, total (% of internal resources)	42.9
					Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2011 PPP)	137	Terrestrial and marine protected areas (% of total territorial area)	8.1
							Share of energy from renewable sources	18.9
Context	Health expenditure, private (% of GDP)	2.6	Government expenditure on education as % of GDP (%)	2.5	HDI Loss due to inequality in income (%)	16.5	EFP Total Ecological Footprint (global ha per capita)	1.9
	Health expenditure, public (% of GDP)	1.9	HDI Loss due to inequality in education (%)	10.2	Income share held by lowest 20%	8.5	EFP Total Biocapacity (global ha per capita)	0.8
	Health expenditure, total (% of GDP)	4.5	Pupil-teacher ratio in primary education (headcount basis)	19.5	GNI index	31.3	EFP Biocapacity (Deficit) or Reserve (global ha per capita)	-1.0
	HDI Loss due to inequality in life expectancy (%)	12.7	Pupil-teacher ratio in secondary education (headcount basis)	-	Electric power transmission and distribution losses (% of output)	12.2	Bird species, threatened	75
	Physicians (per 1,000 people)	2.7	Internet users (per 100 people)	41.9	Informal payments to public officials (% of firms)	4.6	Mammal species, threatened	8
	Nurses and midwives (per 1,000 people)	4.8	Mobile cellular subscriptions (per 100 people)	112.4	Unemployment, total (% of total labor force)	16.2	Plant species (higher), threatened	71
	Hospital beds (per 1,000 people)	3.9	Firms offering formal training (% of firms)	16.2	Unemployment, youth total (% of total labor force ages 15-24) (modelled ILO estimate)	32.5		
	Improved water source (% of population with access)	99.9			Informal employment (% of total non-agricultural employment)	19.4		
	Improved sanitation facilities (% of population with access)	89.5			CO2 emissions (metric tons per capita)	1.7		

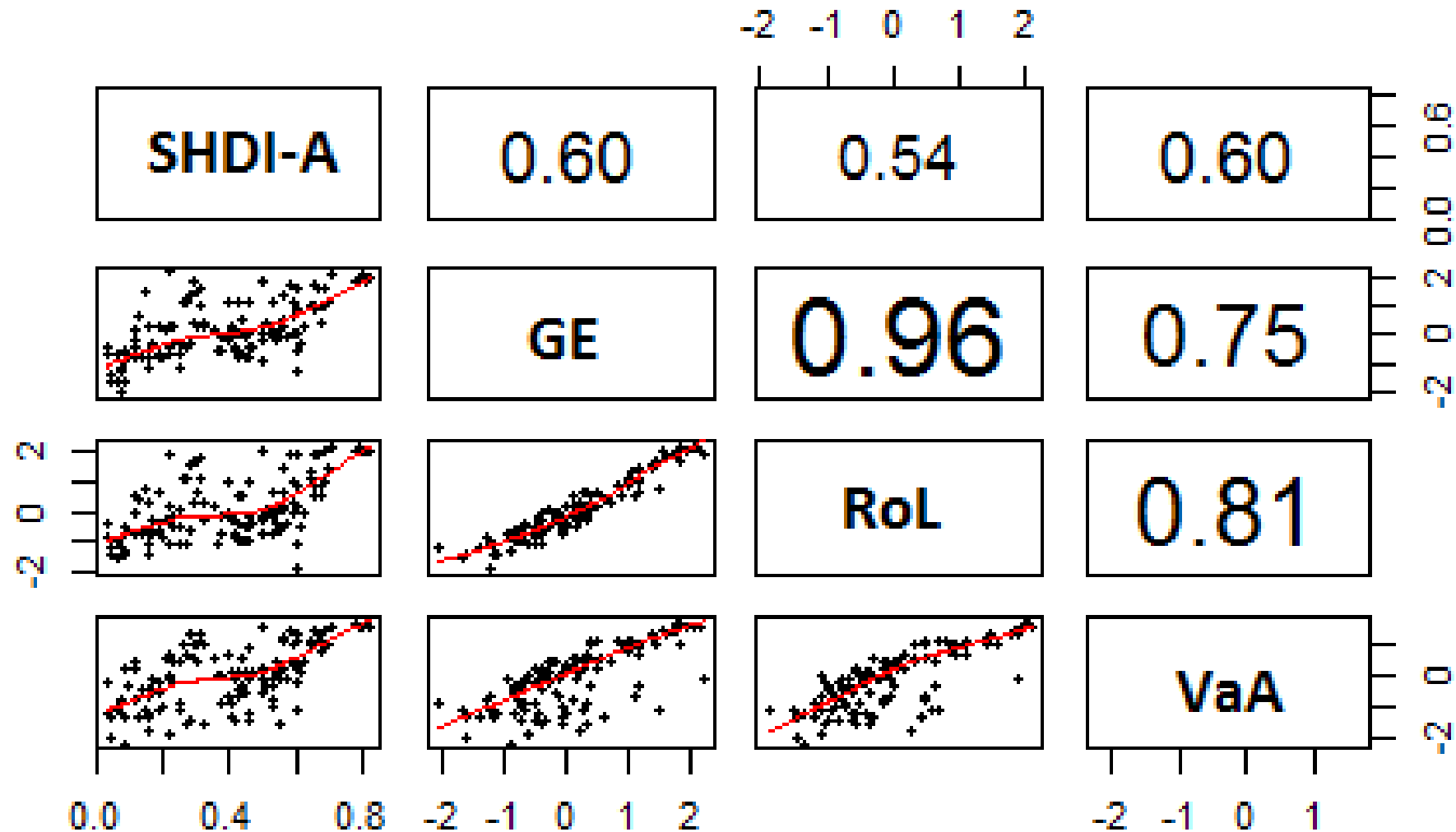
Correlation of SHDI-A with HDI and Ecological Footprint



Correlation of SHDI-A with CO2 emissions and EPI



Correlation of SHDI-A with governance indicators



Thank you for your attention!

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The views expressed in this paper do not necessarily represent these of FRA or UNDP.



THE GLOBAL GOALS For Sustainable Development

