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Networks for Prosperity: Advancing Sustainability Through Partnerships

Connectedness Index 2014



Networks for Prosperity: Advancing Sustainability Through Partnerships



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Acronyms

AFREPREN	African Energy Policy Research Network	NGOs	Non-Governmental Organizations
ARM	Alliance for Responsible Mining	NRDC	Natural Resources Defense Council
ASEAN	Association of South-East Asian Nations	ODA	Official Development Assistance
CCBA	Climate Community and Biodiversity Alliance	OECD	Organization for Economic Co-operation and Development
CI	Connectedness Index	PPPs	Public-private partnerships
CIP	Competitive Industrial Performance index	PrepCom	Preparatory Commission Meeting
CKDN	Climate and Development Knowledge Network	PRI	Principles for Responsible Investment
CoIs	Countries of Implementation	PSD	Private Sector Development
CSD	Commission on Sustainable Development	REEEP	Renewable Energy and Energy Efficiency Partnership
DSD	Division for Sustainable Development	SE4ALL	Sustainable Energy for All
EU	European Union	SDGs	Sustainable Development Goals
EWEC	Every Woman Every Child	SLoCaT	The Partnership on Sustainable Low-Carbon Transport
FDI	Foreign Direct Investment	SMART	Specific, Measurable, Assignable, Realistic, Time-related
FSC	Forest Stewardship Council	SMEs	Small and Medium Enterprises
GCR	Global Competitiveness Report	WB	World Bank
GDP	Gross Domestic Product	WBES	World Bank Enterprise Survey
GGGI	Global Green Growth Institute	WVS	World Values Survey
GHG	Greenhouse Gas	RC	Responsible Care
GIP	Green Industry Platform	UN	United Nations
GRI	Global Reporting Initiative	UNCSD	United Nations Commission on Sustainable Development
GSPD	Global Sustainability Partnerships Database	UNDESA	United Nations Department of Economic and Social Affairs
HLPF	High-Level Political Forum	UNEP	United Nations Environmental Programme
IGES	International Institute for Global Environmental Strategies	UNGA	United Nations General Assembly
IGOs	Intergovernmental Organizations	UNGC	United Nations Global Compact
IOs	International Organizations	UNIDO	United Nations Industrial Development Organizations
KOF	Konjunkturforschungsstelle (Swiss Economic Institute)	UNSD	United Nations Statistics Division
KN	Knowledge Networks	WEHAB	Water Energy Health Agriculture and Biodiversity
IOs	International Organizations	WHO	World Health Organization
IRENA	International Renewable Energy Agency	WSSD	The World Summit on Sustainable Development
LEDS	Low Emission Development Strategies	WTO	World Trade Organization
MDGS	Millennium Development Goals		
MoU	Memorandum of Understanding		
NCPCs	National Cleaner Productions Centres		



Foreword

LI Yong

Director General, UNIDO

In a globalized world, the level of interconnectedness of a country – to knowledge, research and financing networks – has a significant bearing on its economic growth trajectory and level of development.

UNIDO dedicates a large proportion of its activities to creating greater linkages with and between various development partners, such as industry leaders, entrepreneurs, business actors, academics, civil society and the governmental sector. It is only in the context of multi-stakeholder dialogue that we can harness the collective buy-in necessary from all development stakeholders to achieve our vision of Inclusive and Sustainable Industrial Development (ISID), thus fully integrating the economic, social and environmental objectives of development.

Likewise, UNIDO has deepened its cooperation with existing interlocutors through already existing fora. We continue to exchange environmental expertise, thus mobilizing actions to ensure greater resource and energy efficiency, improved waste management and an enabling environment for cleaner production. In addition, our new partnership approach will strengthen existing partnerships and networks, and forge new ones, with the full involvement of all relevant stakeholders, including governments, international organizations, representatives of the public and private sectors, financial institutions, academia and civil society.

Addressing global challenges such as climate change, resource depletion and the loss of ecosystems, is beyond the individual capabilities of any single actor. To tackle these challenges stakeholders must collaborate in new ways and in a comprehensive manner to create shared value. Recognizing this imperative, UNIDO aims to advance its mandate of inclusive and sustain-

able industrial development by aligning the respective strengths, resources and competencies of all partners behind a common development objective.

Since 2011, the *Networks for Prosperity* initiative has established the linkages between connectedness and development performance, emphasizing networks and platforms as a crucial enabling element to be considered for the formulation and implementation of the post-2015 development agenda. This year's report also breaks new ground in including chapters on sustainability networks, the role of international organizations in fostering greater global connectedness, and sustainable development partnerships within the United Nations System.

This report, titled *Advancing Sustainability through Partnerships*, was compiled by UNIDO and the Leuven Centre for Global Governance Studies. I am certain that this latest Networks for Prosperity report will act as a catalyst for more extensive and interconnected network structures, harnessing the strengths and potential of private, public and civil society actors, in order to achieve a more sustainable and inclusive global society from 2015 onwards.

LI Yong
Director General, UNIDO



Foreword

Jan Wouters

Director, Leuven Centre for Global
Governance Studies

In a world in which ecological and socio-economic processes have become so closely intertwined, the development and coordination of transnational networks and knowledge platforms is of crucial importance for effective sustainability governance.

In the wake of the 2012 Rio+20 Summit, the late Elinor Ostrom was duly reminding us that it would be “a grave mistake” to rely on single, overarching binding international agreements to address the challenges of managing the global commons. In light of the sheer complexity, variability, scale, and uncertainty of today's environmental problems, she argued, a more adaptive, flexible, and diverse governance approach is urgently needed, one that operates at multiple levels, across sectors and scales, and brings together a wide range of audiences/actors and strategies. (Ostrom 2012, *Green from the Grassroots*).

Such a vision of how to secure a more sustainable future also lies at the heart of the work resulting from the close collaboration and commitment between UNIDO and the Leuven Centre for Global Governance Studies. Building on the findings of the previous three reports, this fourth edition of the Networks for Prosperity Report reasserts the crucial importance of “connectedness” – through knowledge and investment networks – for the elaboration of a future post-2015 sustainable development agenda.

The good news is that systems of multileveled and networked interaction and cooperation are already a reality and are expected to expand even more in the future. This report presents the fourth wave of data gathering on the interconnectedness index and shows, in line with previous reports, that countries from all income groups and all geographical regions have since 2011, become more connected and this at all levels of social organization: international, inter-organizational, and intra-organizational. Most notably, the findings suggest that networks are growing faster in low and lower middle income countries. This means that a greater number of countries are investing on networks and are as a result, becoming even more close to high income countries. For sure, the gap in terms of connectedness

between low and high income countries is still substantial, but all in all the trend toward greater connectedness is welcome news for the formulation and development of sustainable development objectives that are universal in scope but also finely attuned to local vulnerabilities/realities.

Denser and larger networks are however, by no means, sufficient. In line with E. Ostrom's work again, the quality and strength of fragmented and decentralized governance systems depends on improved communication, coordination, and collaboration between and within networks and governance arrangements. What emerges from the second part of this report, is that the proliferation of novel modes of sustainability governance involving transnational actors and organizations, voluntary commitments and networks is not without crucial limitations. Some “orchestration” by international organizations, as Abbott argues, is needed so to adequately cope with the inevitable costs and overlaps associated with excessive multiplicity and fragmentation. How this ‘orchestration’ can work in practice is illustrated by the case study of Hassan Mehdi. This recommendation resonates as well with Mert's analysis of the CSD partnership regime which as she explains could be improved by the creation of a centralized body capable of overseeing and coordinating its activities and interactions.

As we continue to investigate these issues, further innovative thinking will be required, a task which we look forward to actively pursue in our insightful collaboration with UNIDO.

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Introduction

The global aid architecture is at the crossroads. While key elements such as South-South and triangular cooperation and national ownership of development processes remain of high importance in the debate on global aid effectiveness, there is a consensus on the relevant role of networks for knowledge exchange as a means for developing countries to achieve sustainable economic development. In this regard, many development experts have underlined the relevant impact that regional, cross-sectoral networks and knowledge sharing activities play in the new framework provided by the post-2015 development agenda.

It is assumed that, in working in interaction and cooperation, multilateral stakeholders, national and local governments as well as private entities are better equipped to address development processes through an integrated, networked approach. Knowledge networking is thus a core concept for making development more effective, inclusive and transparent, which is an established precondition for achieving development goals, and for advancing human development.

Sustainable development endeavours require adequate financing. This means that it is essential that the current debate on financing for development offers initiatives, solutions and alternatives to ensure a proper implementation of the post-2015 development agenda. It is assumed that a diversity of resources, facilitated by international partnerships, should and will play a critical role in achieving inclusive and sustainable development. Of course this will

require a strong commitment from local and national governments, but networks and partnerships should not be limited to state actors alone; the new development framework will include all related stakeholders, such as the private sector, academia, governmental institutions, civil society and the international development organizations.

The new approach to networks, platforms and partnerships provided by the post-2015 framework demands that development spheres such as industry, infrastructure and technology play a central role in the development debate. Multi-stakeholder partnerships and networks will thus be an essential part of the post-2015 development agenda.

Based on the above, the United Nations Industrial Development Organization (UNIDO) launched the Networks for Prosperity (N4P) initiative in 2011, aiming to explore the diversity of alternatives for developing countries' access to Private Sector Development-related knowledge, in accordance with their needs and requirements.

The first three N4P reports discussed the importance of knowledge networks at various levels, inter-organizational, intra-organizational and international networks, for global economic policy and the development of private sector development. These three indicators are used to create a Global Connectedness Index (CI) which measures countries' knowledge networks and links their level of connectedness with economic development indicators.

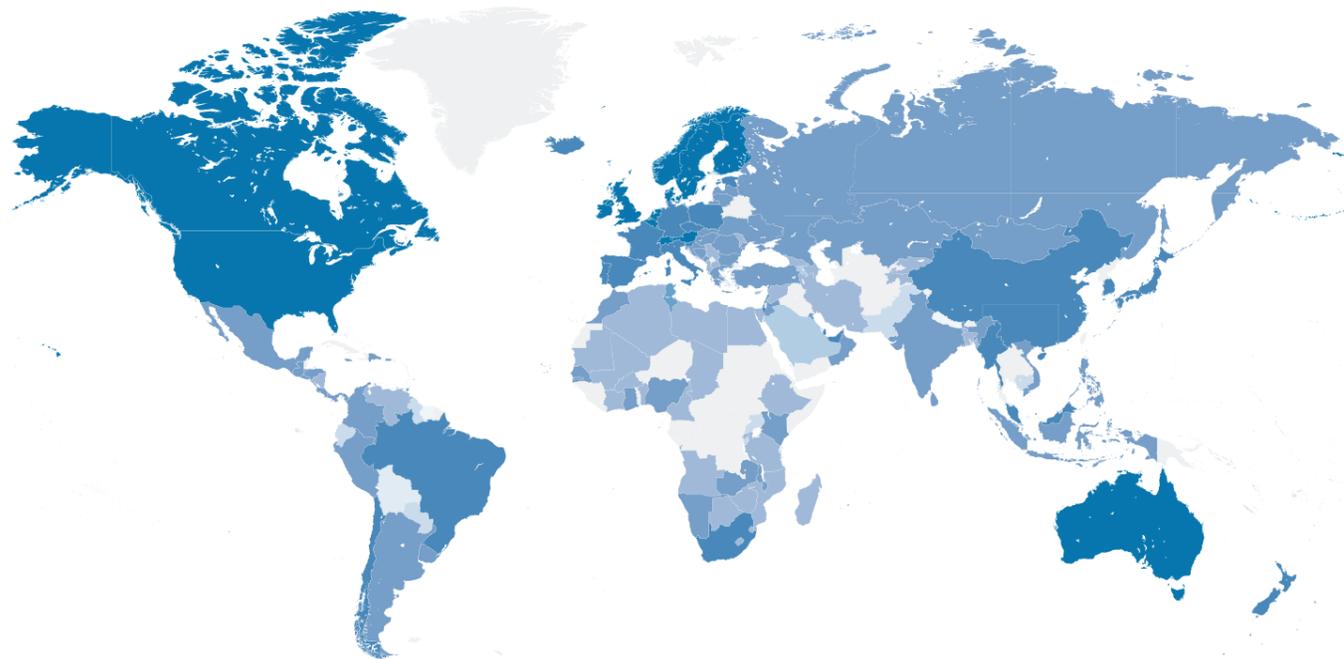
Over the years, the initiative has urged the international community to adopt network governance and knowledge network approaches in its global development strategies and the post-2015 development agenda. In June 2013 the N4P initiative facilitated the High-Level Conference of Middle Income Countries "Networks for Prosperity", held in San José, Costa Rica, which concluded with the San José Declaration, including recommendations for middle-income countries to strengthen their role in global development cooperation through intensified knowledge networking.

Networks for Prosperity has developed a comprehensive analysis of the relevance of knowledge networks in the context of economic development programmes, and how they can be used as a tool for improving policy effectiveness and economic governance. It thus opens opportunities for increased Private Sector Development (PSD) knowledge networking among developing countries.

This year's report, *Advancing Sustainability Through Partnerships*, sheds light on the role that networks, platforms and partnerships play in achieving inclusive and sustainable development. Part I introduces an updated version of the *Connectedness Index* and discusses how the degree to which countries are networked at various levels has evolved over the years. Part II explores to what extent building robust networks and partnerships among relevant stakeholders contributes to advancing global

sustainable development, and how international organizations could play a catalytic role in shaping and strengthening global governance mechanisms that propel progress toward shared sustainability objectives. Furthermore, this section of the present report illustrates the potential of several sustainability networks and partnerships in effectively addressing the complexity of today's development challenges by showcasing successful voluntary sustainability arrangements such as UNIDO's Green Industry Platform (GIP).

Networks for Prosperity – Connectedness Index 2014



The Connectedness Index 2014 is the average of three sub-indices (International, Inter-organizational, and Intra-organizational Networks). This map shows the level of overall connectedness of countries for which data was available.

1.0–0.8	0.59–0.4	0.19–0
0.79–0.6	0.39–0.2	No data

Part 1 Networks for Prosperity 2014

Axel Marx & Jadir Soares

The UNIDO Connectedness Index is an exploratory attempt to measure the degree to which a country is ‘networked’.

It takes into account that networks develop and are influential on three distinct levels: the international (between countries), the inter-organizational (within countries and between organizations), and the intra-organizational (within organizations and between people) level. The whole idea behind the Connectedness Index is to capture to some degree the importance of being ‘connected’, ‘linked’ or ‘inclusive’ to create prosperity. In the much acclaimed book *Why Nations Fail* Daron Acemoglu and James Robinson argue that inclusive societies create sustained prosperity. One way to approach inclusiveness is to focus on the connections between countries and within countries. Scholars focusing on social capital already argued thirty years ago that connections between actors generate economic or social benefits. Against this background attempts are made to quantify the degree to which countries are connected and networked. The Connectedness Index is one such attempt. Basing our study on existing data material we aim to capture the degree countries are ‘connected’; i.e. the degree to which they develop and support social ties. The Connectedness Index assumes that being connected generates positive economic and social outcomes. At this stage we can only explore correlations and associations. This does not tell us anything about causality. However, the results do trigger further interest.

The first attempt to capture the level of connectivity of a country was developed and published in the 2011 *Networks for Prosperity Report*, and further updated in 2012 and 2013. This report gathers the most recent data available to measure developments in countries’ networks. The methodology used in previous reports is maintained in the 2014 edition in order to keep measures comparable with previous reports.

The Connectedness Index 2014 is presented in the next section. In section 2, the multilevel approach of the Connectedness Index is discussed and each of its components are presented. Next, sections 3 and 4 discuss the evolution of the indicator over years and the relationship between connectedness and other relevant variables. Finally, section 5 presents the conclusions.

1. The Connectedness Index 2014

The Connectedness Index captures the degree to which countries are networked on three distinct levels: international, inter-organizational and intra-organizational.

The index was originally released in the UNIDO's Networks for Prosperity Report 2011 and has been updated annually since then, following the same methodology. This section presents an updated version of the Connectedness Index, covering 140 countries. Information on the connectedness sub-indices and the indicators used to create of the index are presented in the following sections.

The Connectedness Index 2014 and its previous versions are presented on Table 1. As in the previous year, Switzerland is the most connected country, closely followed by Sweden. The Netherlands, the United Kingdom and Belgium follows Sweden in the third, fourth and fifth ranking positions, respectively. Among the ten most connected countries, the progress of the United Kingdom is most impressive. The UK has risen from 14th to the 4th ranking position since 2011.

Looking at the top of Table 1, the presence of high income, mainly OECD countries, is remarkable. Among middle income countries, Malaysia is the most connected, in 18th position, followed by Thailand in 23rd. Both Malaysia and Thailand increased three ranking positions from 2013 to 2014. At the bottom of the rankings, Haiti and Burundi are low income countries still in need of development of their networks.

The connectedness index assumes that being connected generates positive economic and social outcomes



Table 1: Connectedness Index 2014

ISO	Country	Connectedness 2014		Connectedness 2013		Connectedness 2012		Connectedness 2011	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank
CHE	Switzerland	0.949	1	0.956	1	0.977	1	0.971	1
SWE	Sweden	0.896	2	0.946	2	0.915	2	0.913	2
NLD	Netherlands	0.864	3	0.878	3	0.873	4	0.886	5
GBR	United Kingdom	0.851	4	0.838	9	0.785	13	0.77	14
BEL	Belgium	0.848	5	0.867	5	0.859	5	0.875	6
DNK	Denmark	0.841	6	0.869	4	0.886	3	0.901	3
FIN	Finland	0.840	7	0.858	6	0.849	6	0.863	7
CAN	Canada	0.832	8	0.850	7	0.822	9	0.813	11
AUT	Austria	0.827	9	0.847	8	0.818	12	0.837	8
SGP	Singapore	0.814	10	0.813	13	0.838	7	0.836	9
USA	United States	0.812	11	0.830	10	0.820	10	0.887	4
IRL	Ireland	0.812	12	0.817	11	0.822	8	0.803	12
AUS	Australia	0.805	13	0.780	15	0.758	15	0.755	16
NOR	Norway	0.802	14	0.813	12	0.818	11	0.813	10
LUX	Luxembourg	0.771	15	0.782	14	0.741	16	0.695	21
NZL	New Zealand	0.752	16	0.724	20	0.701	20	0.682	22
MYS	Malaysia	0.735	17	0.708	21	0.711	19	0.716	19
JPN	Japan	0.729	18	0.748	18	0.687	22	0.736	18
CZE	Czech Republic	0.728	19	0.755	17	0.758	14	0.705	20
FRA	France	0.714	20	0.736	19	0.691	21	0.756	15
DEU	Germany	0.713	21	0.764	16	0.723	18	0.773	13
THA	Thailand	0.690	22	0.660	26	0.666	23	0.65	26
QAT	Qatar	0.685	23	0.664	25	0.577	35	0.569	37
EST	Estonia	0.677	24	0.659	27	0.653	24	0.64	28
ISR	Israel	0.676	25	0.683	23	0.618	30	0.677	23
ESP	Spain	0.660	26	0.658	28	0.624	27	0.613	32
CHL	Chile	0.659	27	0.670	24	0.640	25	0.609	33
ISL	Iceland	0.642	28	0.688	22	0.729	17	0.748	17
ARE	United Arab Emirates	0.631	29	0.635	30	0.565	38	0.506	46
ZAF	South Africa	0.631	30	0.629	32	0.625	26	0.622	30
ITA	Italy	0.629	31	0.601	39	0.538	40	0.575	36
POL	Poland	0.629	32	0.631	31	0.598	33	0.523	42
BRA	Brazil	0.629	33	0.624	35	0.603	32	0.561	39
CHN	China	0.629	34	0.646	29	0.536	42	0.613	31
PRT	Portugal	0.620	35	0.627	33	0.582	34	0.562	38
SAU	Saudi Arabia	0.615	36	0.566	42	0.477	52	0.469	54
KOR	Korea, Republic of	0.609	37	0.609	38	0.610	31	0.654	25
SVN	Slovenia	0.608	38	0.621	36	0.622	28	0.666	24
IND	India	0.592	39	0.538	47	0.573	37	0.554	40
BHR	Bahrain	0.591	40	0.515	50	0.450	63	0.477	50
CYP	Cyprus	0.583	41	0.626	34	0.619	29	0.583	35
PER	Peru	0.578	42	0.544	46	0.496	48	0.475	51
LTU	Lithuania	0.575	43	0.570	40	0.463	59	0.544	41
COL	Colombia	0.568	44	0.483	57	0.482	50	0.451	60
CRI	Costa Rica	0.557	45	0.567	41	0.537	41	0.507	44
MEX	Mexico	0.553	46	0.499	52	0.433	70	0.397	79

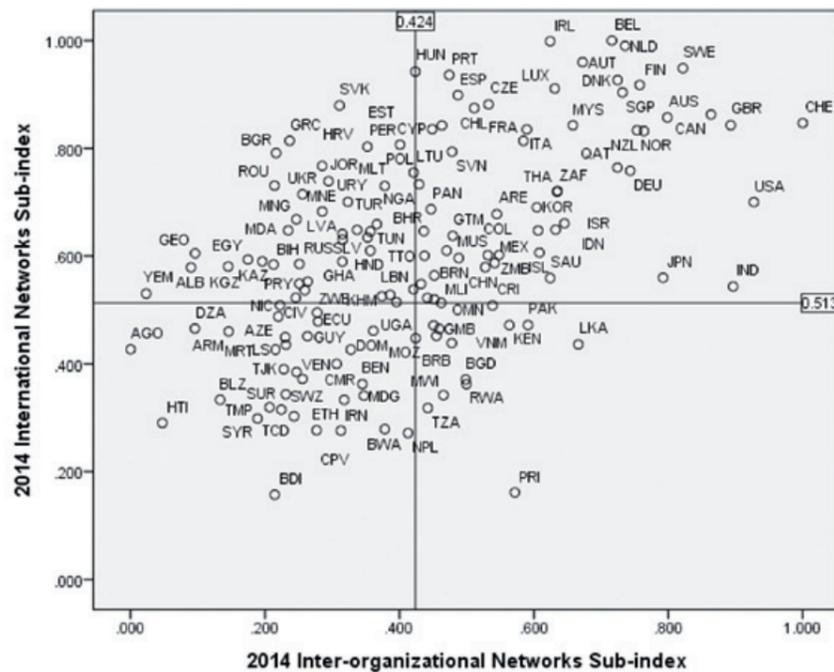
ISO	Country	Connectedness 2014		Connectedness 2013		Connectedness 2012		Connectedness 2011	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank
GTM	Guatemala	0.551	47	0.522	48	0.439	67	0.418	75
SVK	Slovakia	0.549	48	0.547	45	0.529	43	0.645	27
HUN	Hungary	0.546	49	0.562	43	0.548	39	0.59	34
TUN	Tunisia	0.543	50	0.616	37	0.574	36	0.635	29
MLT	Malta	0.543	51	0.561	44	0.515	44	0.464	56
SLV	El Salvador	0.525	52	0.499	53	0.457	61	0.405	76
NGA	Nigeria	0.520	53	0.444	71	0.443	65	0.444	62
IDN	Indonesia	0.517	54	0.507	51	0.474	55	0.502	47
ZMB	Zambia	0.513	55	0.484	56	0.420	78	0.425	69
PHL	Philippines	0.512	56	0.437	75	0.428	72	0.451	61
KEN	Kenya	0.512	57	0.473	58	0.469	57	0.468	55
ARG	Argentina	0.509	58	0.520	49	0.503	46	0.469	53
BRB	Barbados	0.507	59	0.488	54	0.503	47	0.47	52
LBN	Lebanon	0.503	60	0.471	59				
MUS	Mauritius	0.503	61	0.419	83	0.383	89	0.431	64
PRI	Puerto Rico	0.495	62	0.485	55	0.477	53	0.463	58
TTO	Trinidad and Tobago	0.491	63	0.461	66	0.445	64	0.42	74
URY	Uruguay	0.488	64	0.467	63	0.411	81	0.378	84
PAN	Panama	0.484	65	0.436	76	0.512	45	0.506	45
LKA	Sri Lanka	0.481	66	0.432	77	0.443	66	0.464	57
LVA	Latvia	0.480	67	0.449	68	0.375	93	0.425	68
OMN	Oman	0.476	68	0.468	61	0.416	79	0.388	82
HRV	Croatia	0.471	69	0.468	62	0.466	58	0.484	49
MNG	Mongolia	0.469	70	0.425	81	0.404	82	0.317	104
JOR	Jordan	0.465	71	0.432	78	0.472	56	0.491	48
BIH	Bosnia and Herzegovina	0.462	72	0.417	86	0.331	105	0.295	112
RWA	Rwanda	0.461	73	0.344	107				
HND	Honduras	0.461	74	0.420	82	0.386	87	0.374	86
TUR	Turkey	0.460	75	0.464	64	0.431	71	0.402	77
RUS	Russian Federation	0.458	76	0.440	72	0.496	49	0.423	70
KHM	Cambodia	0.458	77	0.390	96	0.389	85	0.366	89
BRN	Brunei Darussalam	0.456	78	0.397	93	0.378	92	0.346	96
JAM	Jamaica	0.455	79	0.438	73	0.459	60	0.514	43
BGR	Bulgaria	0.451	80	0.426	80	0.427	74	0.454	59
NAM	Namibia	0.451	81	0.427	79	0.434	69	0.399	78
DOM	Dominican Republic	0.450	82	0.471	60	0.480	51	0.43	66
MAR	Morocco	0.450	83	0.410	88	0.374	94	0.391	81
KWT	Kuwait	0.449	84	0.418	84	0.388	86	0.431	65
GMB	Gambia	0.448	85	0.447	69	0.422	75	0.356	92
MLI	Mali	0.447	86	0.379	101	0.347	102	0.317	105
GRC	Greece	0.446	87	0.438	74	0.428	73	0.422	71
MNE	Montenegro	0.444	88	0.462	65	0.402	83	0.375	85
VNM	Viet Nam	0.439	89	0.457	67	0.476	54	0.429	67
UGA	Uganda	0.435	90	0.381	99	0.360	98	0.338	98
SEN	Senegal	0.434	91	0.410	89	0.420	77	0.394	80
MWI	Malawi	0.433	92	0.405	92	0.364	97	0.337	99
BOL	Bolivia	0.433	93	0.387	98	0.350	101	0.319	102
GUY	Guyana	0.431	94	0.389	97	0.389	84	0.303	107

ISO	Country	Connectedness 2014		Connectedness 2013		Connectedness 2012		Connectedness 2011	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank
UKR	Ukraine	0.428	95	0.418	85	0.435	68	0.421	73
GHA	Ghana	0.427	96	0.408	90	0.365	96	0.347	95
ECU	Ecuador	0.426	97	0.380	100	0.373	95	0.37	87
ROU	Romania	0.424	98	0.407	91	0.413	80	0.436	63
PRY	Paraguay	0.420	99	0.373	103	0.300	112	0.266	117
KAZ	Kazakhstan	0.416	100	0.414	87	0.454	62	0.421	72
PAK	Pakistan	0.413	101	0.301	121	0.274	122	0.261	118
BWA	Botswana	0.395	102	0.391	95	0.379	90	0.353	93
ZWE	Zimbabwe	0.384	103	0.330	110	0.335	104	0.331	100
TZA	Tanzania	0.383	104	0.337	108	0.325	109	0.228	125
CIV	Côte d'Ivoire	0.380	105	0.355	105	0.329	106	0.348	94
MDA	Moldova	0.376	106	0.347	106	0.243	125	0.235	124
LSO	Lesotho	0.376	107	0.373	102	0.340	103	0.298	110
SRB	Serbia	0.374	108	0.369	104	0.385	88	0.384	83
MOZ	Mozambique	0.373	109	0.337	109	0.326	107	0.302	108
BGD	Bangladesh	0.363	110	0.260	128	0.204	130	0.219	128
NIC	Nicaragua	0.359	111	0.324	113	0.281	120	0.244	122
BEN	Benin	0.355	112	0.317	114	0.288	117	0.255	120
CMR	Cameroon	0.351	113	0.306	119	0.307	110	0.318	103
EGY	Egypt	0.350	114	0.392	94	0.378	91	0.363	90
VEN	Venezuela	0.339	115	0.292	123	0.292	116	0.295	113
ALB	Albania	0.338	116	0.326	112	0.282	119	0.227	126
AZE	Azerbaijan	0.336	117	0.314	117	0.351	99	0.356	91
KGZ	Kyrgyzstan	0.334	118	0.272	125	0.292	115	0.297	111
SWZ	Swaziland	0.331	119	0.328	111				
MDG	Madagascar	0.323	120	0.314	116	0.350	100	0.31	106
MKD	Macedonia	0.319	121	0.315	115	0.296	114	0.343	97
ARM	Armenia	0.310	122	0.445	70	0.421	76	0.369	88
GEO	Georgia	0.308	123	0.256	129	0.223	127	0.225	127
TMP	East Timor	0.308	124	0.269	126	0.225	126	0.2	130
TCD	Chad	0.304	125	0.293	122	0.303	111	0.246	121
TJK	Tajikistan	0.303	126	0.244	131	0.221	128	0.274	116
BFA	Burkina Faso	0.303	127	0.289	124	0.265	123	0.278	115
IRN	Iran	0.300	128	0.262	127				
MRT	Mauritania	0.285	129	0.214	135	0.296	113	0.3	109
ETH	Ethiopia	0.283	130	0.303	120	0.287	118	0.32	101
SYR	Syrian Arab Republic	0.272	131	0.243	133	0.263	124	0.26	119
NPL	Nepal	0.268	132	0.169	136	0.127	131	0.186	131
DZA	Algeria	0.255	133	0.311	118	0.280	121	0.243	123
CPV	Cabo Verde	0.254	134	0.237	134				
BLZ	Belize	0.242	135						
SUR	Suriname	0.233	136	0.076	138	0.081	132	0.204	129
AGO	Angola	0.225	137	0.243	132				
YEM	Yemen	0.214	138						
BDI	Burundi	0.173	139	0.153	137	0.206	129	0.147	132
HTI	Haiti	0.113	140						
	Median:	0.467		0.446		0.441		0.429	

Table 1 also shows the median connectedness among all countries for each year since 2011. In 2014, the median connectedness is 0.467, higher than the previous years. The median connectedness has consistently increased over years, what indicates that more countries have developed their networks, reaching higher scores. However, median scores lower than 0.5 also indicates that the majority of countries are still low connected when compared with the most connected countries.

The Connectedness Index captures the variation among countries with regards to their networks. Some countries are strong in one specific kind of network, but not in others. Other countries are more regular, having a similar level of development in the three kinds of networks that compose the Connectedness Index. The scatter plots presented in Figures 1 to 3 shows these variations on countries' networks. Canada is one example of country whose the three kinds of networks are well developed. The country scores 0.863 in the international networks sub-index, 0.864 in the inter-organizational networks sub-index, and 0.769 in the intra-organizational networks sub-index. With this regularity among different networks, Canada can be found in the upper-right part of Figures 1 to 3. Other countries that can be found in the same part of these figures are Switzerland, Sweden and the United Kingdom.

Figure 1: Relationship between International and Inter-organizational Networks



On the other hand, countries such as Greece, Bulgaria and Peru, vary substantially between different kinds of networks. Peru has well-developed international networks, scoring 0.803 in this sub-index, and intermediate level of intra-organization networks, scoring 0.579, but the country scores only 0.352 in the inter-organizational networks sub-index, below the median. Peru can be found, for example, in the upper-left part of Figure 1.

Figure 2: Relationship between International and Intra-organizational Networks

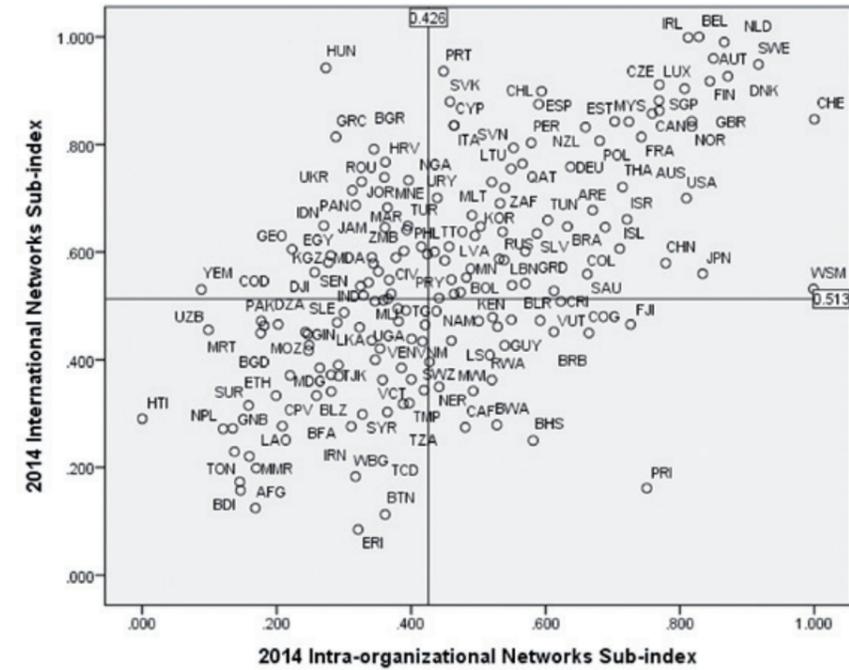
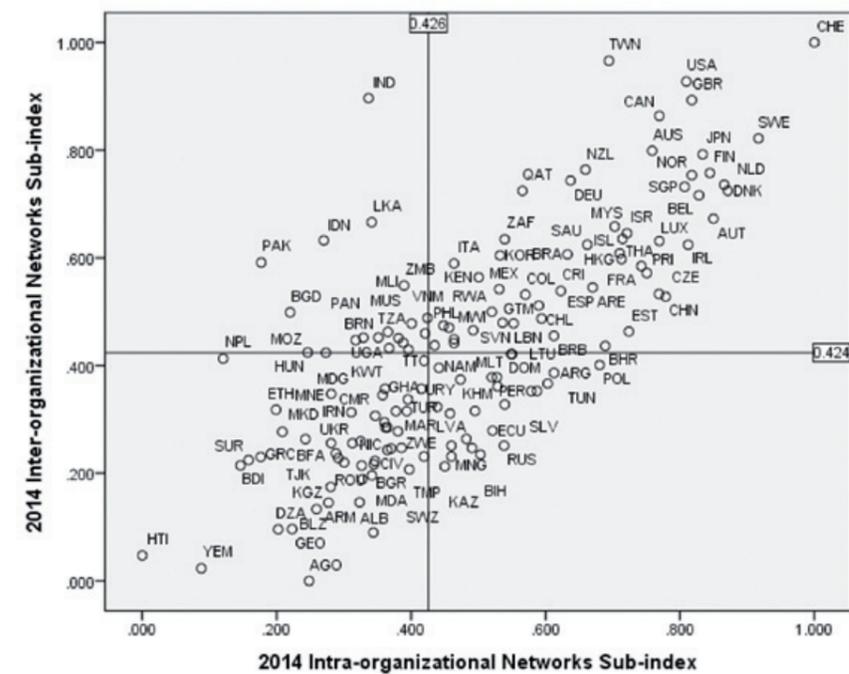
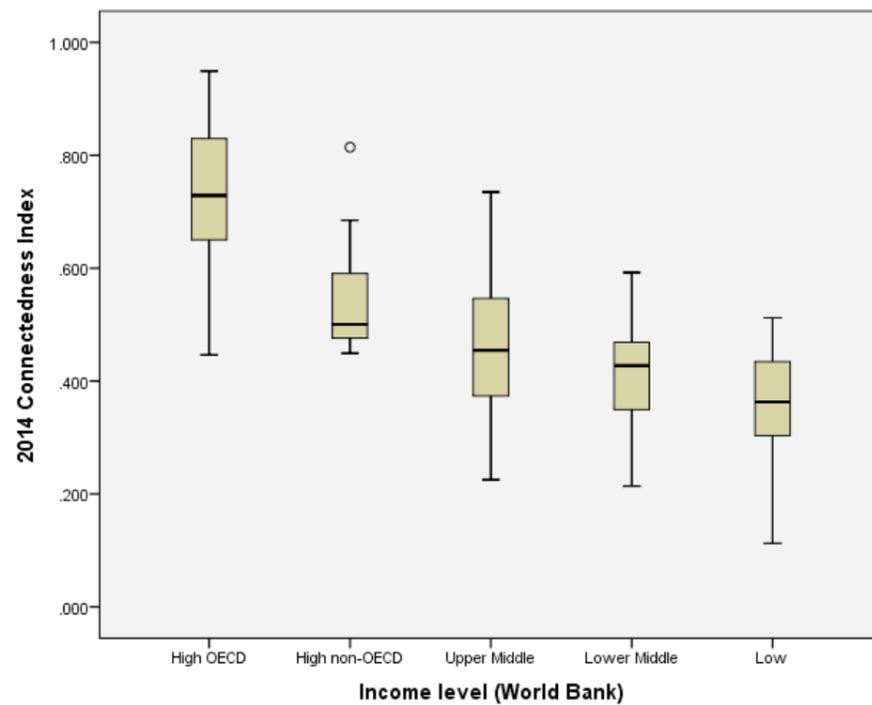


Figure 3: Relationship between Inter and Intra-organizational Networks



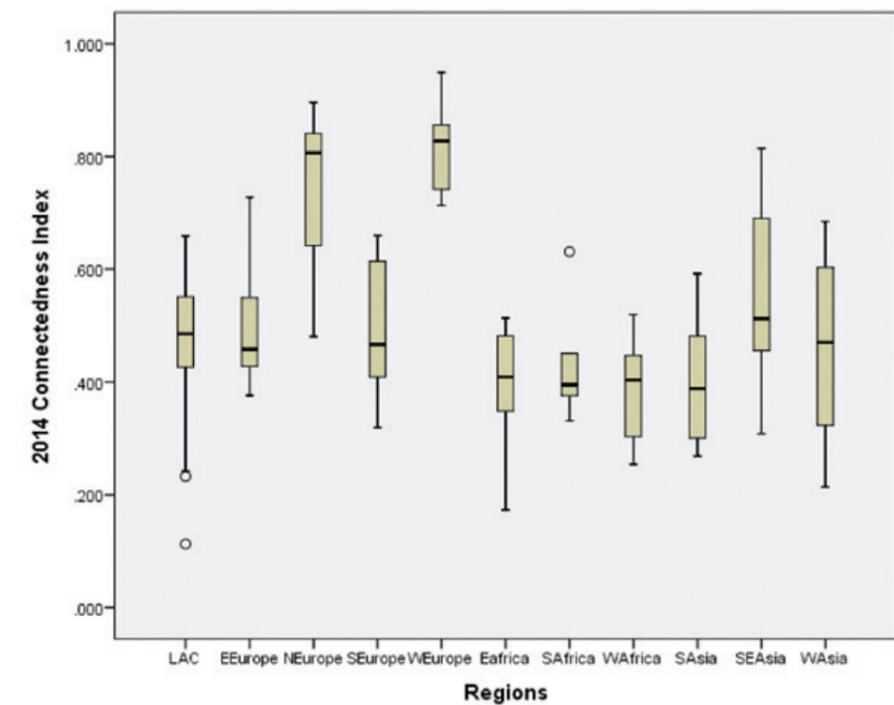
Next, Figures 4 and 5 show the variation of the Connectedness Index in countries with different income levels and located in different regions. Figure 4 presents a boxplot¹ graph on which each column represents the variation in countries' connectedness in a given level of income. It is easy to note that, on average, countries with higher income per capita are more connected than its lesser income partners.

Figure 4: Connectedness Index 2014 – Variation by Income Level



With regards to the geographical region², Figure 5 shows that the most connected regions are Western and Northern Europe, i.e., the regions with higher median scores. South-Eastern Asia and Latin America are also regions with well-connected countries. On the other hand, the networks of countries in Southern Asia and Southern Africa are still low developed in comparison with the most connected countries.

Figure 5: Connectedness Index 2014 – Variation by Region



- | | | | |
|----------|---------------------------------|----------|-----------------|
| Eafrica: | Eastern Africa | SAsia: | Southern Asia |
| EEurope: | Eastern Europe | SEurope: | Southern Europe |
| LAC: | Latin America and the Caribbean | WAfrica: | Western Africa |
| NEurope: | Northern Europe | WAsia: | Western Asia |
| SEAsia: | South-Eastern Asia | WEurope: | Western Europe |
| SAfrica: | Southern Africa | | |

¹ Boxplot is a kind of graphical representation that shows the variability of a measure through their quartiles. In the figures 4 and 5, the thicker bar has three dashes that divide the index in four parts. The bottom part is the first quartile, i.e., the lowest 25% of the Connectedness Index. The second quartile, or median, divides the index in half (50%), the third, the 75% lowest, and the upper part represents the top 25% scores on Connectedness. Lastly, the circles at the bottom represent outliers.

² Geographical regions according to the United Nations Statistical Division. Figure 5 only includes regions on which the Connectedness Index is available for at least 5 countries.

2. The Connectedness Index: Multi-level measurement of networks across countries

This section describes the components of the Connectedness Index and its three sub-indices: international, inter-organizational, and intra-organizational networks. The same methodology applied in previous reports is followed in this report to keep data comparable with previous Networks for Prosperity reports. Details on the concepts behind the different kinds of networks can be found in the 2011 Networks for Prosperity Report. Details on the methodology used in this report are presented in Annex 1.

Figure 6 presents the seven variables selected to construct the Connectedness Index. For international networks, the aim is to identify indicators that capture the flows of information and policy diffusion between public authorities, as well as the information flows between economic actors (Slaughter, 2004; Martínez-Díaz & Woods, 2009). Two indicators are incorporated to capture this degree of international connectedness, namely the KOF (Swiss Economic Institute) political globalization indicator and the KOF economic networks indicator. The political globalization index captures inter alia the membership in international inter-governmental organizations and the number of international treaties signed and ratified by a country. The economic networks indicator measures the actual economic and financial flows between countries (trade, FDI, portfolio investments). Several other economic indicators capture economic flows, but the KOF is the most comprehensive and suitable one for the purpose of this report.

To capture the degree of inter-organizational interconnectedness within a country, three variables are included: University-industry collaboration; networks and supporting industries; and the degree to which individuals are members of professional organizations,

which are often established for networking purposes. The first two indicators are drawn from the Global Competitiveness Report. University industry collaboration measures the extent to which business and research professionals collaborate on research and development. This relationship forms a network between the private and academic sectors as they work together to pursue innovations. Networks and supporting industries capture the number and quality of local suppliers and the extent of their interaction (i.e. clusters, or the concentration of interconnected businesses). Literature on inter-organizational networks and economic geography recognizes both factors as important indicators to capture the degree of connectedness between these organizations. (Podolny & Page, 1998; Powell & Smith-Doerr, 1994; Saxenian et al. 2001; European Commission, 2008) The third indicator is drawn from the World Values Survey and aims to account for networks of professionals that collaborate with each other for specific purposes. Networking in the context of professional associations can be regarded as a relevant networking strategy in the context of information exchange (see Burt, 1995; Baker, 2002; Putnam, 2000 for a more general argument on the importance of association).

Intra-organizational networks are more difficult to measure. For this purpose, two proxies are identified based on the degree to which firms offer training (Cross & Parker, 2004). The idea is that training enhances internal networks and learning resulting from increased interaction between people within an organization. One measure comes from the World Bank Enterprise Surveys and measures the percentage of firms offering formal training. A second measure is based on the Global Competitiveness report; it accounts for local availability of specialized research and training services to measure on-the-job training in a country and the extent to which companies in a country invest in training and employee development.

To analyze the relationship with relevant outcome variables, the report focuses on four variables, namely two policy-related variables (government effectiveness and regulatory quality) and two economy-related variables (industrial development and GDP per capita). Government effectiveness and regulatory quality are chosen since networks are assumed to contribute to better policy formulation and implementation (see

Marx et al. 2011). In turn, these variables are important for better private sector development and economic development (see also Altenburg (2011, pp. 35-36)). Government effectiveness, from the World Bank governance indicators series, captures different aspects of policymaking and implementation, including the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The link with private sector development is specifically made in the concept of regulatory quality – data for which was also retrieved from the World Bank governance indicators series –, which refers to the ability of governments to formulate and implement sound policies and regulations that permit and promote private sector development (Kaufman et al. 2009). The UNIDO Competitive Industrial Performance (CIP) Index benchmarks competitive industrial activity at the country level and is an indicator for industrial development. The World Development Indicators provides data on GDP per capita, a second general measure for economic development.

Figure 6: Connectedness Index

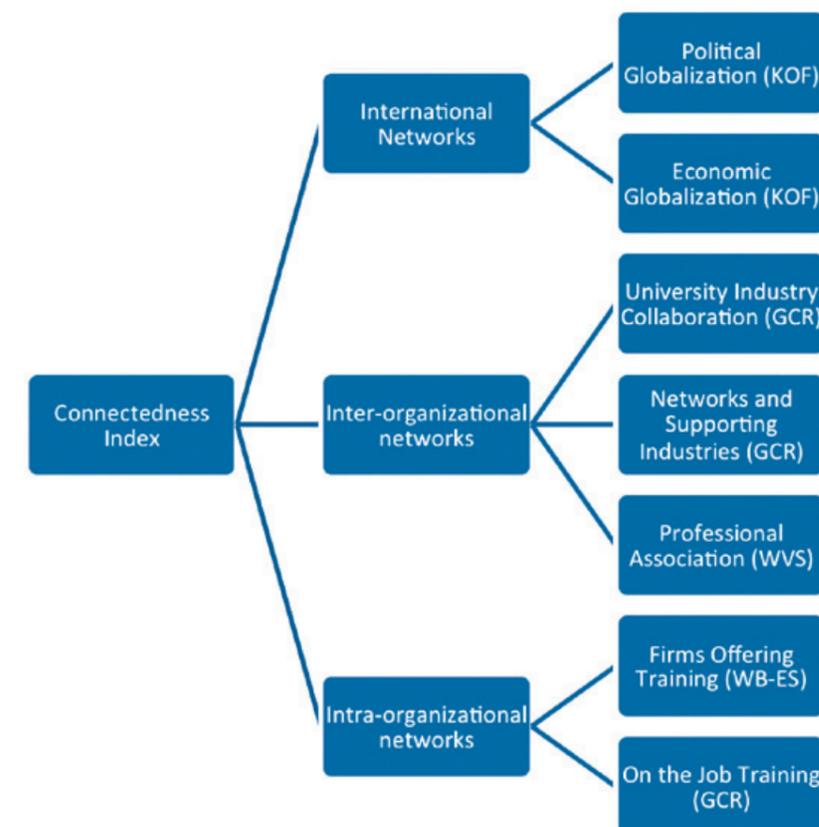


Table 2 presents the variables used to compose the Connectedness Index as well as the indicators we have related to connectedness.

Table 2: Components of connectedness

Variable	Source	Source variable
Political Networks	KOF Index of Globalization	Political Globalization
Economic Networks	KOF Index of Globalization	Actual flows in economic terms
University-Firm Networks	Global Competitiveness Report	University-industry collaboration in R&D
Inter-firm Networks	Global Competitiveness Report	Networks and supporting industries
Personal Networks	World Values Survey	A072: Member of professional associations or A104: Active/inactive membership of professional organization
Formal Training	Enterprise Surveys	L.10: Over fiscal year ... (last complete fiscal year), did this establishment have formal training programmes for its permanent, full-time employees?
On-the-job Training	Global Competitiveness Report	On-the-job training
Government Effectiveness	Worldwide Governance Indicators	Government effectiveness
Regulatory Quality	Worldwide Governance Indicators	Regulatory quality
Competitive Industrial Performance (CIP)	Industrial Development Report	Competitive industrial performance
GDP per capita	World Development Indicators	GDP per capita, PPP (current international \$)

The following section will present the three sub-indices which comprise the Connectedness Index.

2.1. The International Networks Sub-index 2014

The International Networks Sub-Index aims to capture the degree to which countries are networked at the international level. These networks can be developed in different forms such as bilaterally, regionally, or even globally, in the context of multilateral organizations.

The International Networks Sub-index is based on two indicators from the KOF Index of Globalization: political and economic globalization. Political globalization is a proxy for the degree to which states are networked on an international level. This indicator is based on the number of embassies in a country, the number of international organizations of which a country is a member, the number of UN peacekeeping missions in which a country participated, and the number of international treaties a country signed (Dreher, 2006). The proxy for economic globalization (networks) is based on the flows of goods and services

(KOF actual flows). This indicator takes into account the exports and imports of goods and services of a country, foreign direct investments (FDI stocks), its portfolio of investments, and income payments to foreign nationals.

To create the International Networks Sub-index, we calculate the arithmetic mean of political and economic networks, transformed on a scale from 0-1. The International Networks Sub-index includes data for 207 countries and it is presented in Table 3:

Table 3: International Networks Sub-index

	Country	International Networks Index 2014	International Networks Rank 2014
BEL	Belgium	1.000	1
IRL	Ireland	0.999	2
NLD	Netherlands	0.990	3
AUT	Austria	0.960	4
SWE	Sweden	0.949	5
HUN	Hungary	0.942	6
PRT	Portugal	0.936	7
DNK	Denmark	0.927	8
FIN	Finland	0.918	9

	Country	International Networks Index 2014	International Networks Rank 2014
LUX	Luxembourg	0.911	10
SGP	Singapore	0.904	11
ESP	Spain	0.899	12
CZE	Czech Republic	0.882	13
SVK	Slovakia	0.880	14
CHL	Chile	0.875	15
CAN	Canada	0.863	16
AUS	Australia	0.857	17
CHE	Switzerland	0.847	18
GBR	United Kingdom	0.843	19
MYS	Malaysia	0.843	20
EST	Estonia	0.843	21
CYP	Cyprus	0.836	22
ITA	Italy	0.835	23
NOR	Norway	0.833	24
NZL	New Zealand	0.832	25
GRC	Greece	0.814	26
FRA	France	0.814	27
POL	Poland	0.807	28
PER	Peru	0.803	29
SVN	Slovenia	0.794	30
BGR	Bulgaria	0.791	31
HRV	Croatia	0.767	32
QAT	Qatar	0.764	33
DEU	Germany	0.759	34
LTU	Lithuania	0.755	35
JOR	Jordan	0.739	36
NGA	Nigeria	0.733	37
ROU	Romania	0.731	38
MLT	Malta	0.730	39
THA	Thailand	0.721	40
ZAF	South Africa	0.719	41
UKR	Ukraine	0.715	42
URY	Uruguay	0.701	43
USA	United States	0.700	44
KOR	Korea, Republic of	0.691	45
PAN	Panama	0.687	46
MNE	Montenegro	0.683	47
ARE	United Arab Emirates	0.678	48
MNG	Mongolia	0.668	49
ISR	Israel	0.661	50
TUN	Tunisia	0.659	51
IDN	Indonesia	0.649	52
TUR	Turkey	0.649	53

	Country	International Networks Index 2014	International Networks Rank 2014
BIH	Bosnia and Herzegovina	0.648	54
BRA	Brazil	0.647	55
BHR	Bahrain	0.646	56
JAM	Jamaica	0.646	57
MAR	Morocco	0.641	58
GTM	Guatemala	0.638	59
SLV	El Salvador	0.635	60
LVA	Latvia	0.631	61
PHL	Philippines	0.610	62
HND	Honduras	0.610	63
ISL	Iceland	0.606	64
GEO	Georgia	0.605	65
ZMB	Zambia	0.602	66
COL	Colombia	0.602	67
TTO	Trinidad and Tobago	0.601	68
PNG	Papua New Guinea	0.599	69
MUS	Mauritius	0.596	70
EGY	Egypt	0.594	71
MDA	Moldova	0.590	72
GHA	Ghana	0.590	73
GNQ	Equatorial Guinea	0.588	74
MEX	Mexico	0.587	75
RUS	Russian Federation	0.585	76
KAZ	Kazakhstan	0.585	77
KGZ	Kyrgyzstan	0.581	78
CHN	China	0.579	79
ALB	Albania	0.579	80
CUB	Cuba	0.577	81
BRN	Brunei Darussalam	0.564	82
DJI	Djibouti	0.563	83
MDV	Maldives	0.561	84
JPN	Japan	0.560	85
SAU	Saudi Arabia	0.559	86
BOL	Bolivia	0.553	87
PRY	Paraguay	0.549	88
KWT	Kuwait	0.548	89
IND	India	0.544	90
GRD	Grenada	0.542	91
LBN	Lebanon	0.538	92
SRB	Serbia	0.537	93
WSM	Samoa	0.532	94
YEM	Yemen	0.531	95
ARG	Argentina	0.528	96
KHM	Cambodia	0.525	97

	Country	International Networks Index 2014	International Networks Rank 2014
CIV	Côte d'Ivoire	0.523	98
OMN	Oman	0.522	99
LBY	Libyan Arab Jamahiriya	0.522	100
SEN	Senegal	0.520	101
NAM	Namibia	0.515	102
MCO	Monaco	0.515	103
MLI	Mali	0.513	104
ATG	Antigua and Barbuda	0.511	105
NIC	Nicaragua	0.509	106
CRI	Costa Rica	0.508	107
ZWE	Zimbabwe	0.495	108
TGO	Togo	0.492	109
LIE	Liechtenstein	0.489	110
AZE	Azerbaijan	0.488	111
ECU	Ecuador	0.479	112
BLR	Belarus	0.474	113
VUT	Vanuatu	0.473	114
PAK	Pakistan	0.472	115
KEN	Kenya	0.472	116
UGA	Uganda	0.471	117
SLE	Sierra Leone	0.469	118
DZA	Algeria	0.466	119
FJI	Fiji	0.466	120
GMB	Gambia	0.465	121
COD	Congo, Democratic Republic	0.463	122
DOM	Dominican Republic	0.462	123
ARM	Armenia	0.460	124
UZB	Uzbekistan	0.455	125
BRB	Barbados	0.452	126
MKD	Macedonia	0.451	127
COG	Congo	0.450	128
MRT	Mauritania	0.450	129
MOZ	Mozambique	0.448	130
VNM	Viet Nam	0.439	131
TKM	Turkmenistan	0.438	132
LKA	Sri Lanka	0.436	133
LSO	Lesotho	0.436	134
LCA	Saint Lucia	0.434	135
AGO	Angola	0.427	136
GUY	Guyana	0.427	137
SMR	San Marino	0.421	138
LBR	Liberia	0.421	139
GIN	Guinea	0.417	140
CMR	Cameroon	0.400	141

	Country	International Networks Index 2014	International Networks Rank 2014
KNA	Saint Kitts and Nevis	0.396	142
ABW	Aruba	0.395	143
TJK	Tajikistan	0.390	144
DMA	Dominica	0.385	145
VEN	Venezuela	0.385	146
BFA	Burkina Faso	0.372	147
BGD	Bangladesh	0.371	148
SLB	Solomon Islands	0.370	149
GAB	Gabon	0.370	150
SYC	Seychelles	0.368	151
VCT	Saint Vincent and the Grenadines	0.364	152
RWA	Rwanda	0.363	153
BEN	Benin	0.363	154
SOM	Somalia	0.352	155
NER	Niger	0.350	156
SWZ	Swaziland	0.344	157
AND	Andorra	0.344	158
MWI	Malawi	0.342	159
MDG	Madagascar	0.341	160
BLZ	Belize	0.333	161
ETH	Ethiopia	0.333	162
TMP	East Timor	0.320	163
TZA	Tanzania	0.318	164
FRO	Faroe Islands	0.317	165
SUR	Suriname	0.315	166
TCD	Chad	0.303	167
IMN	Isle of Man	0.302	168
JEY	Jersey	0.300	169
SYR	Syrian Arab Republic	0.299	170
HTI	Haiti	0.290	171
BWA	Botswana	0.279	172
CPV	Cabo Verde	0.277	173
IRN	Iran	0.276	174
CAF	Central African Republic	0.275	175
GNB	Guinea-Bissau	0.273	176
NPL	Nepal	0.272	177
PLW	Palau	0.253	178
BHS	Bahamas	0.250	179
NCL	New Caledonia	0.250	180
STP	Sao Tome and Principe	0.242	181
IRQ	Iraq	0.229	182
LAO	Lao People's Democratic Republic	0.221	183
PRK	Korea, Democratic People's Republic of	0.207	184
MMR	Myanmar	0.199	185

	Country	International Networks Index 2014	International Networks Rank 2014
WBG	West Bank and Gaza Strip	0.183	186
ANT	Netherlands Antilles	0.180	187
TON	Tonga	0.173	188
SDN	Sudan	0.170	189
CYM	Cayman Islands	0.163	190
PRI	Puerto Rico	0.162	191
BDI	Burundi	0.157	192
VIR	Virgin Islands, U.S.	0.156	193
KIR	Kiribati	0.139	194
AFG	Afghanistan	0.125	195
MHL	Marshall Islands	0.121	196
ASM	American Samoa	0.117	197
COM	Comoros	0.117	198
PYF	French Polynesia	0.115	199
BTN	Bhutan	0.113	200
FSM	Micronesia, Federated States of	0.112	201
ERI	Eritrea	0.085	202
BMU	Bermuda	0.071	203
GRL	Greenland	0.067	204
MAC	Macao	0.054	205
GUM	Guam	0.006	206
MNP	Northern Mariana Islands	0.000	207
	Median:	0.513	

2.2. The Inter-organizational Networks Sub-index 2014

The Inter-organizational Networks Sub-index aims to measure the degree to which organization in a country are connected. These networks can take different forms, as presented in the first Networks for Prosperity report. Firstly, inter-organizational networks within the public sector can develop in order to support public sector development. Secondly, inter-organizational networks between public-private actors can be established. Finally, purely private networks can contribute to private sector development.

Belgium is the most internationally connected country in 2014, the same position the country held in the previous year. Belgium is closely followed by Ireland and The Netherlands. These two countries swapped 2nd and 3rd ranking positions between 2013 and 2014. The list of most internationally connected countries is predominantly composed of high income countries, such as Austria and Sweden. Among middle income countries, the most internationally connected is Hungary, the 6th ranked country. Other middle income countries with well-developed international networks are Malaysia (20th), Peru (29th), and Bulgaria (31st). Small countries predominantly comprise the least internationally connected countries, many of which exhibit low capacity to develop these kinds of networks.

The median international networks sub-index in 2014 is 0.513, higher than the median of 0.504 in 2013. Median scores higher than 0.5 indicates that the majority of countries achieved a relatively high level of international networks. It should be noted that a score of zero does not imply that a country is totally unconnected, but that given the variation between countries and the re-scaling of the variables necessary for indexing (see Annex 1) – a country with a zero score indicates that international connectedness is very low compared to other countries.

Capturing these networks for many countries is not an easy task, since little data is often available. However, some indicators are available which capture dimensions of these types of networks. The Inter-organizational Networks Sub-index was created based on three indicators. First is the indicator on networks and supporting industries, which is constructed using data from the Global Competitiveness Report's Executive Opinion Survey. It takes into account the quality and quantity of local suppliers and the state of cluster development. The university-industry collaboration indicator is also taken from the Global Competitiveness Report, measuring the extent to which business and universities collaborate on Research

and Development (R&D) in a country. Finally, the professional association indicator captures the degree to which individuals are involved in professional associations. Data for this measure is gleaned from the World Values Survey.

The Inter-organizational Networks Sub-index is constructed by calculating the arithmetic mean of the three indicators; this value is then transformed to a scale from 0-1. The Inter-organizational Networks sub-index, covering 142 countries, is presented in Table 4:

Table 4: Inter-organizational Networks Sub-index

	Country	Inter-organizational Network Index 2014	Inter-organizational Network Rank 2014
CHE	Switzerland	1.000	1
TWN	Taiwan, Province of China	0.966	2
USA	United States	0.927	3
IND	India	0.897	4
GBR	United Kingdom	0.893	5
CAN	Canada	0.864	6
SWE	Sweden	0.822	7
AUS	Australia	0.799	8
JPN	Japan	0.792	9
NZL	New Zealand	0.764	10
FIN	Finland	0.758	11
NOR	Norway	0.754	12
DEU	Germany	0.744	13
NLD	Netherlands	0.736	14
SGP	Singapore	0.732	15
DNK	Denmark	0.725	16
QAT	Qatar	0.724	17
BEL	Belgium	0.716	18
AUT	Austria	0.673	19
LKA	Sri Lanka	0.666	20
MYS	Malaysia	0.658	21
ISR	Israel	0.646	22
THA	Thailand	0.635	23
ZAF	South Africa	0.634	24
IDN	Indonesia	0.632	25
LUX	Luxembourg	0.631	26
SAU	Saudi Arabia	0.624	27
IRL	Ireland	0.624	28
ISL	Iceland	0.608	29
BRA	Brazil	0.606	30
KOR	Korea, Republic of	0.604	31
HKG	Hong Kong	0.598	32
PAK	Pakistan	0.591	33
ITA	Italy	0.589	34
FRA	France	0.585	35
PRI	Puerto Rico	0.572	36
KEN	Kenya	0.564	37
ZMB	Zambia	0.548	38
ARE	United Arab Emirates	0.545	39
MEX	Mexico	0.542	40
CRI	Costa Rica	0.538	41
CZE	Czech Republic	0.533	42

	Country	Inter-organizational Network Index 2014	Inter-organizational Network Rank 2014
COL	Colombia	0.532	43
CHN	China	0.528	44
CHL	Chile	0.511	45
RWA	Rwanda	0.500	46
BGD	Bangladesh	0.499	47
MUS	Mauritius	0.488	48
ESP	Spain	0.487	49
GTM	Guatemala	0.479	50
SVN	Slovenia	0.478	51
VNM	Viet Nam	0.478	52
PRT	Portugal	0.474	53
PHL	Philippines	0.470	54
MWI	Malawi	0.465	55
EST	Estonia	0.463	56
MLI	Mali	0.462	57
GMB	Gambia	0.459	58
BRB	Barbados	0.455	59
BRN	Brunei Darussalam	0.452	60
SEN	Senegal	0.452	61
UGA	Uganda	0.451	62
CYP	Cyprus	0.449	63
PAN	Panama	0.447	64
TZA	Tanzania	0.442	65
OMN	Oman	0.442	66
TTO	Trinidad and Tobago	0.437	67
BHR	Bahrain	0.436	68
KWT	Kuwait	0.432	69
NGA	Nigeria	0.429	70
MOZ	Mozambique	0.424	71
HUN	Hungary	0.424	72
LTU	Lithuania	0.421	73
LBN	Lebanon	0.421	74
NPL	Nepal	0.413	75
POL	Poland	0.401	76
NAM	Namibia	0.396	77
ARG	Argentina	0.386	78
BWA	Botswana	0.378	79
MLT	Malta	0.378	80
KHM	Cambodia	0.374	81
TUN	Tunisia	0.366	82
DOM	Dominican Republic	0.361	83
JAM	Jamaica	0.357	84
HND	Honduras	0.357	85
SLV	El Salvador	0.353	86

	Country	Inter-organizational Network Index 2014	Inter-organizational Network Rank 2014
PER	Peru	0.352	87
MDG	Madagascar	0.347	88
BEN	Benin	0.345	89
TUR	Turkey	0.337	90
GUY	Guyana	0.328	91
URY	Uruguay	0.323	92
ETH	Ethiopia	0.318	93
LVA	Latvia	0.315	94
GHA	Ghana	0.315	95
MAR	Morocco	0.315	96
IRN	Iran	0.313	97
SVK	Slovakia	0.311	98
CMR	Cameroon	0.307	99
JOR	Jordan	0.295	100
MNE	Montenegro	0.285	101
HRV	Croatia	0.285	102
ECU	Ecuador	0.279	103
ZWE	Zimbabwe	0.278	104
CPV	Cabo Verde	0.277	105
BOL	Bolivia	0.264	106
MKD	Macedonia	0.263	107
SRB	Serbia	0.259	108
BFA	Burkina Faso	0.256	109
UKR	Ukraine	0.256	110
RUS	Russian Federation	0.251	111
PRY	Paraguay	0.251	112
VEN	Venezuela	0.247	113
MNG	Mongolia	0.247	114
CIV	Côte d'Ivoire	0.246	115
TCD	Chad	0.243	116
GRC	Greece	0.237	117
BIH	Bosnia and Herzegovina	0.235	118
LSO	Lesotho	0.231	119
SWZ	Swaziland	0.231	120
MRT	Mauritania	0.230	121
TJK	Tajikistan	0.228	122
SUR	Suriname	0.224	123
NIC	Nicaragua	0.222	124
AZE	Azerbaijan	0.220	125
BGR	Bulgaria	0.216	126
BDI	Burundi	0.214	127
ROU	Romania	0.214	128
KAZ	Kazakhstan	0.213	129
TMP	East Timor	0.207	130

	Country	Inter-organizational Network Index 2014	Inter-organizational Network Rank 2014
MDA	Moldova	0.196	131
SYR	Syrian Arab Republic	0.189	132
EGY	Egypt	0.175	133
ARM	Armenia	0.146	134
KGZ	Kyrgyzstan	0.145	135
BLZ	Belize	0.133	136
GEO	Georgia	0.096	137
DZA	Algeria	0.096	138
ALB	Albania	0.090	139
HTI	Haiti	0.047	140
YEM	Yemen	0.023	141
AGO	Angola	0.000	142
	Median:	0.424	

The country with the most developed inter-organizational networks in 2012 is Switzerland. Next, Taiwan, the United States, India, and the United Kingdom complete the list of top five connected countries. It is impressive to note the progress made by two of these countries: Taiwan, which rose from 7th position in 2013 to 2nd position this year; and India, that improved from 16th position in 2013 to 4th in 2014, a jump of more than ten ranking positions in only one year.

In the intermediate ranking positions one can note the predominance of middle income countries such as Hungary, Lebanon, Nigeria and Argentina, but also the presence of high income countries such as Kuwait, Lithuania and Poland. Among the countries with the least developed inter-organizational networks there are low income countries such as Haiti and Kyrgyzstan, but mainly middle income countries such as Angola, Yemen, Albania and Algeria.

The median inter-organizational sub-index in 2014 is 0.424, higher than the 0.397 median of 2013. Although the median have substantially increased, median scores lower than 0.5 indicates that the majority of countries are still not well-developed when compared with the most connected countries. However, the reader should take into account that this index only partially captures the concepts of inter-organizational networks discussed in the Networks for Prosperity Report 2011, based on available data. It is also important to note that the zero score does not indicate a complete absence of inter-organizational networks, but is a result of the re-scaling method, indicating a comparatively low level of inter-organizational connectedness.

2.3. The Intra-organizational Networks Sub-index 2014

The Intra-organizational Networks Sub-index aims to measure the degree to which networks are developed within organizations in a country. As discussed in the first Networks for Prosperity report, the basic premise of a social network approach within organizations is that knowledge creation and information exchange primarily occurs between persons notwithstanding the exponential growth of technical knowledge management tools such as databases, the internet, repositories, etc. within organizations.

The importance of intra-organizational networks was also illustrated in the second Networks for Prosperity report through some relevant case-studies. Organizational research has consistently shown that internal interconnectedness is crucial for organizational performance. This dimension is even harder to capture for a full population of countries due to a lack of data. To create the Intra-organizational Networks Sub-index, two proxies were identified and form the basis for the sub-index. Data measuring the Percentage of Firms Offering Formal Training comes from the World Bank Enterprise Surveys, most specifically

from the question assessing whether an establishment offers formal training programmes for its permanent, full-time employees. The On-the-job Training indicator culls data from the Global Competitiveness Report 2011-2012 and is based on the local availability of specialized research and training services, and the extent to which companies invest in training and employee development. Like the International and Inter-organizational sub-indices, the Intra-organizational Networks Sub-index is constructed using the arithmetic mean of the two training indicators. The index, covering 174 countries, is presented in Table 5:

Table 5: Intra-organizational Networks Sub-index

	Country	Intra-organizational Network Index	Intra-organizational Network Rank
CHE	Switzerland	1.000	1
WSM	Samoa	0.999	2
SWE	Sweden	0.917	3
DNK	Denmark	0.871	4
NLD	Netherlands	0.866	5
AUT	Austria	0.850	6
FIN	Finland	0.845	7
JPN	Japan	0.834	8
BEL	Belgium	0.828	9
NOR	Norway	0.818	10
GBR	United Kingdom	0.818	10
IRL	Ireland	0.812	12
USA	United States	0.810	13
SGP	Singapore	0.807	14
CHN	China	0.779	15
CAN	Canada	0.769	16
LUX	Luxembourg	0.769	16
CZE	Czech Republic	0.769	18
AUS	Australia	0.759	19
PRI	Puerto Rico	0.751	20
FRA	France	0.743	21
FJI	Fiji	0.727	22
EST	Estonia	0.724	23
ISR	Israel	0.721	24
THA	Thailand	0.715	25
HKG	Hong Kong	0.713	26
ISL	Iceland	0.710	27
MYS	Malaysia	0.703	28
TWN	Taiwan, Province of China	0.694	29
BHR	Bahrain	0.689	30
POL	Poland	0.680	31
ARE	United Arab Emirates	0.670	32
COG	Congo	0.665	33
SAU	Saudi Arabia	0.662	34
NZL	New Zealand	0.660	35
DEU	Germany	0.637	36
BRA	Brazil	0.633	37
CRI	Costa Rica	0.623	38
ARG	Argentina	0.613	39
BRB	Barbados	0.612	40
TUN	Tunisia	0.603	41
ESP	Spain	0.594	42
VUT	Vanuatu	0.592	43

	Country	Intra-organizational Network Index	Intra-organizational Network Rank
CHL	Chile	0.590	44
SLV	El Salvador	0.587	45
BHS	Bahamas	0.582	46
PER	Peru	0.579	47
COL	Colombia	0.570	48
GRD	Grenada	0.570	49
QAT	Qatar	0.566	50
SVN	Slovenia	0.552	51
LBN	Lebanon	0.550	52
BLR	Belarus	0.549	53
LTU	Lithuania	0.549	54
GUY	Guyana	0.539	55
ZAF	South Africa	0.539	56
RUS	Russian Federation	0.538	57
GTM	Guatemala	0.536	58
KOR	Korea, Republic of	0.532	59
MEX	Mexico	0.531	60
DOM	Dominican Republic	0.529	61
BWA	Botswana	0.528	62
ECU	Ecuador	0.521	63
RWA	Rwanda	0.520	64
MLT	Malta	0.520	65
BIH	Bosnia and Herzegovina	0.503	66
KEN	Kenya	0.501	67
LVA	Latvia	0.495	68
MWI	Malawi	0.492	69
MNG	Mongolia	0.491	70
BOL	Bolivia	0.482	71
CAF	Central African Republic	0.481	72
KHM	Cambodia	0.473	73
CYP	Cyprus	0.464	74
ITA	Italy	0.464	74
OMN	Oman	0.464	74
LSO	Lesotho	0.460	77
PRY	Paraguay	0.460	78
SVK	Slovakia	0.458	79
PHL	Philippines	0.457	80
KAZ	Kazakhstan	0.450	81
PRT	Portugal	0.448	82
NER	Niger	0.442	83
NAM	Namibia	0.441	84
URY	Uruguay	0.439	85
TTO	Trinidad and Tobago	0.435	86
KNA	Saint Kitts and Nevis	0.427	87

	Country	Intra-organizational Network Index	Intra-organizational Network Rank
MUS	Mauritius	0.424	88
GMB	Gambia	0.421	89
SWZ	Swaziland	0.419	90
LCA	Saint Lucia	0.417	91
HND	Honduras	0.415	92
VNM	Viet Nam	0.401	93
VCT	Saint Vincent and the Grenadines	0.400	94
TMP	East Timor	0.397	95
NGA	Nigeria	0.396	96
TUR	Turkey	0.395	97
MAR	Morocco	0.394	98
TGO	Togo	0.392	99
ZMB	Zambia	0.390	100
TZA	Tanzania	0.388	101
VEN	Venezuela	0.386	102
UGA	Uganda	0.381	103
ZWE	Zimbabwe	0.380	104
GHA	Ghana	0.377	105
CIV	Côte d'Ivoire	0.370	106
KWT	Kuwait	0.367	107
MLI	Mali	0.365	108
MNE	Montenegro	0.365	109
TCD	Chad	0.365	110
HRV	Croatia	0.362	111
BTN	Bhutan	0.361	112
JAM	Jamaica	0.361	113
JOR	Jordan	0.360	114
ATG	Antigua and Barbuda	0.359	115
BEN	Benin	0.358	116
LBR	Liberia	0.354	117
BRN	Brunei Darussalam	0.351	118
CMR	Cameroon	0.347	119
NIC	Nicaragua	0.346	120
BGR	Bulgaria	0.345	121
ALB	Albania	0.344	122
MDA	Moldova	0.342	123
LKA	Sri Lanka	0.341	124
IND	India	0.337	125
SEN	Senegal	0.329	126
SYR	Syrian Arab Republic	0.328	127
ROU	Romania	0.326	128
SRB	Serbia	0.325	129
ARM	Armenia	0.323	130
ERI	Eritrea	0.321	131

	Country	Intra-organizational Network Index	Intra-organizational Network Rank
PAN	Panama	0.318	132
WBG	West Bank and Gaza Strip	0.317	133
UKR	Ukraine	0.313	134
IRN	Iran	0.311	135
AZE	Azerbaijan	0.300	136
GAB	Gabon	0.293	137
TJK	Tajikistan	0.292	138
SLE	Sierra Leone	0.290	139
KOS	Kosovo	0.289	140
GRC	Greece	0.288	141
MDG	Madagascar	0.281	142
BFA	Burkina Faso	0.281	143
EGY	Egypt	0.280	144
KGZ	Kyrgyzstan	0.277	145
HUN	Hungary	0.273	146
IDN	Indonesia	0.270	147
DMA	Dominica	0.264	148
BLZ	Belize	0.259	149
DJI	Djibouti	0.256	150
AGO	Angola	0.248	151
GIN	Guinea	0.247	152
MOZ	Mozambique	0.246	153
MKD	Macedonia	0.243	154
GEO	Georgia	0.223	155
BGD	Bangladesh	0.220	156
CPV	Cabo Verde	0.209	157
DZA	Algeria	0.202	158
ETH	Ethiopia	0.199	159
COD	Congo, Democratic Republic of the	0.181	160
PAK	Pakistan	0.177	161
MRT	Mauritania	0.176	162
MMR	Myanmar	0.170	163
AFG	Afghanistan	0.168	164
LAO	Lao People's Democratic Republic	0.159	165
SUR	Suriname	0.158	166
BDI	Burundi	0.146	167
TON	Tonga	0.145	168
IRQ	Iraq	0.137	169
GNB	Guinea-Bissau	0.135	170
NPL	Nepal	0.120	171
UZB	Uzbekistan	0.098	172
YEM	Yemen	0.088	173
HTI	Haiti	0.000	174
	Median:	0.426	

Switzerland is the country with the most developed intra-organizational networks in 2014. These kind of networks are similarly well-developed in Samoa, Sweden, Denmark, and the Netherlands.

Among middle income countries, the 2nd ranking position held by Samoa is impressive. Its score is attained due to the high percentage of firms offering their staff formal training (79.1%). However, this figure should be interpreted with caution, since the authors recognize the limitations of the percentage of firms offering formal training as the only indicator to measure intra-organizational networks, and an in-depth analysis of how Samoa's networks are formed and developed was not available. Other middle income countries with well-developed intra-organizational networks are China, Fiji, and Thailand.

Low income countries predominate the ranks of the least developed intra-organizational networks. We can cite Haiti, Nepal, Guinea-Bissau, and Burundi as examples in this respect.

The median score in 2014 is 0.426, higher than the 0.364 median of 2013. Similar to the case of Inter-organizational Networks Sub-index, although the median has substantially increased, median scores lower than 0.5 indicate that the majority of countries are still not well-developed when compared with the most connected countries. Again, the zero score does not indicate a complete absence of intra-organizational networks, but is a result of the re-scaling method, indicating a low level of intra-organizational connectedness in comparison to other countries in the rankings.

Networks can serve many purposes and contribute to social and economic prosperity.



3. Connectedness over four years

This report presents the fourth version of the Connectedness Index, yearly published since 2011. During this period, the median connectedness has increased consistently, year by year, as shown in Table 1. The greater median shows that more countries have invested on their networks. In 2014, 61 countries reached a score

higher than 0.5, against 51 in 2013, and 47 in 2012 and 2011. Figures 7 and 8 present the average connectedness by income level and region, respectively. These figures show that, on average, countries' connectedness has increased in all groups of countries, independently of their income and geographical region.

Figure 7: Trends on Connectedness Index by Income Level

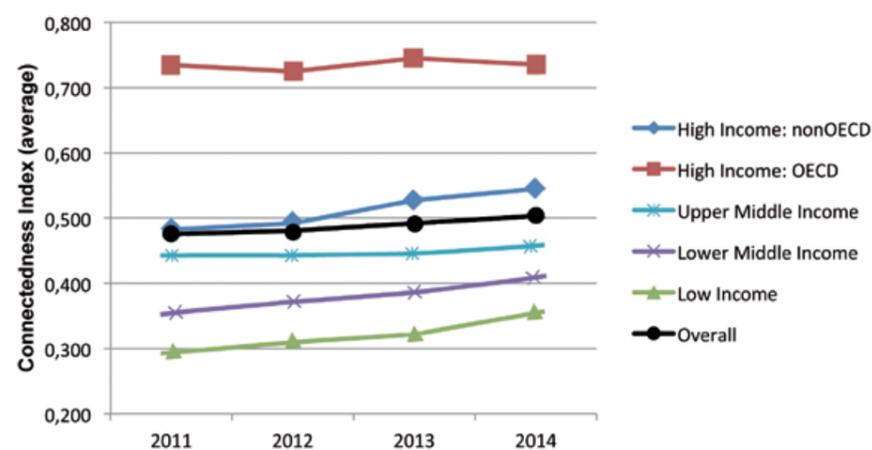


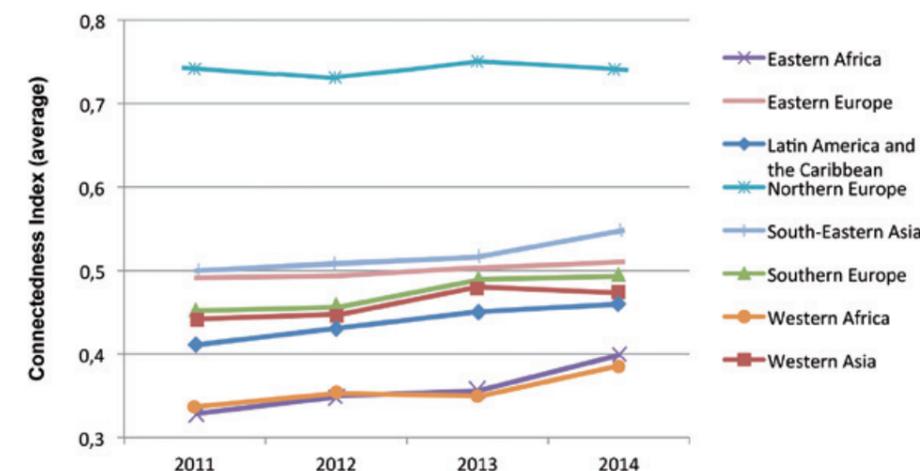
Figure 7 shows that progress is more substantial among countries with the lowest income per capita (low and lower middle income countries) and less evident among OECD countries. One example of progress among low income countries is Tanzania. The country was the 125th most connected in 2011

and is improving its ranking position every year since then. In 2014, Tanzania is the 105th most connected, jumping 20 ranking positions in four years (see Table 1), mainly due to its evolution on international and inter-organizational networks.

The levels of connectedness also vary in different regions, as shown in Figure 8. Northern Europe is the region whose countries are more connected. However, the progress of countries' networks is steeper in East-

ern Africa and in the Latin America and the Caribbean. On the other hand, the trajectory of progress in Northern Europe is the most smooth of all regions surveyed.

Figure 8: Trends on Connectedness Index by Regions³



Looking at individual countries, some have regularly increased their connectedness since 2011, while others countries have increased in one year but not in others. Table 6 highlights a list of countries that have consecutively progressed in the connectedness rank, indicating a consistent investment on their networks. Bosnia and Herzegovina is the country on which the progress was more substantial. The country jumped from 112th to 73rd position between 2011 and 2014, improving 39 ranking positions. Other countries exhibiting impressive progress were Mongolia and Mexico, improving 33 and 32 ranking positions, respectively.

Table 6: Progress on Connectedness Ranking

Country	Rank 2014	Rank 2013	Rank 2012	Rank 2011	Difference 2011 - 2014
BIH	73	86	105	112	39
MNG	71	81	82	104	33
MEX	47	52	70	79	32
TZA	105	108	109	125	20
MLI	87	101	102	105	18
SAU	37	42	52	54	17
PRY	100	103	112	117	17
QAT	24	25	35	37	13
GBR	4	9	13	14	10
NIC	112	113	120	122	10
PER	43	46	48	51	8
BOL	94	98	101	102	8
BEN	113	114	117	120	7

³ This figure only includes the eight regions which the Connected Index is available to the greatest number of countries.

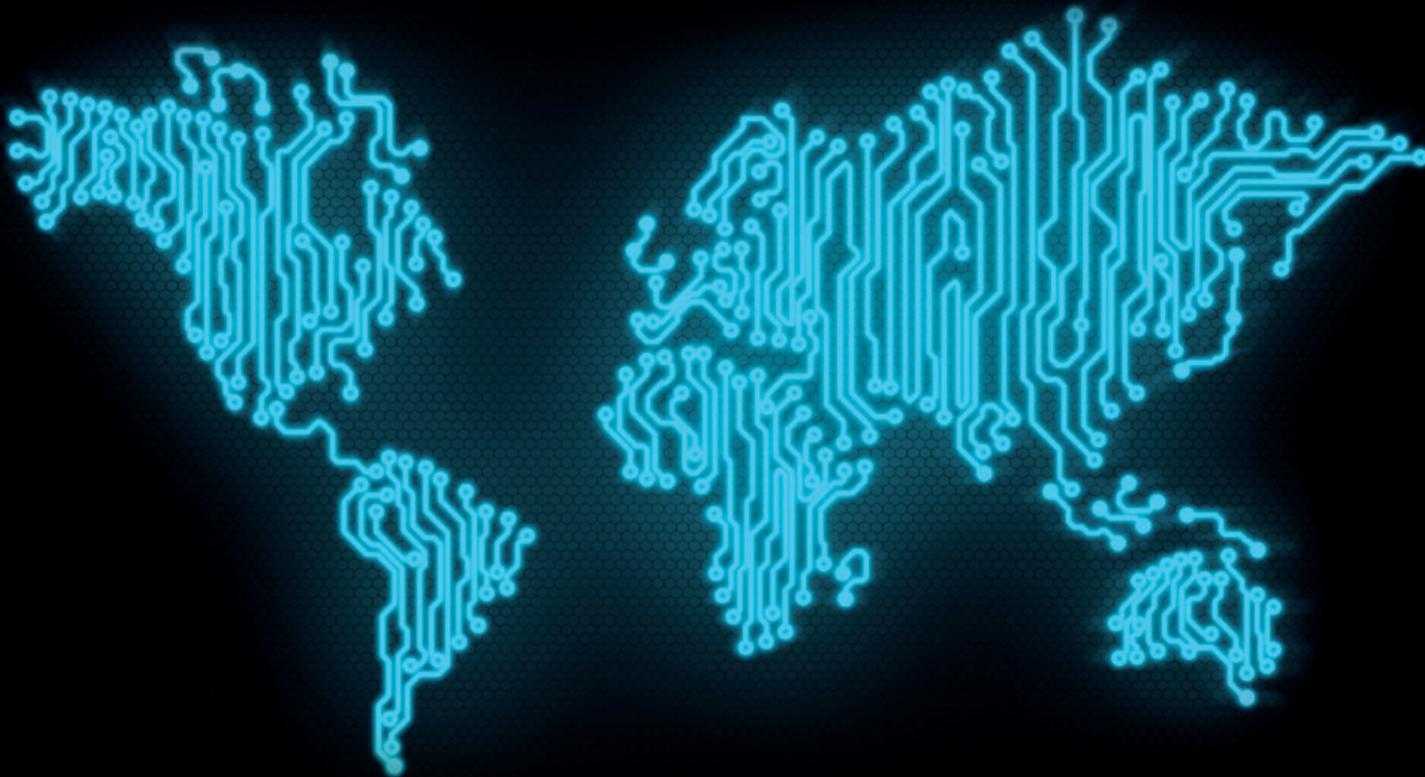
4. The relationship between connectedness and government, industrial, and economic performance

In this section the relationship between connectedness and other development indicators is briefly discussed. Although it helps us to explore how the Connectedness Index is related to other frequently used measures, disentangling causal relationships among these indicators is outside the scope of this report.

Firstly, Figure 9 presents the relationship between connectedness and government effectiveness. The linear approximation line shows a strong relationship between these indicators (note that most of countries are plotted close to the line). Overall, government effectiveness is high in countries with high connectedness scores, and low in countries with low connectedness scores. Next, the relationship between connectedness and regulatory quality is very similar, as shown in the figure. This strong relationship between connectedness and these indicators is also evident on Table 7, which presents the correlation coefficient⁴ between connectedness and these variables. The correlation between connectedness and government effectiveness is 0.845 and the correlation with regulatory quality 0.826. Considering that the correlation coefficient ranges from -1 to 1, these correlations are high.

Next, Figure 9 presents the relationship between connectedness and the Competitive Industrial Performance Index (CIP). Although this relationship is not so strong as in the cases of government effectiveness and regulatory quality, the correlation coefficient of 0.723 clearly demonstrates the presence of a strong relationship.

Looking at the median connectedness by income level presented on Figure 4 and noting that the higher the income level, the higher the average connectedness over years (see Figure 7), it also seems evident that there is a relationship between connectedness and income per capita. This relationship is also shown on Figure 9. Although it is the least strong correlation between these four indicators, the correlation coefficient of 0.640 makes clear the relation between these variables.



⁴ For more information on the Pearson Product-Moment Correlation Coefficient, see Annex 1.

Figure 9: Relationship between Connectedness Index and other development indicators

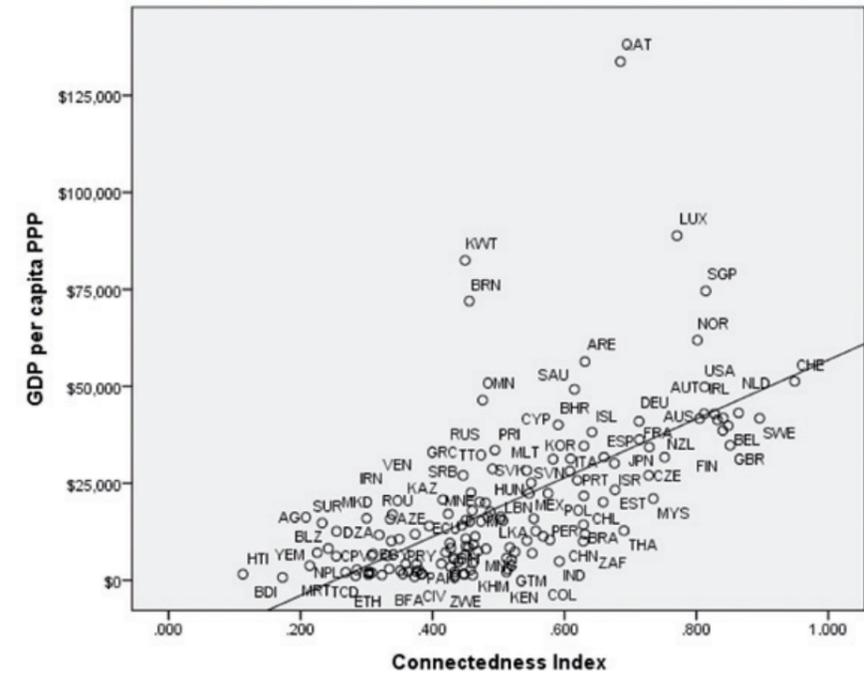
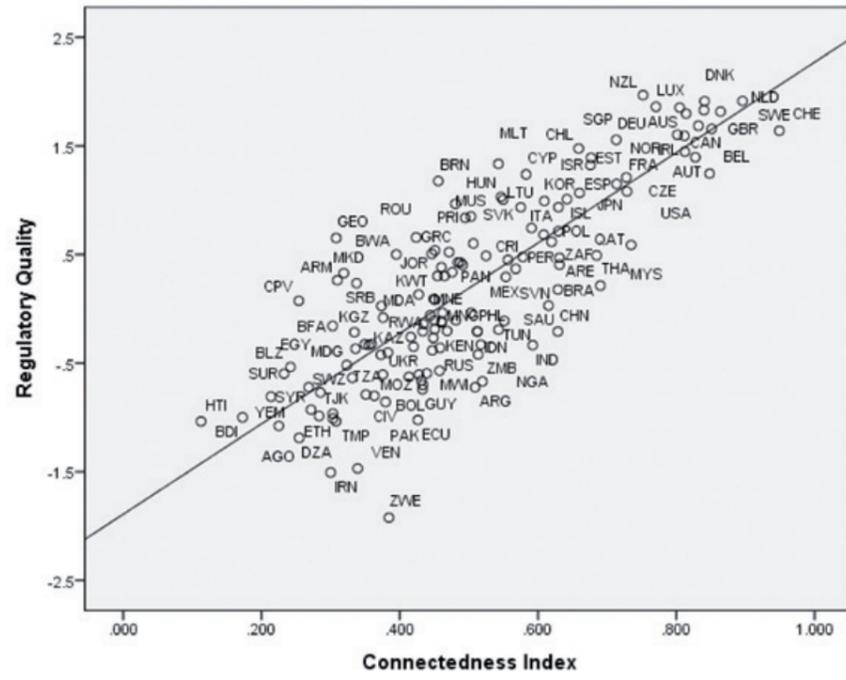
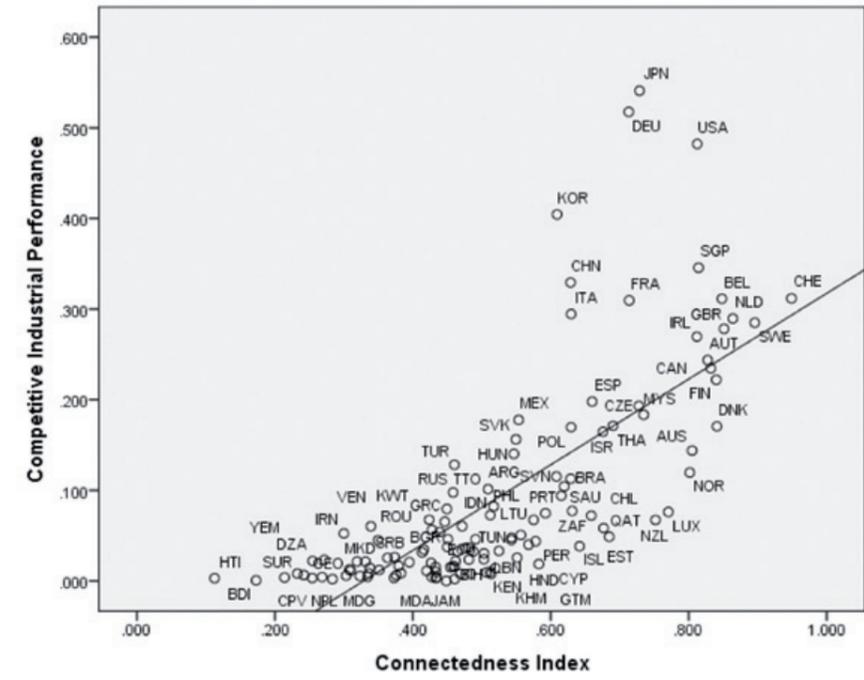
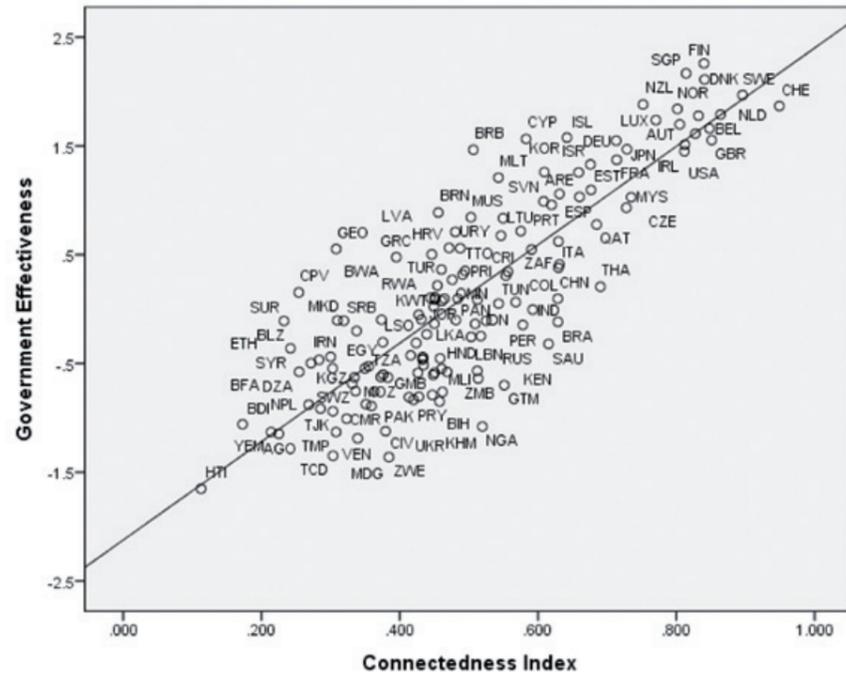


Table 7: Correlations

	Connectedness Index	Political Globalization	Economic Globalization	International Networks	Inter-firms Networks	University-industry Networks	Professional Association	Inter-organizational Networks	% Firms Offering Formal Training	On-the-job Training	Intra-organizational Networks	Government Effectiveness	Regulatory Quality	CIP	GDP per capita
Connectedness Index	1														
Political Globalization	.558**	1													
Economic Globalization	.642**	-.015	1												
International Networks	.813**	.777**	.618**	1											
Inter-firms Networks	.891**	.473**	.482**	.643**	1										
University-industry Networks	.905**	.423**	.493**	.621**	.824**	1									
Professional Association	.055	-.023	-.310**	-.213**	.081	.081	1								
Inter-organizational Networks	.870**	.433**	.328**	.504**	.882**	.892**	.448**	1							
% Firms Offering Formal Training	.551**	.149	.286**	.307**	.293**	.393**	-.198*	.225*	1						
On-the-job Training	.919**	.418**	.572**	.677**	.875**	.875**	-.004	.820**	.293**	1					
Intra-organizational Networks	.909**	.354**	.533**	.601**	.787**	.831**	-.078	.742**	.896**	.882**	1				
Government Effectiveness	.845**	.173*	.616**	.522**	.751**	.813**	-.083	.708**	.308**	.825**	.706**	1			
Regulatory Quality	.826**	.222**	.628**	.566**	.720**	.754**	-.109	.656**	.303**	.785**	.675**	.926**	1		
CIP	.723**	.527**	.363**	.559**	.743**	.688**	-.023	.653**	.339**	.695**	.653**	.638**	.586**	1	
GDP per capita	.640**	.106	.505**	.411**	.633**	.639**	-.129	.551**	.269**	.619**	.549**	.671**	.642**	.444**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

5. Conclusions

The first Networks for Prosperity report presented the idea that networks can serve many purposes and contribute to social and economic prosperity. Given the complexity and the different kinds of networks, measuring country networks is not an easy task. This chapter presented the fourth version of the Connectedness Index, that is, an exploratory measure of countries' networks considering three levels: international, inter-organizational, and intra-organizational.

The Connectedness Index 2014 shows that countries are becoming more connected over time. The median connectedness scores presented on Table 1 shows that the median has increased every year since 2011. It means that more countries are investing on networks and becoming more close to the most connected countries. These investments on networks are realized in all levels, since the median of each connectedness sub-indices have increased.

This chapter also showed that the positive trend on connectedness is evident in all income groups and all geographical regions. High income countries are the most connected, mainly OECD members. The trends on connectedness are also positive in all regions, as presented in Figure 8. In this regard, it is remarkable the progress in Eastern Africa and in the Latin America and the Caribbean countries.

Part 2 Case Studies

Chapter 1 Global Sustainability Networks

Axel Marx

The process of moving from a current – unsustainable – situation towards a desirable – sustainable – situation faces challenges on how to get there. This brings on the question of governance: a series of governing systems, which do not rest on recourse to the authority and sanctions of “governments” but instead are the result of the interaction of a multiplicity of mutually interlinked stakeholders

(Commission on Global Governance, 2005).

The complex nature of sustainability problems and the plurality of stakeholders involved in the sustainability transition process require new forms of governance addressing the multiple objectives of sustainable development. These new forms of governance do not necessarily replace ‘old’ forms of governance but complement them.

TRADITIONAL ENVIRONMENTAL GOVERNANCE

More traditional forms of environmental and sustainability governance broadly comprise of three types of policy instruments: conventional regulatory approaches/ regulations and standards, market-based instruments and voluntary information based instruments.

First of all, in many countries, regulations and standards are the most commonly used policy instruments to tackle environmental issues. In their general form, these instruments consist of institutional rules that specify the type of action(s) polluters (firms or individuals) must or might undertake to achieve certain environmental goals. In the context of climate change, regulatory standards figure increasingly prominently as a means to directly or indirectly reduce GHG

emissions. An important source for environmental protection are international treaties and conventions. In addition an increasing number of voluntary agreements between governmental agencies and private entities are playing an increasingly important role for achieving energy efficiency and energy-related/ GHG emissions reduction objectives, especially when private actors such as companies or users of industrial installations fear the costs potentially involved with strict regulations.

Secondly, market based approaches use price signals to alter or influence climate related behavior of producers and consumers. The main economic instruments for addressing climate change include emission taxes and emission trading. Subsidies or a variety of financial support mechanisms can also be applied to encourage and/discourage the use of particular technologies and practices. They can include for instance tax credits for energy efficient equipment and price supports for renewable energy use to spur the diffusion of renewable technologies, products, and processes. Especially relevant in the context of climate change are emission taxes. Emission taxes impose a charge or costs to emitters for each unit of pollutant (carbon content) discharged, thus making it more costly to use. Many countries, both developed as well as developing countries, are developing and imple-



menting these types of eco-taxes (see Van Keckhoven, Bécault and Marx, forthcoming).

Thirdly, information instruments such as labeling programmes for consumer products, information disclosure requirement for firms, and awareness/education campaigns are becoming valuable tools in the transition to sustainability. This is recently acknowledged by the UN via the establishment of the UN Forum on Sustainability Standards. These sustainability standards are growing extremely fast in number (Marx, 2014 – more than 400 operating worldwide) and market share (FAST, 2014) and are generating trade impact. As a result, developing countries are confronted with the challenge to be included in the dynamics of private sustainability standards. Many donors and foundations are currently providing technical assistance in this area.

NEW ENVIRONMENTAL GOVERNANCE: KNOWLEDGE NETWORKS, LEARNING, AND INFORMATION EXCHANGE

In the context of ‘new’ environmental governance initiatives the focus is on the (transnational) sharing of knowledge and information on best practices related to the transition to sustainability. This fourth Networks for Prosperity Report focuses on this new form of transnational sustainability governance. Several authors and organizations have stressed the importance of learning and knowledge sharing. For example, the outcome document of the OECD’s High-level Forum on Aid Effectiveness in 2011 calls for “*the development of networks for knowledge exchange, peer learning and coordination among South-South actors as a means of facilitating access to important knowledge pools by developing countries.*”

The key focus here is on the exchange of information, knowledge management and the role of international organizations as policy orchestrators (Abbott & Snidal, 2010). The contribution by Ken Abbott in this report discusses the current state of the art of international organizations as policy orchestrators in sustainability governance. Several authors (Rayner et al, 2011) propose a comprehensive approach to knowledge management with a strong emphasis on a networked approach to learning and improved network management. The former is necessary since improved knowledge management does not necessarily lead to learning. A key issue is bridging knowledge generation and knowledge use which can be achieved via networked learning platforms defined as an “*as an integrated set of services that provide information, tools and resources to support policy learning*” (Rayner et al, 2011, p. 141).



Clean technologies are new industry processes, or modifications of existing ones, intended to reduce the impact of production activities on the environment

In this context one can observe the emergence of so-called information agencies and knowledge platforms, some of which are embedded in existing international organizations and some of which operate independently or act as a hub between international organizations. (Meyer, 2012) Information agencies and knowledge platforms are organizations that are primarily concerned with collecting data, evaluating policies and generate learning among member organizations. These information agencies collect and disseminate relevant information for policy makers, often building huge databases. They do not have any decision-making power (Slaughter, 2004, p. 158), but in fact govern via information exchange which is by some considered to be flexible, responsive, effective and efficient governance system. They play a key role in new forms of governance that rely on knowledge management and information. International cooperation on knowledge sharing and information exchange is expected to produce the following outcomes (Tholianat, 2010): (1) enhanced mutual learning and peer review, (2) identification of good practices and of their conditions for transferability, (3) development of joint policy initiatives or identification of areas where joint initiatives can reinforce existing policies of states.

Many of these knowledge platforms and information agencies aim to promote structural change notably with regard to promoting a transition to sustainability. Several international learning networks which aim to facilitate a transition to a low carbon economy and promote low emission development strategies (LEDS) are currently being installed. LEDS are described as “forward-looking national development plans or strategies that encompass low-emission and/or, climate-resilient economic growth” (OECD, 2010). Low-emission planning process consists of a number of stages (NREL, 2011) and is characterized by a substantial degree of complexity. As such, it is in need of knowledge and information. Faced with these issues a range of LEDS stakeholders worldwide recognized the need for forming regional and international networks and knowledge platforms. As a result several international networks and knowledge platforms have emerged. CLEAN (2011) shows that today there exists a broad array of networks and platforms supporting low emission and climate compatible development planning. Majority of LEDS networks and platforms operate at a global level (see e.g. IRENA, CLEAN, CDKN, GGGI). Other networks (see e.g. ASEAN, IGES, AFREPREN) have a regional focus. These networks often provide four types of services. Firstly, they raise awareness and aim to explain what low emission development is. Secondly, they implement specific projects. Third, they work with individual organizations to identify, evaluate and implement low emission strategies. Fourth they liaise with governments to identify ways to create a policy environment more conducive to implement low emission strategies.

An example of such a network is UNIDO’s Green Industry Platform which is discussed in the contribution by Heinz Leuenberger. This is a voluntary multi-stakeholder partnership designed to provide a framework for participants, individually or in groups, to take specific and measurable action to advance environmentally sustainable approaches and employment in industry. The Platform was officially launched at Rio+20 in June 2012 and has thus far assembled commitments from over 140 partners, including national governments, businesses and international organizations. It operates in four interrelated areas: resource efficiency for sustainable production and consumption; water optimization in manufacturing; industrial energy efficiency; and chemicals management. Signatory organizations can develop road maps to integrate green industry policies and practices in organizational strategies and business plans, share and profile best practices, and drive forward technological development, application and innovation. Another example is the UNIDO-UNEP network of National Cleaner Production Centres (NCPCs) which meet in the context of a global forum. These NCPCs aim to achieve structural change towards sustainable industrial

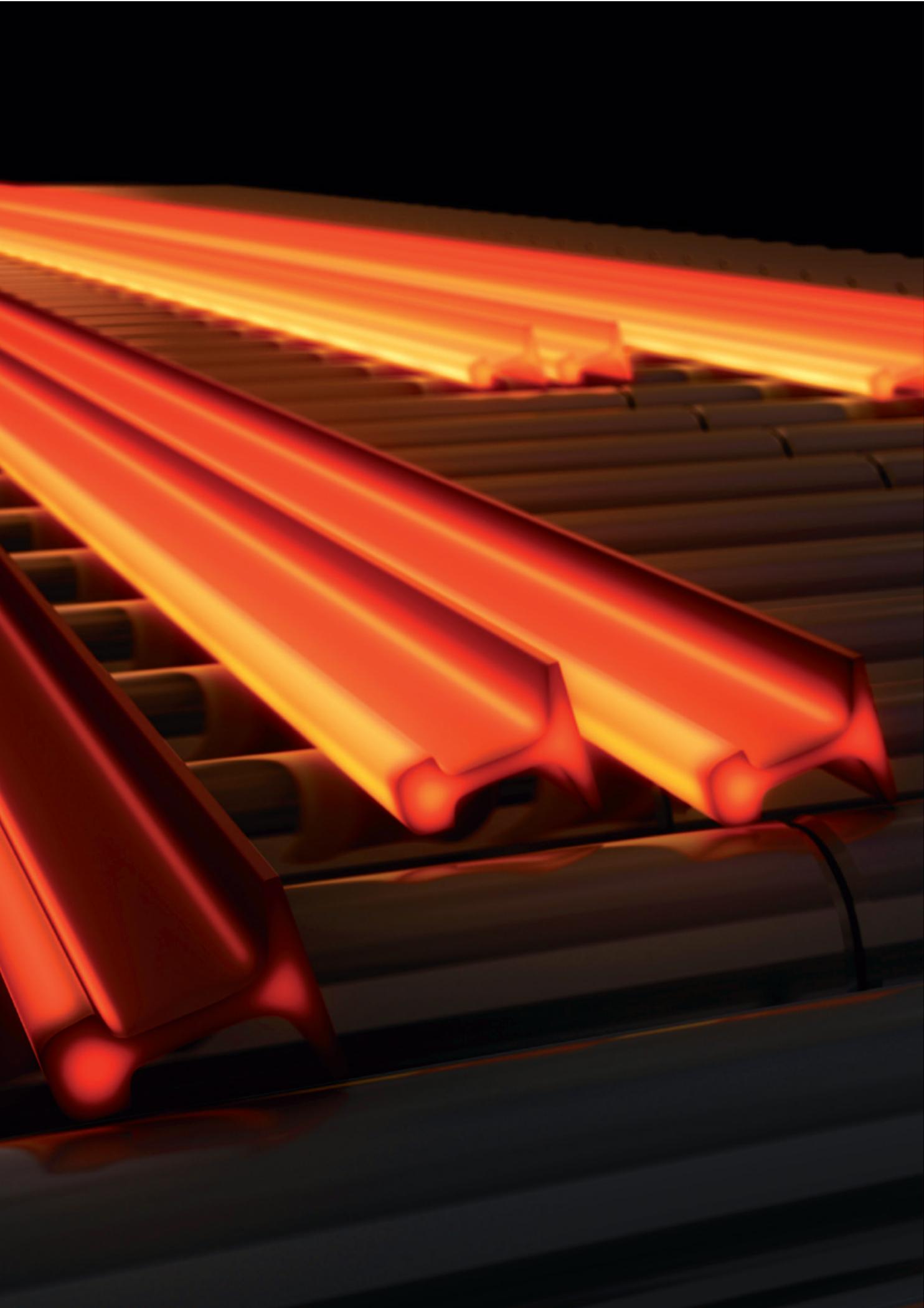
production. Clean technologies or cleaner production are new industry processes or modifications of existing ones intended to reduce the impact of production activities on the environment, including reducing the use of energy and raw materials. Changing consumption and production patterns towards more sustainable ones is singled out as one of the key-objectives for green industrial policy. However, the implementation of cleaner technology and cleaner production is not straightforward, especially in developing countries, due to several reasons including a lack of knowledge. Firms and local entrepreneurs are usually not aware of the scope and potential of cleaner production. In order to address this knowledge deficit UNIDO and UNEP established NCPCs, which have begun to play a major role in developing a “culture” of cleaner production in local communities and country-wide by coordinating cleaner production programmes, acting as an interface among industry, government, universities and non-governmental organizations (NGOs), and building the human capacities required to acquire and manage cleaner technologies. Since 1994, 47 NCPCs have been established, mainly in Middle Income Countries, which have catalyzed the implementation of cleaner production methods, policies, practices and technologies in their respective home countries and beyond. NCPCs provide four types of clean production services: awareness-raising, support individual enterprises in implementing cleaner production options, train a cadre of national experts that can assist enterprises and other organizations with the implementation of cleaner production and liaise with government and other key stakeholders to identify ways to create a policy environment more conducive to clean production. In order to scale up the impact and foster learning effects multi-level networking activities were developed and global coordination is taken place.

These are only two examples of many learning network initiatives. Often these initiatives emerge out of public-private partnerships, especially in the context of sustainability governance. The contribution by *Aysem Mert* provides a comprehensive overview and discussion of public-private partnerships and shows the importance of these forms of governance for sustainability governance.

Chapter 2

Sustainable development partnerships in the UN system

Ayşem Mert



1. INTRODUCTION

Public-private partnerships (PPPs) are a distinct form of network governance that brings the public sector and non-state actors (such as corporations, non-governmental organizations, research institutes, trade unions etc.) together for public policy goals. PPPs have been national governance mechanisms since the 1980s, and were prominent public policy tools under the Thatcher and Reagan administrations. Their introduction into global and transnational governance took place from the late 1990s onwards, with some United Nations (UN) organizations, particularly the World Health Organization taking the lead. Cooperating with the private sector for much needed public goods while also reducing public spending was a persuasive argument for the legitimization of these new mechanisms. More recently, private-private partnerships among non-state actors and without government involvement have also been formed at various levels of governance. Circumventing the governmental decision-making processes, this kind of cooperation is often regarded as advantageous due to its flexibility, inclusiveness, and effectiveness.

The escalation of partnerships in global governance and their new foci on sustainable development and corporate social responsibility were also led by the UN system: first, with the Global Compact and then with the so-called Johannesburg partnerships which were agreed upon at the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg. ‘Sustainable development partnerships’ are today widely seen as the most prominent outcome of the WSSD. Governments could not agree on major new legislative initiatives to mitigate global environmental problems, and opted to focus on the implementation of existing policies instead: They agreed on the ‘type-2’ outcomes of the summit, with ‘type-2’ denoting a new model of global governance that complements traditional, ‘type-1’ modes of intergovernmental cooperation. The argument for their endorsement was once again the necessity of corporate funding for public goods: Win-win scenarios could remedy the famous *implementation* and *participation deficits* in global governance. Thus, before, during, and immediately after the Johannesburg summit several hundred sustainable development partnerships have been agreed upon, forming what can be called a *partnerships regime*; and they constitute the sample studied in this chapter.

While the idea of global public-private partnership was not new in 2002, the high number of the newly agreed partnerships, as well as the prominence and, in part, enthusiasm that surrounded their launch was surely unprecedented. This enthusiasm continues as similar mechanisms of network governance are launched in most environmental and developmental summits, such as the *voluntary commitments* launched at the 2012 Rio+20 Summit (Pattberg and Mert 2013), or the *international cooperative initia-*

tives that have been proposed by the Nordic Council of Ministers, and being currently formed by the UN Framework Convention on Climate Change Secretariat (cf. Harrison et al. 2014).

The success of partnerships as a form of governance is not determined by outcomes: regardless of their outcomes, outputs, and inputs, partnerships have become the main mechanism with which decision-makers tackle various social and environmental problems. In this sense, they are very successful as a governance tool. The social and political results of these various projects, however, have received mixed assessments. The existing academic literature reveals that some studies and scholars find the same results successful, while others interpret them as failure (for a comparison see Szulecki et al. 2010). On the one hand, partnerships are often understood as ‘the way forward’, since they bring various stakeholders to the negotiation table, and invite corporate funding for sustainable development projects (Glasbergen 2007). On the other hand, the reason for this belief is often delinked from the success of partnerships in solving the problems they aim or claim to solve and many studies (Zammit 2003, Andonova 2005, OECD 2006, Biermann et al. 2007) revealed that *the partnerships regime* has so far been rather unsuccessful in achieving its goals. In sum, partnerships appeal to us for reasons other than their success. But the recognition that there is no consensus on the success or failure of the partnerships regime should not be understood as an attempt to relativize such endeavours away. Rather, it is an attempt to understand the role and capabilities of these mechanisms, as well as their structural limitations in the context of contemporary global governance architecture.

To do this, this chapter begins with a brief history of their emergence, focusing on the contestations that surfaced during the negotiation of type-2 partnerships. Section #2 describes the general characteristics and types of partnerships, based on the findings from the Global Sustainability Partnerships Database, developed at the Institute of Environmental Studies, VU University Amsterdam. Sections #3 and #4 focuses on two questions related to the two governance deficits mentioned above: Who is (and is not) involved in partnerships (i.e. do they address the participation deficit); and what do partnerships aim to achieve and actually achieve (i.e. do they address the implementation deficit)? The final section concludes with policy recommendations for decision-makers.

2. EMERGENCE AND CONTESTATIONS

Partnerships for sustainable development were defined as ‘voluntary multi-stakeholder initiatives which contribute to the implementation of inter-governmental commitments’ in Agenda 21, as well as in the Programme for the Further Implementation of Agenda 21 and in the Johannesburg Plan of Implementation. A set of guidelines, the Bali Guiding Principles, were added, detailing what is meant by partnerships within the UN governance system. The definition of partnerships as voluntary instruments of implementation and the Bali Guiding Principles were both settled in the preparatory process to the WSSD, after long consultation, negotiation and lobbying processes. These processes did not only involve delegates and UN representatives, but also non-state actors. The resulting conceptualization was a compromise; the guidelines were non-binding criteria that neither defined screening, monitoring or reporting procedures, nor was a central body designated to oversee the evolving partnerships regime. Nonetheless, partnerships became an official part of UN’s environmental governance system as they were accepted as an official outcome of the WSSD, despite opposition from several major groups and country delegations. The reasons for the opposition of various groups, and the result of the contestations around partnerships should be seen in the context of the negotiations before the WSSD, as this section aims to illustrate.

The partnership concept had earlier been developed by United Nations Department of Economic and Social Affairs (UN DESA), to increase NGO involvement and reflect on the past decade of environmental governance. But most importantly, partnerships were meant to break through existing donor fatigue: ‘Every responsibility was being put at the feet of the governments. There was a strong push that this [responsibility to implement] should be shared.’⁵

⁵ Interview with a UN DESA representative at the time of the WSSD, May 2007, New York.

UN DESA’s intended format of a UN partnerships regime was very different from the end result. First and foremost, expectations about type-1 and type-2 outcomes as complementary processes changed: according to this original intention, the commitment of donors and the international community to realize the Millennium Development Goals in developing countries would be assured, while intergovernmental agreements would continue to address new and more challenging issues. However, partnerships were not matched by a binding outcome, as governments failed to agree on most issues at the WSSD. In fact, partnerships were the only tangible outcome of the Summit. Secondly, the function of type-2 outcomes was reduced to mere implementation, despite initial aims to conceptualize them as instruments to also enhance participation in global sustainable development, which entailed involvement of various stakeholders in the decision-making processes on national, regional, and global sustainability issues. The background for these changes can be the clear implementation focus of the WSSD: Despite the signing of three major agreements at the 1992 Rio Summit, operationalization of the treaties took very long and implementation of policies was both limited and largely unmonitored.

The main contestations during the negotiation of partnerships can be listed as the circumvention of Southern governments (in decision-making as well as funding), the involvement of business partners and NGOs, and the substitution of multilateral treaties (Mert 2009). Delegations from the global South expressed their concern that voluntary partnerships would replace binding timetables and agreements for Official Development Assistance (ODA). Furthermore, the promised funding for sustainable development could bypass recipient governments and be channelled to NGOs and consultancies from the North managing the projects. These concerns were intensified when the US and major group representatives from business and industry explicitly supported a vaguely defined partnerships process during Preparatory Commission Meeting (PrepCom) III. According to some observers, the US support for partnerships had opened a space for other countries to avoid binding decisions. Moreover it had signalled to developing countries that the US would either not agree to new multilateral environmental agreements or fail to ratify them, as it had been the case with other conventions. Hence, developing countries re-focused their strategies to avoid potential loss that could result from the adoption of partnerships as type -2 outcomes, both in terms of loss in ODA and in terms of loss in autonomy in environmental decision-making (Pattberg et al. 2012). On the other hand, both Southern and EU delegations and environmental NGOs were concerned that partnerships could become an instrument to repudiate international environmental agree-

ments. According to a Southern country delegate to the meetings of the UN Commission on Sustainable Development (UN CSD) there was a feeling “that the Secretariat was taking the responsibility over from those who are responsible, [the industrialized countries], and loading it on to major groups. [The other was that] we were making it easier for the CSD not to make more heart breaking decisions because [delegations] could now easily say “we have a partnership on this, we don’t need to decide”.”⁶

Another concern of the NGO community was the increasing business involvement in the UN, and the green-/blue-washing of invasive corporate activities by entering into non-binding partnerships. The accountability and transparency mechanisms agreed upon were all voluntary, which created an incentive for corporations to register a partnership and receive the UN stamp of approval for their activities, while not improving the environmental sustainability of their core business.

Finally, a further and largely unforeseen concern also surfaced during PrepComs III and IV: delegations from the South had started to perceive partnerships as a threat to their sovereignty. Some developing country delegations (China, Indonesia, and Malaysia were specifically mentioned), had become increasingly worried about the possibility that developmental projects within their national borders would pick and choose which international or national NGOs to work with. Furthermore, their inclusion into the deliberation and decision-making processes was deemed encroaching on the sovereignty of these states.

The Bali Guiding Principles, developed to guide the process of partnering and registration with the CSD, reflected many of these concerns: they mentioned that partnerships should not substitute multilateral agreements, that reporting and monitoring were critical, and that partnerships needed to be new and have added value rather than registering earlier initiatives and projects. However, these guidelines were non-binding, and their application has therefore been optional. Research (Andonova and Levy 2003, Mirafteb 2004, Hale and Mauzeral 2004, Börzel and Risse 2005, OECD 2006, Biermann et al. 2007) has shown that many registered partnerships failed to fulfil the requirements of the CSD, and in an attempt to boost their visibility, the UN included many of its sustainability programmes as CSD partnerships. While more information on the influence of the partnerships regime can be found in Section #4, the next section describes its general tendencies and types of partnerships.

⁶ Interview with Southern country delegate to the CSD and the WSSD, December 2006, Denpasar.

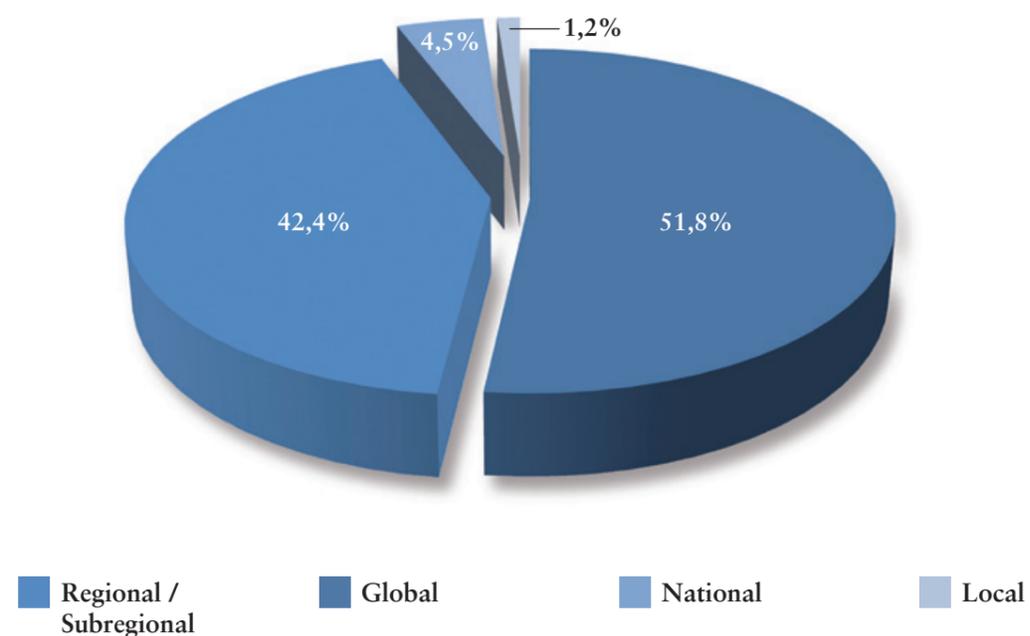
3. GENERAL CHARACTERISTICS AND CATEGORIES

The general characteristics of the partnerships regime as discussed in this section are based on the 330 sustainable development partnerships studied in the Global Sustainability Partnerships Database (GSPD). GSPD was developed between 2006 and 2009 at the Institute for Environmental Studies, VU University Amsterdam. Based on data provided by the United Nations Commission on Sustainable Development (UNCSD), extensive desk research, and 75 expert interviews conveyed throughout 2007-2008, the GSPD provides information on descriptive categories such as partnership name, existence of website, number of countries in which partnerships implement their activities, number of and type of partners, type of lead partners, area of policy implementation and functions performed, geographical scope, duration, date of establishment, and resources reported to be required for each of the 330 partnerships registered with the UNCSD at the time the coding was complet-

ed in 2009. In addition, the GSPD contains information about individual partnership output, that is, the concrete activities and programmes of partnerships for sustainable development. All data was coded by a team of researchers for whom an inter-rater reliability check has been performed.

In terms of geographical scope partnerships can be categorised into global, regional, national and local levels. Of the 330 sustainable development partnerships studied by GSPD, approximately half of them described themselves as global, and 42% as regional (Figure 10). While definition of these concepts may vary for each partnership, they are either global in their implementation or in terms of their goals and partner composition.

Figure 10 – Geographical scope

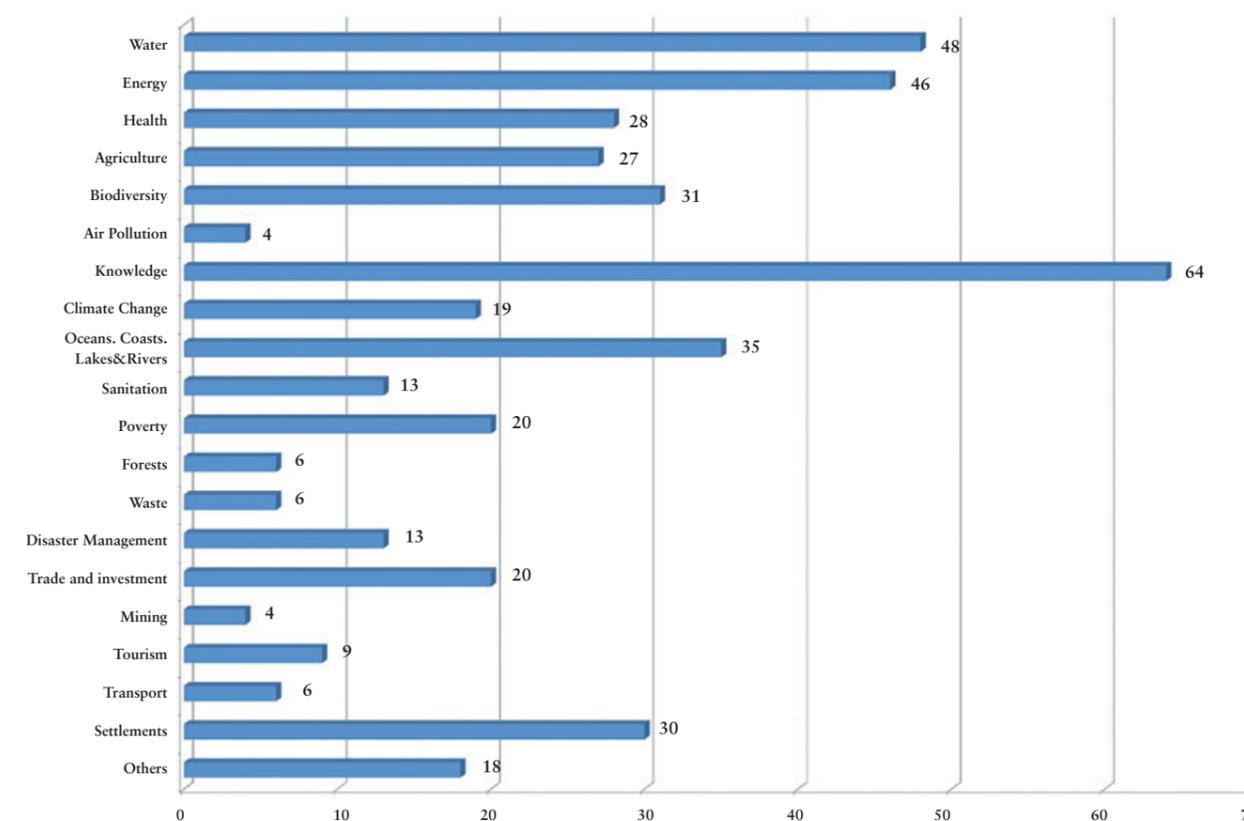


Sustainable development partnerships aim to work on a wide range of issues related to one or more of the WEHAB areas. For instance, the Nile Basin Initiative which was reclassified as a partnership for sustainable development around the Johannesburg Summit, was a long established inter-governmental cooperation mechanism working on conservation of the Nile river ecosystems. It aims to “develop the River Nile in a cooperative manner, share substantial socio-economic benefits and promote regional peace and security.”⁷ CSD partnerships could merge their sustainability goals with various good governance practices, as well. They could work on more than one issue of sustainability, and the representation below is a categorisation of their self-described issue areas (Figure 11). *Knowledge production and dissemination, water, and energy* were the most popular issue areas whereas *air pollution* and *mining* were the least. Some of the imbalance in the distribution of issue areas can be attributed to the presence and accessibility of other platforms for the participating actors, such as climate change and agriculture. However, many critical issues were not

addressed even though there were neither multilateral agreements on them nor any other political venues, e.g. poverty, waste, and transport. As a result, CSD partnerships were found to be imbalanced in terms of addressing sustainable development issues and lacking a macro-perspective due to their voluntary and private nature (Hale and Mauzerall 2004). Another factor that facilitates their emergence is whether or not the issue receives abundant funding from governments, such as energy (mainly supported by the EU) and water (supported mainly by the US) (Biermann et al. 2012).

These problems could be remedied in a number of ways, for instance by the CSD (or another UN organization) taking the steps to address the deficits, taking a central role in the monitoring and formation of partnerships. This was not possible in the case of CSD partnerships due to the lack of human and financial resources, as well the limited authority CSD had over the registration process.

Figure 11 – Issue areas



⁷ The Nile Basin Initiative website, available at: <http://www.nilebasin.org/>

Partnerships implemented their specific projects across the globe, although there were problematic imbalances in the context of Countries of Implementation (CoIs) as well. OECD members were by far the most popular CoIs, while South America as a whole continent did not receive as much attention as Africa and non-OECD Asia (Figure 12). Once again, the CSD did not have the required resources to address these geographical imbalances. More importantly, as mentioned in the introduction, the countries of implementation did not have a say on the projects, how the funds were spent, or whether accountability and

transparency were ensured. The underlying policy assumption was that any investment in a recipient country should be appreciated by the decision-makers as well as other social actors, which has been problematic in many cases where contested technologies were introduced (see Mert and Dellas 2011, Mert 2013). On the other hand, state partners from South America and Africa participate in partnerships more often if the implementation is in their country or region (Figure 13). This is also the case for OECD countries, but not for the group of countries we categorised as ‘non-OECD Asia’.

Figure 12 – Countries of Implementation

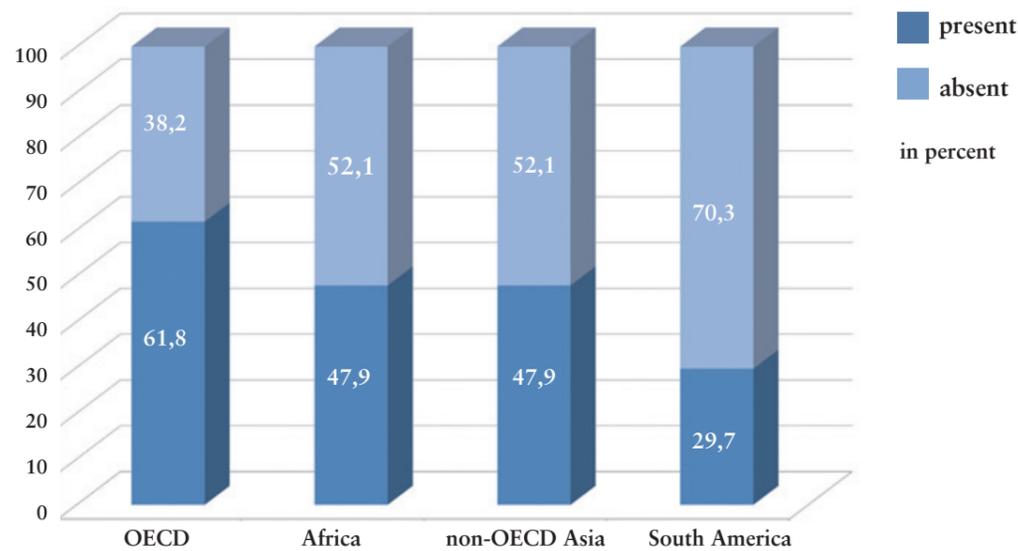
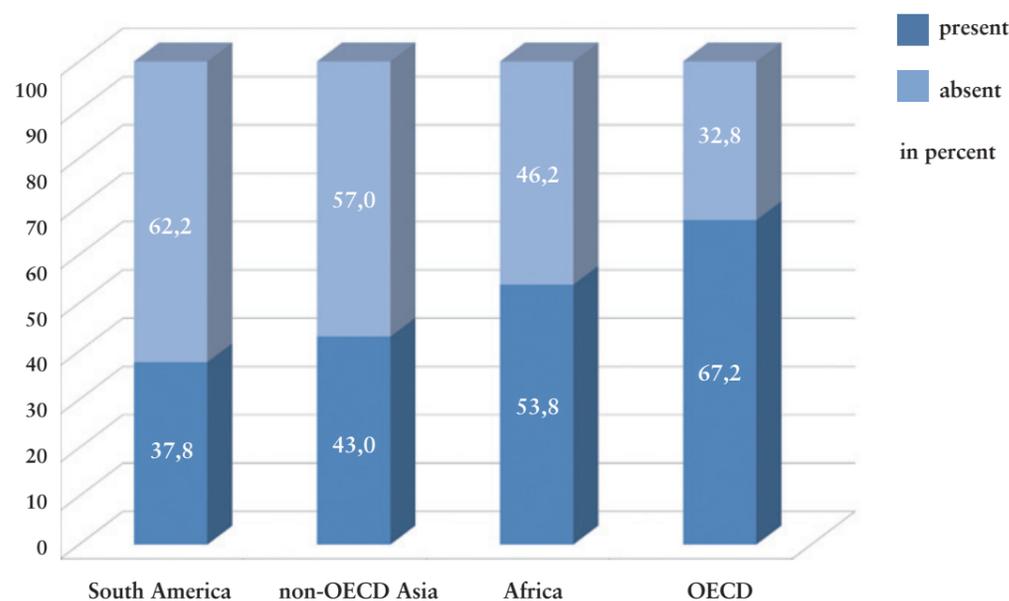


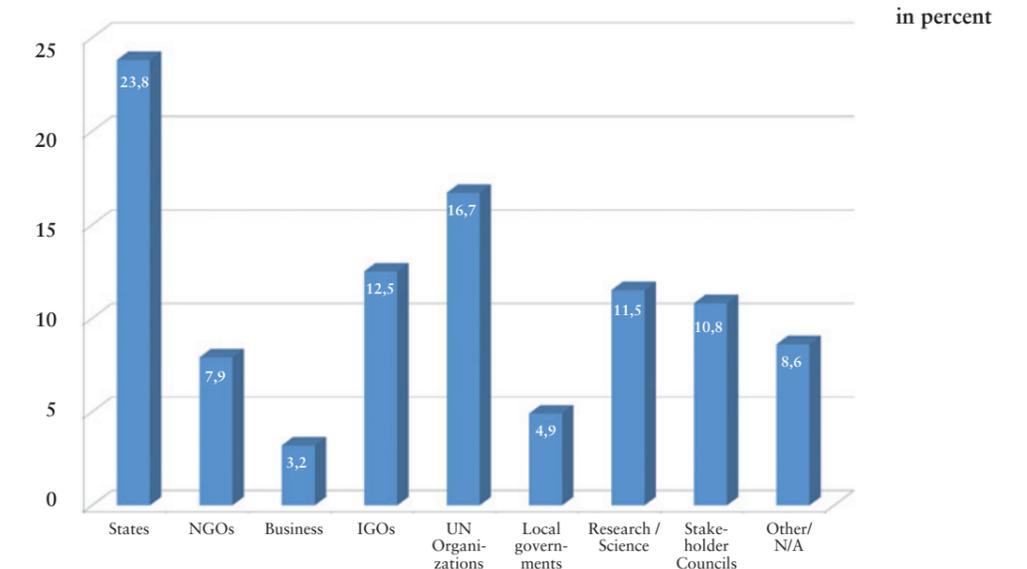
Figure 13 – Presence of state partners in partnerships implementing in their region



Finally, when categorised by the main initiator(s) of the projects, it can be seen that partnerships are mostly led by state partners and UN organizations (Figure 14). Despite their initial justification that sustainable development efforts required the financial backing of the private sector, in the end mostly governmental and intergovernmental projects were initiated. Despite

supporting partnerships during the negotiations, business actors have initiated very few partnerships. This does not suggest however that business is disinterested: when a partnership project relating to their core business is initiated by other parties, corporate actors opted for participation, as the next section shows.

Figure 14 – Type of lead partners



To summarise, partnerships do not necessarily emerge in areas or issues that have the greatest deficits: Chan and Müller argue (2012) that they often emerge in countries that are most densely connected with international organizations, on issues that are already regulated by law, and rather than addressing the participation gap, they are most often led by traditional

players in international relations. However, they represent an increasingly densely institutionalised organizational field, making collaboration among diverse sets of stakeholders a possible policy option. Table 8 summarizes these findings in terms of commonalities and differences among CSD partnerships.

Table 8- Institutional commonalities and differences (adapted from Chan and Müller, 2012: 60)

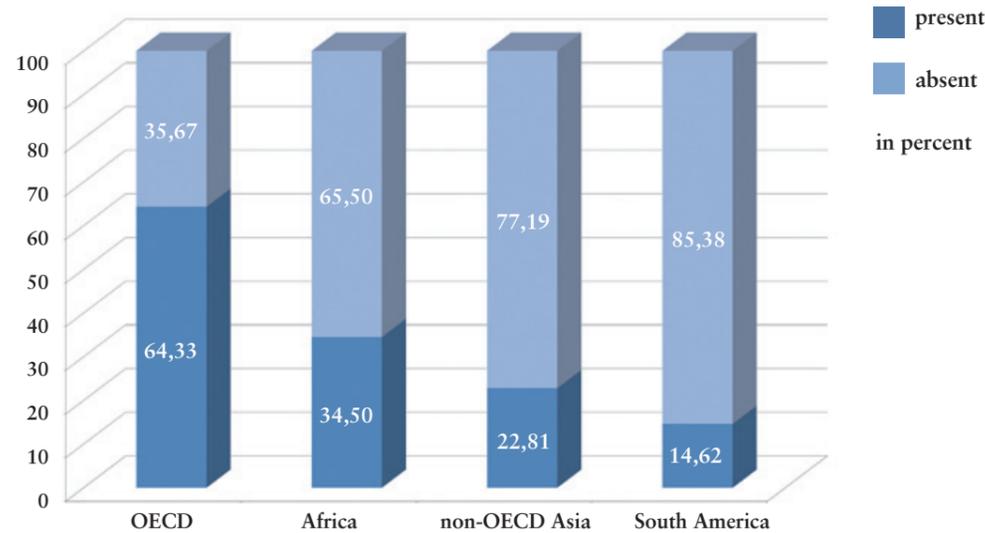
Commonalities	Differences
The majority of partnerships are global (but 48% are not).	Their internal organization varies.
OECD-countries are mostly donors, while developing countries are on the receiving end.	Their size varies considerably: the number of partners ranges from 1 to 514.
They work on issues pertaining implementation of international sustainable development priorities.	The types of partners and lead actors vary: States, IGOs, NGOs, business etc.
	The type of membership varies; only 3% are open to all interested parties.
	Their duration varies: some are open-ended; others end when the projects are implemented.
	Their themes vary: there are more than 19 themes (+ 5 WEHAB-areas) that partnerships deal with.

4. WHO IS INVOLVED IN PARTNERSHIPS?

Even though some actors may not initiate partnerships, it is possible that they are involved in them as partners and contributors. This section focuses on the partner distribution in CSD partnerships. To start with, state partners in global partnerships are largely

from OECD countries: in 64% of *global* partnerships there was at least one OECD government or government agency involved. This rate is as low as 15% for South American states (Figure 15).

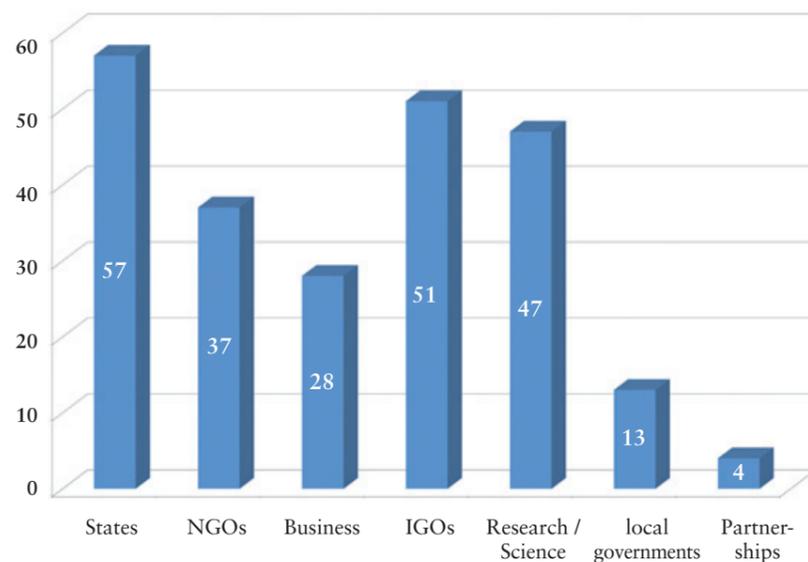
Figure 15 – State partners in global partnerships



Data on the partnerships regime reveals a more complete picture than that of geographical distribution of state partners, since partnerships insinuate public-private cooperation and have often been promoted for their so-called inclusive and participatory nature. Of all the partnerships registered with the CSD, 57% includes at least one state partner, 51% has at least

one international organization as a partner and 47% involves at least one scientific network or institute, whereas business, NGO and subnational actors are included in fewer partnerships (Figure 16). The participation deficit in global governance therefore seems to be present also in the partnerships regime.

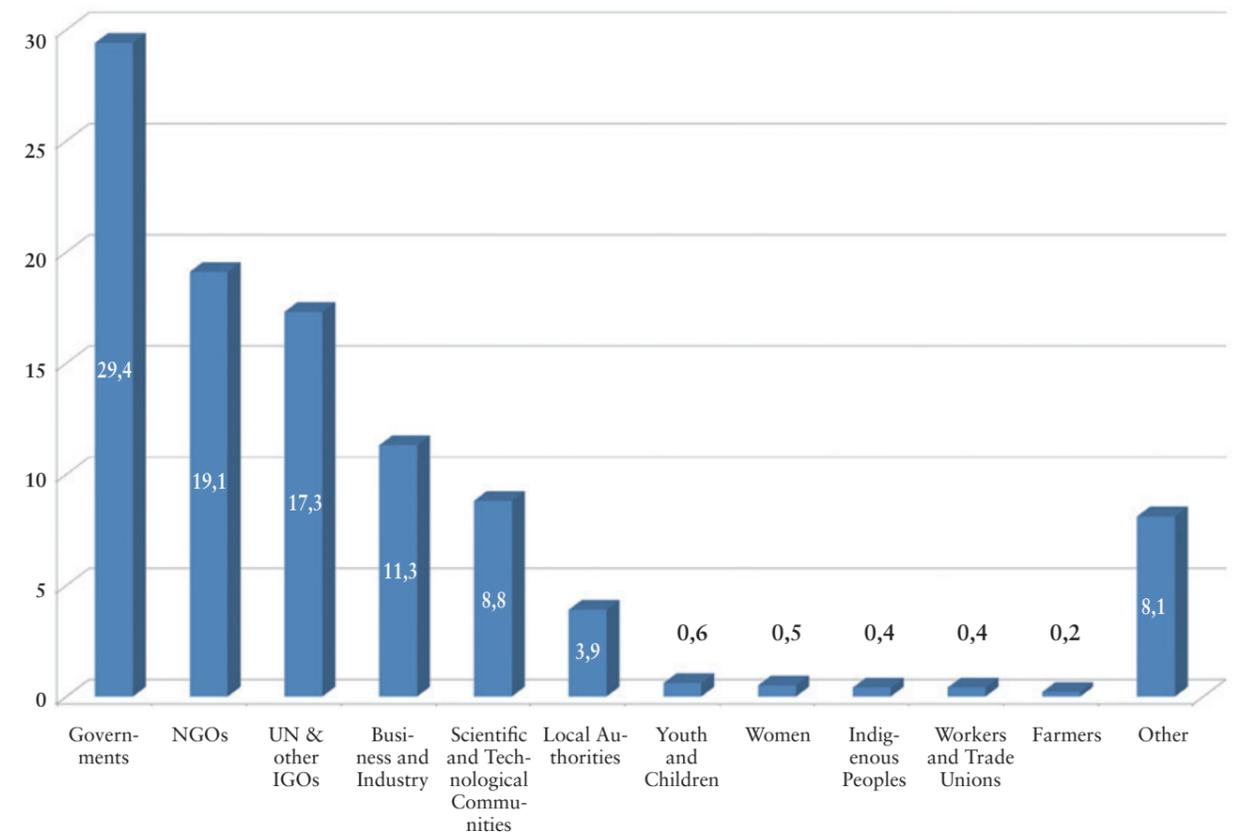
Figure 16 – Percentage of partnerships with at least one partner from...



This observation becomes more evident when the actual numbers of partners from each sector is analysed. UN CSD categorises civil society into nine major groups, which the GSPD used as well. However, when reporting about partnerships, these groups are often merged by the secretariat, revealing results of diverse stakeholder participation. The breakdown below reveals a different picture (Figure 17): Most of the civil

society partners in sustainable development partnerships are well connected and institutionalized groups such as transnational NGOs, business and industry, or the scientific communities. The most vulnerable and the least represented groups such as women's NGOs, groups representing youth and children, indigenous peoples, and small scale farmers are once again excluded in voluntary networks.

Figure 17 – percentage of partners from specific sectors



5. GOALS AND ACHIEVEMENTS

The GSPD uses two sets of data in order to understand the relative success of partnerships, and the general effectiveness of the partnerships regime. The first set of performance indicators result from an expert

survey, wherein experts on various issue areas gave points on partnerships in their areas of expertise. This survey indicated limited success for partnerships, as Table 9 reveals.

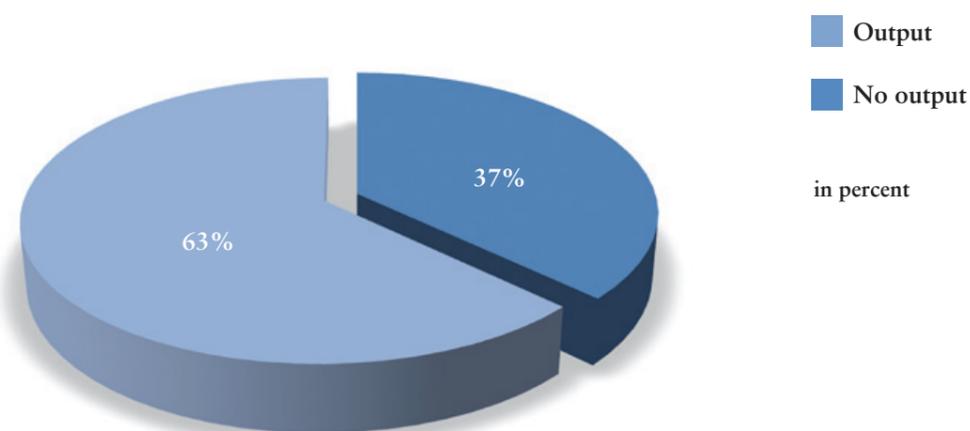
Table 9 – Performance of partnerships rated by experts

	Frequency	Percent
Good performance	60	47,2%
Neutral performance	44	34,6%
Bad performance	23	18,1%
Total	127	100%

The assessment of the sustainability experts does not include all partnerships, but those they are aware of and they know the work of. Thus, it is necessary to define a more overarching indicator of performance, such as output, which simply shows whether or not the partnership is active, producing any type of out-

put. Figure 18 displays that 37% of the partnerships are inactive and/or produces no output of any kind. While this informs us about the inactive partnerships, it gives little information about the quality of the work partnerships produce, their effectiveness, or success.

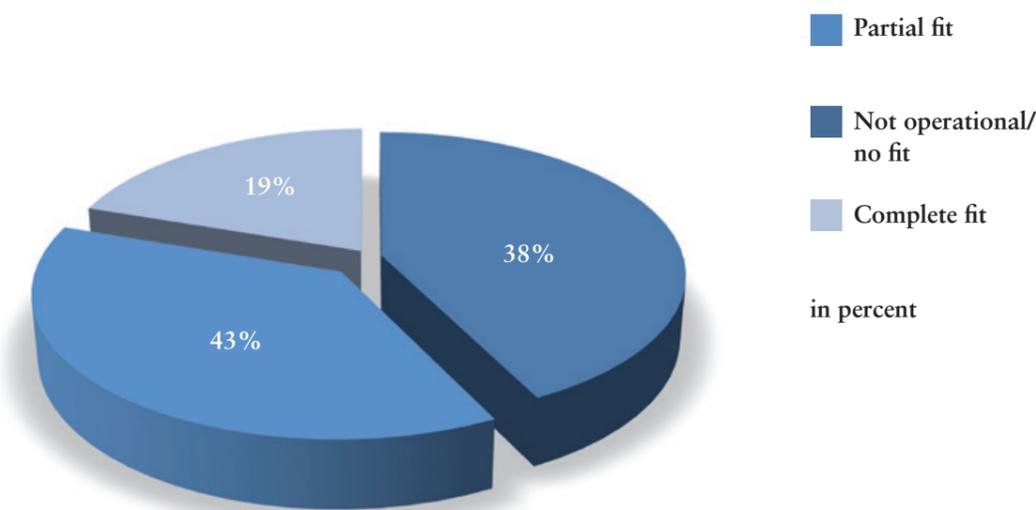
Figure 18 – Output of CSD partnerships



The second and more sophisticated indicator of performance is called the *function-output fit* (Figure 19). By comparing what the partnerships claim as their goal and function with their actual activities and products (output), the function-output fit reveals the accuracy and consistency of these declarations without bringing in another set of biases resulting from our own ideas of effectiveness. To do this, a group of researchers studied the UN CSD information

pages and websites of partnerships and subsequently categorized their declared goals, aims, and functions. However, we should interpret this data conservatively: function-output fit is based on the optimistic assumption that the outputs that might fulfil the function actually do, when the nominal check of the existence of a report does not say anything about its actual contents, and the organization of a workshop does not say anything about the outcome of this activity.

Figure 19 – Function Output Fit for CSD partnerships



There are not any particularly critical factors determining the performance of a partnership (measured as function-output fit), although there are partial indications. For instance, the partners involved and their leadership seem to have some correspondence with performance (Compagnon 2012). The state involvement in partnerships does not promote effectiveness as opposed to the role of non-state actors. CSD partnerships that have at least one NGO among

their lead partners have a higher function-output fit than those without – the ‘no fit’ rates rises from 34% to 44% (Figure 20). Partnerships with governments or government agencies as lead partners also have a lesser function-output fit (Figure 21), and the fit between function and output further decreases in cases where said partnerships have a non-OECD state as lead partner.

Figure 20 – The function-output fit of NGO led partnerships

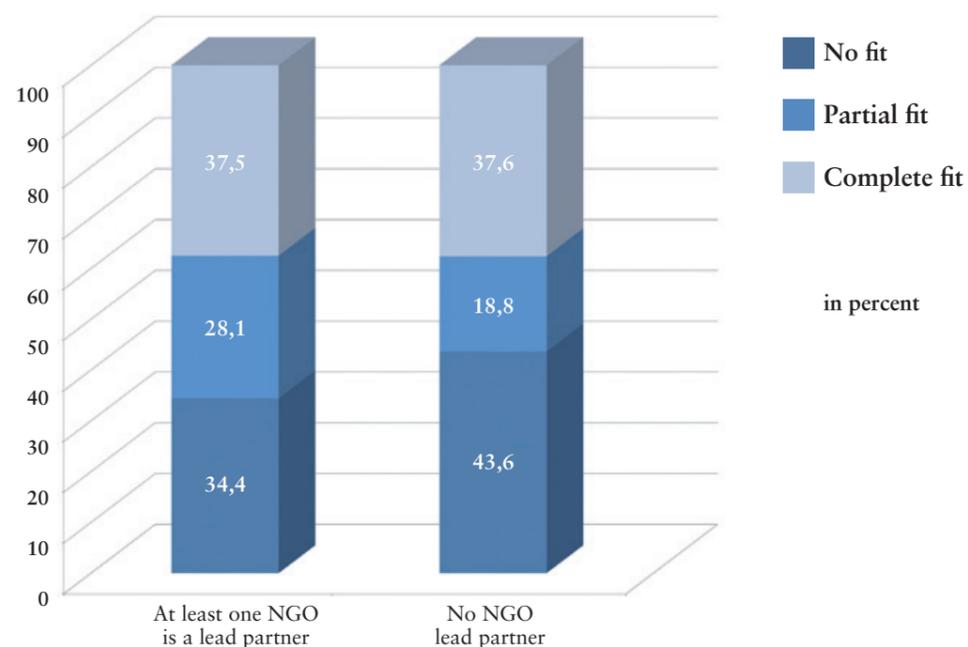
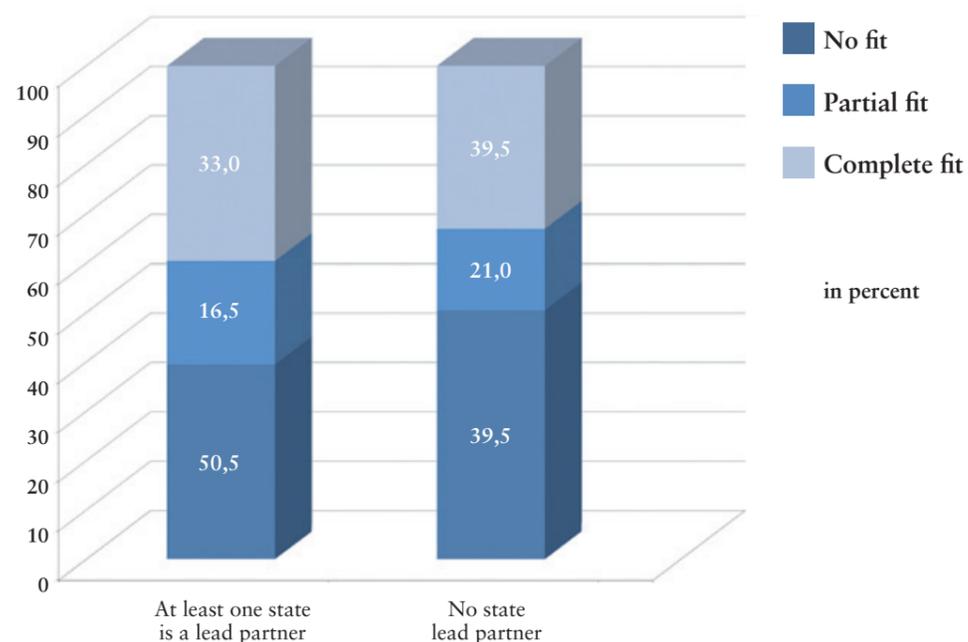


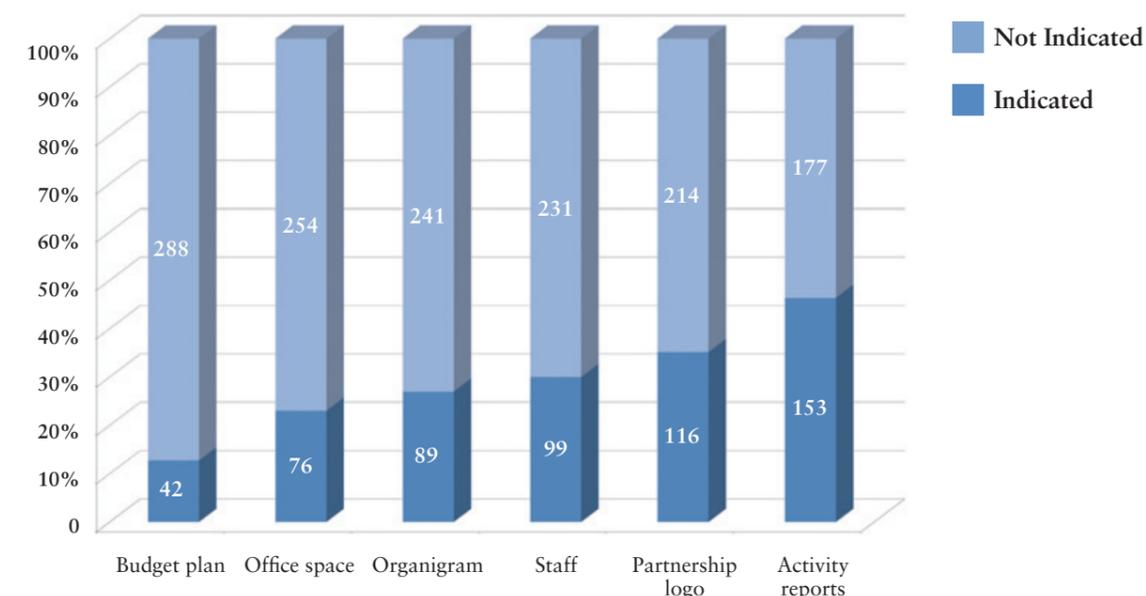
Figure 21 – The function-output fit of government led partnerships



Another problem that can be related to the inefficiencies of the partnerships regime is the lack of binding agreements among the partners and between the partnership and the UN. Only five per cent of the partnerships have a protocol contract, or a memorandum of understanding (MoU), which obscures liability and accountability (Mert 2012). Other indicators also show low levels of institutionalization in UN CSD partnerships (Figure 22). For example, 39% of

all CSD partnerships indicate no budget plan, office space, staff, organizational structure, logo, or activity reports on their respective UN CSD webpage or their own websites. Particularly the lack of budget plans and activity reports raise serious questions about the transparency and accountability of partnerships in relation to the democratic deficit in global environmental governance.

Figure 22 – Indicators of institutionalization



6. POLICY RECOMMENDATIONS

For specific partnerships it should be recommended that a protocol or a memorandum of understanding is signed among partners, clarifying the responsibilities and liabilities of each partner with a well-defined albeit flexible time-frame. There are several policy recommendations that the existing scholarship on partnerships, particularly the work on CSD partnerships provide for UN level decision making. The partnerships regime suffers from a lack of central-

ized body overseeing its activities, although achieving global sustainability and solving global environmental problems require a concerted effort and a macro-perspective. This does not require decision-making power as such: partnerships are above all voluntary mechanisms of governance. What is required is limited authority to ensure that loopholes and liability issues do not arise. Such an organisation (or a network) should have the authority and resources to:

- decline partnerships applying for registration, if the partnership does not meet the criteria listed in the internationally agreed Bali Guiding Principles;
- ensure that there is a standard agreement signed among partners and between the partnership and the UN so as to clarify liability and responsibility;
- ensure that each partnership is monitored against its self-reported goals, in a transparent and impartial manner;
- call for partnerships in geographic and issue areas where there is a critical need;
- organize sessions wherein expert groups evaluate partnership activities, based on the issue areas as initially suggested by UN DESA;
- establish a legal component to control the coherence between international treaties and the partnership activities.

Chapter 3

Building Networks for Sustainability: The Role of International Organizations

Kenneth W. Abbott

1. INTRODUCTION

Governance for sustainability has made a striking turn to “transnational” institutions, in which non-state actors play major roles along with or instead of national governments (Andonova, Betsill & Bulkeley 2009; Bulkeley et al. 2012; Pattberg 2007; Pattberg & Stripple 2008). The new transnational organizations are created and managed by business firms and associations, NGOs and other civil society groups (Abbott & Snidal 2009a, 2009b), technical experts and researchers, and sub-national governments, especially cities (Betsill & Bulkeley 2006). They have expanded rapidly, especially in certain issue areas, such as climate change (Abbott 2012a; Bulkeley et al. 2012; Hale & Roger 2014; Hoffmann 2011).

Transnational organizations perform diverse functions: they develop and exchange knowledge, propose policies and advocate for change, set and implement standards of conduct for private targets, and carry out or finance concrete operational projects (Abbott 2012a). In their internal structures, many transnational organizations resemble networks: they bring together multiple stakeholders that coordinate their contributions to the organization as well as organizational decision-making. In addition, a growing number of transnational actors and organizations are linked – more or less loosely – in broader networks, formed autonomously or sponsored by other institutions.

International organizations (IOs) have played important roles in these developments (Abbott & Snidal 2010; Hale & Roger 2014). IOs are members or direct participants in some transnational institutions, such as the Committee on World Food Security⁸ and

Global Sustainable Tourism Council.⁹ UNEP, the World Bank and other IOs have helped to create and support significant transnational institutions, including the Global Reporting Initiative (GRI), Principles for Responsible Investment (PRI) and Equator Principles. The 2002 World Summit on Sustainable Development (WSSD) provided a major impetus by promoting “partnerships” among public and private actors to implement sustainable development norms. The UN Global Compact (UNGC) promotes local and global networks of signatory companies and other stakeholders. Following the 2012 UN Conference on Sustainable Development (Rio+20) (UNGA 2012), the UN Secretariat helped to create “action networks,” bringing together hundreds of actors and organizations that pledged “voluntary commitments” in connection with the summit. Similarly, UNIDO and UNEP have convened the Green Industry Platform, to catalyze concrete commitments, exchange good practices and raise awareness.¹⁰

In spite of this activity, however, a significant number of transnational sustainability organizations operate almost wholly independently (Abbott & Snidal 2009b), with little if any involvement by IOs (Abbott & Hale 2014). These organizations undoubtedly take account of one another, if only as competitors; they also pursue similar goals, such as greenhouse gas mitigation through voluntary carbon credits. Scholars therefore think of them as constituting an “organizational field” (Bartley 2007; Dingwerth & Pattberg 2009) or “organizational complex” (Abbott 2012a;

⁹ <http://www.gstcouncil.org/about/learn-about-gstc/members.html>

⁸ <http://www.fao.org/cfs/cfs-home/cfs-about/cfs-structure/en/>

¹⁰ <http://www.greenindustryplatform.org>

Abbott et al. 2015b). But as a group they are not sufficiently organized to take joint or coordinated action (Galaz et al. 2011).

There remains, therefore, a significant role for IOs in facilitating, promoting and coordinating sustainable development organizations and networks, to maximize their contributions to knowledge creation, sharing and capacity-building, policy- and rule-making, financing and practical initiatives. IOs can also play an important role by “steering” transnational organizations and networks to focus their energy and other capabilities on democratically established goals and priorities, such as the sustainable development goals (SDGs) now being negotiated and drafted¹¹ (Abbott 2012b; Abbott & Snidal 2010). IOs have unique qualifications for these tasks; although many other actors operate as organizational entrepreneurs, few have the institutional advantages of IOs.

Recent academic research has identified a governance strategy suitable for IOs as organizational entrepreneurs: “orchestration” (Abbott et al. 2015; Abbott & Hale 2014; Hale & Roger 2014). IOs lack authority to mandate transnational organizations to coordinate their actions or follow certain priorities. As orchestrators, though, IOs can use their subjective and material resources to catalyze the formation and coordination of organizations and networks; provide guidance and support to them; and steer their conduct, albeit in modest ways. Orchestration thus allows IOs to enhance their own impact by working through networks, while strengthening and guiding those networks in line with public goals.

In this paper, I first review the development of transnational institutions and networks for sustainable development. I then consider the characteristics of IOs that make them potentially effective orchestrators. Finally, I identify strategies of orchestration for IOs as organizational entrepreneurs.

2. NETWORKS FOR SUSTAINABLE DEVELOPMENT

In this section I introduce the three categories of transnational sustainability institutions identified in the Introduction: organizations with internal network characteristics; networks of actors and organizations; and organizations not operating within networks. Limited space permits mention of a mere sampling of activities in each area.

A. NETWORK ORGANIZATIONS

Many individual organizations address sustainability. For example, many large corporations have adopted sustainability codes to guide their operations, such as Starbucks’ Coffee and Farmer Equity Practices (CAFÉ). Some NGOs have adopted codes of conduct they urge corporations to adopt, such as the 1989 CERES Principles. And individual organizations made a number of the Rio+20 voluntary commitments.¹² For example, Microsoft pledged company-wide carbon neutrality by the end of fiscal 2013; the Basque Regional Government introduced a 2020 strategy for sustainable development to guide all public sector policies; and Brazil pledged to attain universal energy access by 2014.

Often, however, transnational sustainability organizations bring together multiple actors, often highly diverse stakeholders, to collaborate on programs. While these groupings may formally be established as unified organizations – e.g., non-profit corporations – in practice they are network organizations.

Network organizations may involve multiple actors of a single type. For example, Responsible Care (RC) is the chemical industry’s program for health, safety and environmental performance. It is coordinated by the International Council of Chemical Associations, but is implemented by 60 national associations; national programs vary substantively, and are at different stages of development.¹³ To take another example, the Climate, Community and Biodiversity Alliance (CCBA) sets standards for projects that generate carbon credits; its standards require that projects support local communities and protect biodiversity as well as producing climate mitigation. The members of CCBA are sustainability NGOs, some of which are themselves network organizations.¹⁴

¹² The SD in Action Registry collects these and other voluntary commitments. <http://sustainabledevelopment.un.org/index.php?menu=1348>

¹³ <http://www.icca-chem.org/en/Home/Responsible-care/>

¹⁴ <http://www.climate-standards.org/about-ccba/>

Multi-stakeholder organizations have particularly notable network structures. Best known is the Forest Stewardship Council (FSC), an organization that includes virtually all forestry stakeholders. FSC is governed by three membership “chambers:” a social chamber including social NGOs, indigenous people’s groups and research institutes; an environmental chamber including environmental NGOs and research institutes; and an economic chamber including wholesalers, retailers, traders, manufacturers and industry associations.¹⁵ FSC also encompasses a network of national groups, which develop supplemental standards for local conditions. Similarly, the Alliance for Responsible Mining (ARM) sets standards for artisanal and small-scale mining, supports producers and works to develop markets, partly in cooperation with fair trade organizations. ARM involves stakeholders from civil society and throughout the mining value chain.¹⁶

B. ORGANIZATIONS IN NETWORKS

I. WSSD

The World Summit on Sustainable Development (WSSD) produced two distinct outcomes: inter-governmental commitments and so-called “Type II partnerships” to implement sustainable development commitments (Andonova & Levy 2003; see also Andonova 2010; Bäckstrand 2008; Bäckstrand et al. 2012; Pattberg 2010). By encouraging partnerships to announce their formation at the Summit, WSSD provided a political incentive for actors and organizations to create diverse networks. Over 300 partnerships registered with the former Commission on Sustainable Development (CSD), which was named the coordinator of WSSD partnership activity. Of these, nearly 200 are still operating.¹⁷

For example, ICLEI-Local Governments for Sustainability brought together 650 local governments in the Cities for Climate Protection Campaign to reduce carbon emissions and enhance urban sustainability (Betsill & Bulkeley 2004). The Global Bioenergy Partnership includes governments, IOs (including UNIDO) and business groups, and promotes research, demonstration and commercialization of biomass

¹⁵ <https://ic.fsc.org/membership-chambers.77.htm>

¹⁶ <http://www.communitymining.org/en/about-arm/stakeholder-alliance>

¹⁷ Sustainable Development Knowledge Platform, “Partnerships for SD,” <http://sustainabledevelopment.un.org/index.php?menu=1500>

energy.¹⁸ The Partnership on Sustainable Low-Carbon Transport (SLoCaT) joins numerous governmental, business and civil society actors in addressing land transport in developing countries.¹⁹ And the Renewable Energy and Energy Efficiency Partnership (REEEP) brings together a wide range of business groups, NGOs, IOs (including UNIDO) and governments to advocate modernized energy policies and support clean energy projects.²⁰

WSSD and CSD set minimum standards for Type II partnerships through criteria for recognition, but these were relatively weak, and not strictly applied. CSD created a partnership database, sponsored partnership “fairs” and supported international partnership forums. But CSD as an institution was poorly suited to support partnerships, forge linkages within and among them, steer them toward global priorities, and hold them to their commitments (Bäckstrand et al. 2012). The recently established High-Level Political Forum (HLPF) (Bernstein 2013) is now charged with following up implementation of all global sustainability commitments, and its reviews are to “provide a platform for partnerships.”²¹ However, the General Assembly has encouraged stakeholders to coordinate their participation in HLPF sessions and implementation of the results “autonomously.”²² While the HLPF has only recently begun to meet, as a body with universal state membership and infrequent meetings, it may find it challenging to improve on CSD in catalyzing, monitoring, supporting and steering partnerships. Yet scholars and policy entrepreneurs alike have expressed hope that it can play a significant role (Abbott & Bernstein 2015; NRDC 2013: 39). The second meeting of the HLPF held a constructive multi-stakeholder dialogue on promoting multi-stakeholder partnerships and holding them accountable.

II. UN Global Compact

The UNGC was initiated by the UN Secretary-General, and involves seven core UN agencies, including UNIDO. With over 12,000 signatories, it is “the largest voluntary corporate responsibility initiative in the

¹⁸ <http://www.globalbioenergy.org/aboutgbep/partners-membership/en/>; <http://www.globalbioenergy.org/aboutgbep/purpose0/en/>

¹⁹ <http://www.slocat.net/scope-and-objectives>

²⁰ <http://www.reeep.org>

²¹ UNGA Resolution A/67/L.72, 27 June 2013, para. 8(c).

²² Id. para. 16.

¹¹ <http://sustainabledevelopment.un.org/owg.html>

world.”²³ Fundamentally, UNGC asks businesses to commit to observe ten universal principles on human and worker rights, environment and anti-corruption. But it also promotes network relationships. Firms engage with other stakeholders in the Leaders Summit. Business, labour and civil society interact as constituencies, selecting members to the Board. UNGC encourages local networks, to advance implementation in local contexts and encourage multi-stakeholder collaboration. The UNGC “blueprint for corporate sustainability leadership” emphasizes broader partnerships to advance UN goals.²⁴

UNGC operates an online “business partnership hub,” a platform for identifying potential partners. It has also taken the lead in catalyzing issue-specific networks of participating firms.²⁵ These include Caring for Climate, the CEO Water Mandate, and the CEO Statement of Support for the Women’s Empowerment Principles. Many of these platforms offer opportunities for multi-stakeholder collaboration.

UNGC envisions even greater business-stakeholder engagement as part of the post-2015 development agenda, arguing that multi-stakeholder networks are essential for transformative change.²⁶ Its strategy calls for collaboration through UN-led networks, issue platforms such as Caring for Climate and PRI, business initiatives such as RC, and local networks, all powered by Internet technology. For most of its life, UNGC has resolutely avoided “enforcement,” although it is becoming somewhat more demanding.²⁷ To make expanded networks effective, however, UNGC recognizes the need to enhance transparency, reporting and accountability, including external certification.²⁸

²³ <http://www.unglobalcompact.org/AboutTheGC/index.html>

²⁴ http://www.unglobalcompact.org/AboutTheGC/stages_of_development.html

²⁵ http://www.unglobalcompact.org/HowToParticipate/Engagement_Opportunities/index.html. Other bodies collaborated in forming some of these networks, as the UN Framework Convention on Climate Change did with Caring for Climate.

²⁶ UNGC, *Architects of a Better World: Building the Post-2015 Business Architecture* (2013)

²⁷ For example, its “differentiation program” encourages NGOs to assess participants’ performance, so that it can single out superior performers. http://www.unglobalcompact.org/COP/differentiation_programme.html

²⁸ UNGC 2013 at 12-13

III. Rio+20

The 2012 UN Conference on Sustainable Development followed a version of the WSSD model: in addition to inter-governmental commitments, it encouraged “commitments voluntarily entered into ... by all stakeholders and their networks to implement concrete policies, plans and programmes, projects and actions to promote sustainable development and poverty eradication....”²⁹ Over 700 commitments were made at Rio; since then another 700 have been registered.³⁰ Non-state actors originated a majority of the commitments; IOs initiated a sizable number; and governments submitted the remainder.³¹

Voluntary commitments take diverse organizational forms, including actions by individual actors, not simply “partnerships.” The criteria for registering voluntary commitments are quite broad. The UN suggested that commitments be specific, measurable, achievable, resource-based and time-bound (SMART); it therefore requested specific “deliverables” and completion dates. However, efforts to enforce these criteria have been modest. On the Sustainable Development Knowledge Platform,³² the Division for Sustainable Development (DSD) in UN-DESA maintains the SD in Action Registry, which includes a description of all voluntary commitments.³³ However, “its mandate does not include a strong monitoring mechanism to ensure accountability,” only a broad annual report.³⁴ DSD envisions developing a voluntary accountability framework, but for now relies on NGOs and other third parties to monitor commitments.³⁵

The UN, acting with other organizations and stakeholders, has formed several “action networks” for sustainable development. Some of these reflect initiatives of the Secretary-General: e.g., Sustainable Energy for All (SE4ALL) and Every Woman Every

²⁹ UNGA 2012, para. 283.

³⁰ <http://sustainabledevelopment.un.org/index.php?menu=1348>

³¹ <http://sustainabledevelopment.un.org/index.php?menu=1496>

³² <http://sustainabledevelopment.un.org/index.html>

³³ <http://sustainabledevelopment.un.org/index.php?menu=1348>

³⁴ Division for Sustainable Development, UN-DESA, HLPF Issue Brief 3, “Multi-Stakeholder Partnerships for Sustainable Development,” <http://sustainabledevelopment.un.org/index.php?page=view&ctype=400&nr=1312&menu=35>

³⁵ Division for Sustainable Development, *Special Report of SD in Action Newsletter, Voluntary Commitments & Partnerships for Sustainable Development* 4, 31-32 (2013)

Child (EWEC). According to DSD, action networks are intended to serve as platforms for information sharing, and more actively “to catalyze actions among all stakeholders and their networks.”³⁶ Reports from action networks are also seen as elements of an accountability structure for constituent commitments. In practice, certain action networks and their members have generated voluntary commitments. Beyond that, however, their contributions remain uncertain. EWEC (encompassing over 300 commitments) has adopted an innovative accountability mechanism, recommended by a multi-stakeholder commission.³⁷ Overall, however, a review of voluntary commitments by the Natural Resources Defense Council (NRDC) found that many “have very limited resources to support the current level of commitments.”³⁸

C. NON-NETWORKED ORGANIZATIONS

Roughly half of the Rio+20 voluntary commitments are not part of any action network. In addition, many transnational sustainability organizations operate outside the WSSD-Rio+20 frameworks. Many of these were formed before 2002; others are regulatory standard-setting organizations, which fit uncomfortably with the implementation focus and SMART criteria of the two frameworks (Abbott 2012; Abbott & Snidal 2009 a, 2009b, 2010). Still others simply choose to act independently. These organizations are numerous: collaborators and I have identified over 90 significant standard-setting schemes addressing worker and human rights and environmental protection alone (Abbott & Snidal 2014), and some 300 transnational organizations and networks addressing global problems, most of which relate to sustainability (Abbott & Hale 2014).³⁹ A large proportion of these are outside the Rio+20 framework.

Such institutional multiplicity and decentralization are in many ways benefits of transnational governance (Abbott & Snidal 2009b: 524-28). Multiplicity and decentralization allow the governance system to draw on the expertise and capabilities of numerous, diverse non-state actors, reducing demands on states and IOs. Multiple governance approaches fuel experimentation, information-sharing and learning. And multiple organizations allow many people to participate. But

³⁶ <http://sustainabledevelopment.un.org/index.php?menu=1069>

³⁷ <http://www.everywomaneverychild.org/resources/accountability-commission>

³⁸ NRDC, *Fulfilling the Rio+20 Promises: Reviewing Progress since the UN Conference on Sustainable Development*, Sept. 2013.

³⁹ Abbott & Hale 2014 describes a subset of this database on which certain forms of information were available.

decentralization also poses problems (Id.: 546-52): it may leave gaps and overlaps in the coverage of issues, sectors and regions; allow less desirable forms of organization to flourish; and increase costs and confusion. Decentralization also makes it difficult for organizations to engage in joint or coordinated activities (Galaz et al. 2011; Abbott 2013).

These problems are gaining in importance as transnational initiatives become widely seen as essential to sustainability governance. The High-Level Panel on the Post-2015 Development Agenda recommends that voluntary commitments, especially multi-stakeholder partnerships, be “a central part” of a “new global partnership” for sustainable development.⁴⁰ UNGC argues that the “Post-2015 development agenda presents a historic opportunity for the international community to mobilize companies to more effectively advance global priorities.”⁴¹ NRDC argues that voluntary commitments “should be recognized as the critical means of implementation for the promises made ... toward sustainable development.”⁴²

Yet many of these institutions also accept that greater coordination is needed to maximize the contributions of transnational initiatives. UNGC argues that “companies will need to ... embrace partnerships and collective action initiatives that unite business peers, often for the first time, as well as other stakeholders... working with others on an entirely new scale.”⁴³ NRDC argues that government policies and voluntary initiatives must be deeply inter-connected – in the form of a “wired dome” – to achieve the sustainable development goals. “The new global partnership consists of the aggregation and integration of actions on each of the SDGs from all stakeholders at every level.”⁴⁴

⁴⁰ High-Level Panel of Eminent Persons on the Post-2015 Development Agenda. 2013. *A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development* 9-12, 22-23 (New York: United Nations).

⁴¹ UNGC 2013, *supra*, at 2

⁴² NRDC 2013, *supra*, at 39

⁴³ UNGC 2013, *supra*, at 3

⁴⁴ NRDC. 2014. *A New Architecture for a New Global Partnership for Sustainable Development*.

3. THE ADVANTAGES OF INTERNATIONAL ORGANIZATIONS

Who, then, can encourage formation of well-designed voluntary organizations and networks, provide them with adequate support, coordinate them, hold them to account, and steer them to follow international priorities? International organizations (IOs) possess characteristics that make them well suited to these tasks.

A. LEGITIMACY

Only national governments have the authority to coordinate and steer private organizations and networks through mandatory directives. As a result, coordination and steering by other actors, including IOs, must be essentially voluntary. It is essential, therefore, that the relevant actors and organizations view the coordinating authority as legitimate, so they will defer to its decisions (Abbott & Hale 2014; Bernstein 2011). Most IOs have strong “input” legitimacy. The principal basis of political legitimacy is democracy, and the legitimacy of IOs stems largely from their wide state memberships and generally inclusive decision procedures, and from the democratic character of most member states. Thus, the universal membership of the new UN Environment Assembly should further enhance UNEP’s legitimacy and authority. (Legitimacy is weakened, of course, where these factors are lacking.) In addition, IOs “are widely seen as neutral, public-spirited organizations” (Abbott & Hale 2014): it is difficult for sectional interests to “capture” IO decisions, and their staffs are international civil servants. Finally, IOs are frequently seen as committed to important principles and norms.

IOs derive further legitimacy from their expertise. UN specialized agencies like WHO and UNIDO are designed to be expert, but other types of organizations – such as UNEP – are also accepted as expert. Importantly, technical expertise is not the only relevant kind. Also important are normative expertise – understanding and internalizing relevant international norms – and policy or political expertise, essential for recommending particular courses of action.

Finally, IOs can derive “output” legitimacy from past successes. Successful actions demonstrate expertise, operational capacity and public-interest orientation. For example, now that UNEP has successfully promoted and supported GRI, PRI and other transnational organizations, it has developed an additional basis of legitimacy for future interactions with private actors.

B. FOCALITY

Focal organizations are the governance hubs of issue areas: actors look to them and converge around them. Focality enhances an organization’s influence, especially its “convening power” and the authority that others

ascribe to its decisions. Focal organizations also have important advantages in persuading organizations to work together in network organizations and networks (Abbott & Hale 2014; Abbott et al. 2015).

Focality derives from an organization’s formal authority, its expertise, resources and activities, and its centrality in interactions with other bodies. In some areas, an IO is clearly focal; the WTO is an obvious example. In many areas, however, governance is fragmented: multiple organizations vie for focality. This is true even for IOs whose charters authorize them to be “the directing and co-ordinating authority on international health work,”⁴⁵ or to “play the central role in ... all activities of the United Nations system in the field of industrial development.”⁴⁶

Sustainability governance is generally seen as highly fragmented (van Asselt et al. 2009; Zelli 2011; Zelli & van Asselt 2012). In this field, then, formal authority is insufficient: organizations – especially new ones like the HLPF – must assert or develop their focality. And they can lose focality as new organizations gain influence: the World Bank and Gates Foundation have reduced WHO focality in global health (Hanrieder 2014). Coordination and steering do not, however, require a monopoly position; UNEP has successfully promoted network organizations in spite of fragmentation.

C. RESOURCES

Especially for IOs with limited mandatory authority, resources are important tools of influence. While most IOs have sparse monetary and material resources, they are rich in other resources. IOs can use their expertise to provide technical support. Advice and assistance attract participation by actors, organizations and networks and influence their actions. Policy guidance, goal setting and norm communication influence organizational agendas. IOs can also offer administrative support. Some IOs directly host networks, as UN-DESA does with SLoCaT; others recruit governments or other actors to do so, as UNEP did with GRI. Most important, legitimate and focal IOs can provide essential reputational support to actors, organizations and networks, as the UN did in hosting the launch of GRI at the General Assembly (Abbott & Hale 2014; Abbott et al. 2015). Endorsements help these institutions build their own legitimacy and focality, and thus provide IOs modest leverage for steering their activities.

⁴⁵ Constitution of the World Health Organization, Art. 2(a)

⁴⁶ Constitution of the United Nations Industrial Development Organization, final preambular paragraph.

4. ORCHESTRATION: A STRATEGY FOR IOS

Orchestration is a strategy of indirect governance: (1) an *orchestrator* enlists (2) *intermediary* actors, organizations or networks to influence (3) *targets*, such as businesses or governments, in line with the orchestrator’s goals. Orchestrators turn to indirect governance because they lack specific capabilities needed to effectively address targets directly. IOs, for example, rarely have authority to regulate business firms directly or to enforce state commitments. Accordingly, they enlist NGOs (Tallberg 2015), networks of national regulators (Blauberger & Rittberger 2015), other IOs (Graham & Thompson 2015; Viola 2015), or other actors with superior or additional means of influencing target behavior (Abbott & Bernstein 2015).

Orchestration is also a strategy of soft governance: the orchestrator cannot control its intermediaries, so it must select organizations with goals similar to its own, then use its legitimacy, focality and resources to enlist, support and steer them. Often, moreover, intermediaries cannot exert mandatory control over targets. NGOs, for example, must influence business firms through persuasion, campaigning, voluntary standards and “naming and shaming.” Member states sometimes approve of, or even initiate, IO orchestration, even when they are the targets: orchestration by IOs helps states (partially) overcome their collective action problems without having to delegate strong mandatory authority (Abbott et al. 2015b).

Orchestrators have three main strategies for mobilizing the capacities of intermediaries: *initiating*, *supporting* and *shaping or steering* (Abbott & Hale 2014). First, orchestrators are often able to enlist preexisting intermediaries with aligned goals and complementary capabilities. Sustainability governance is already replete with NGOs, socially responsible business organizations, partnerships, networks and actors undertaking voluntary commitments, as well as diverse IOs. Where necessary, however, IOs have successfully catalyzed formation of new intermediaries, as UNEP did with GRI and PRI. The action networks initiated by the UN may also become valuable intermediaries, although their effectiveness remains unproven. The initiating strategy, then, is most important in terms of forming appropriate networks or other frameworks for coordinating the actions of numerous decentralized transnational actors.

Second, orchestrators can enlist the cooperation of intermediaries and heighten their impact by providing support, material or subjective. The characteristics discussed above – legitimacy, focality and resources – provide IOs with subtle but effective means of support.

Third, while intermediaries normally have aligned goals, orchestrators may still seek to shape or steer their internal organization and activities in line with its own goals and with international norms and priorities. Where orchestrators help create intermediaries, they have substantial influence on organizational form, composition, standards and other elements. IOs and other orchestrators can also steer by creating positive incentives, as by focusing support on desired actions or making support conditional on them. IOs can also create incentives by holding out the possibility of endorsement according to appropriate standards; ideally, this will launch a “race-to-the-top” competition among potential endorsees.

The same three strategies can also be used to address the fragmentation and decentralization of transnational sustainability governance (Abbott 2013). While qualified intermediaries are numerous, effective and well-coordinated networks are not. Initiating and shaping frameworks for coordination, bringing non-networked organizations into their ambit, and increasing their effectiveness through support are important goals for any sustainability orchestrator. Shaping and steering is also important for the hundreds of individual partnerships and voluntary commitments the UN has catalyzed, and may catalyze in the future. For these actors, organizations and networks, orchestrators should encourage good internal governance, broad participation (including meaningful Southern participation), effective programs, a focus on priority goals, sectors and regions, and accountability for commitments.

CONCLUSION

Sustainability governance is rapidly changing. Transnational actors and organizations, partnerships, voluntary commitments and networks are proliferating; governance leaders expect these trends to continue. In many respects, this is a golden age for sustainability governance, and especially for citizen participation in governance.

Yet the same trends also pose problems. In many areas, multiplicity and decentralization are excessive: they lead to gaps and overlaps, confusion, excessive costs and inadequate coordination. As a largely bottom-up phenomenon, transnational sustainability governance is not yet reaching its full potential.

Orchestration is a modest yet powerful strategy by which organizational entrepreneurs can address these problems. It is especially valuable for IOs, which almost universally lack the authority and resources for hard, direct governance. It is also well suited to IOs, whose legitimacy, focality and subjective resources make them well qualified as orchestrators. Finally, orchestration is a workable strategy for sustainability governance, where many appropriate intermediaries are available. In sum: “Orchestration is the most workable and effective strategy for organizational entrepreneurs in the polycentric, voluntary world” of sustainability governance (Abbott & Hale 2014).

Chapter 4 The Green Industry Platform

Heinz Leuenberger

1. A MULTI-STAKEHOLDER APPROACH TO A MULTI-DIMENSIONAL PROBLEM

The Green Industry Platform, created by the United Nations Industrial Development Organization (UNIDO) together with the United Nations Environment Programme (UNEP), is a global initiative designed to diffuse, scale up and mainstream a distinct set of sustainability considerations amongst manufacturing industries worldwide.

While a number of international and United Nations initiatives had been developed over the last 20 years to address environmental sustainability,⁴⁷ the outcome of the UNIDO-organized International Conference on Green Industry in Asia, held in Manila in 2009, demonstrated that a more targeted and participative approach was needed to address the environmental degradation caused by industrial activity. Through the ministerial-level *Manila Declaration on Green Industry in Asia*, 21 countries in the region issued a definitive call for increased cooperation and partnerships to help create a more sustainable model of industrial production.⁴⁸

Following a second Green Industry Conference in Tokyo in 2011, confirming the global relevance of the Green Industry concept, UNIDO and UNEP launched the Green Industry Platform during the 2012 Rio+20 United Nations Conference on Sustainable Development. The Platform’s launch coincided with a renewed commitment to environmental sustainability and increased private sector engagement⁴⁹ in the global development arena, while simultaneously answering the United Nations Secretary-General’s call for United Nations organizations to engage in multi-stakeholder partnerships in order to effect transformative change.⁵⁰

The Green Industry Platform was thus unveiled as a voluntary, global, high-level, multi-stakeholder partnership framework to catalyze, mobilize and mainstream action on Green Industry around the world. Through the Platform’s *Statement of Support* document, which all participants are required to sign, the Platform provides a common framework bringing together government, business and civil society leaders to secure concrete commitments to improve the environmental performance of existing industry and support the creation of new industries delivering environmental goods and services.

⁴⁷ Potts, J., Lynch, M., et al., *The State of Sustainability Initiatives Review 2014*, IISD, Winnipeg, 2014

⁴⁸ United Nations Industrial Development Organization, 2009, *Manila Declaration on Green Industry In Asia*, http://www.unido.org/fileadmin/user_media/Services/Green_Industry/Manila_declaration.pdf, accessed on 16 July 2014

⁴⁹ United Nations, 2012, *General Assembly Resolution A/RES/66/288 - The Future We Want*, <http://www.uncsd2012.org/thefuturewewant.html>, accessed on 16 July 2014

⁵⁰ United Nations, 2012, *United Nations Secretary-General Ban Ki-Moon Five Year Agenda*, <http://www.un.org/sg/priorities/enablers.shtml>, accessed on 16 July 2014

2. THE PLATFORM'S OBJECTIVES

The Green Industry Platform is the first and largest purpose-built global initiative focused on promoting a more sustainable model of industrial production. As an action-oriented Platform, its aim is to infuse the emerging 'green industrial revolution' with coherence and focus, while catalyzing measurable progress in the component areas of a Green Industry approach to manufacturing.

For both UNIDO and UNEP, increased engagement with the private sector is seen as a critical prerequisite to the wider uptake of sustainability policies and practices.^{51 52} With small- and medium-sized enterprises (SMEs) constituting 90 percent of businesses and more than 50 percent of employment worldwide,⁵³ the need for a consistent and comprehensive approach to 'green' industrial development is more urgent than ever, if it is to achieve traction.

A defining feature of the Green Industry Platform is therefore the centrality of its *Statement of Support* document, which is deliberately not the result of a negotiated process, but rather of UNIDO and UNEP's assessment of which policies and practices need to urgently be pursued to improve the social, economic and environmental performance of global industry. By avoiding a clustering around the lowest common denominator, the *Statement of Support* allows the Green Industry Platform to be a dynamic network of industrial players, including front runners, voluntarily seeking to achieve measurable sustainability gains. The other aspect of the Platform's *Statement of Support* is its aspirational character, allowing for those participants not yet familiar with sustainability considerations to join the initiative and benefit from exchanges with the more advanced Platform participants.

As such, the Green Industry Platform aims to provide a forum for all stakeholders to share and profile best practices, promote research, innovation and deployment of green technologies, while also raising awareness about the benefits of Green Industry. Above all, the Platform offers participants the opportunity to engage in transformative partnerships to attain mutually aligned objectives, and in the process, mainstream and scale up a Green Industry approach to manufacturing.

Through the engagements contained in the *Statement of Support*, the Platform helps achieve clean and competitive industrial development, reduced pollution levels and an end to the unsustainable use of natural resources. Specifically, the *Statement of Support* engages participants to:

- Improve Resource Efficiency;
- Strengthen Waste Management;
- Reduce and Eliminate Toxic Materials;
- Pursue Energy Efficiency and Use Renewable Energy;
- Adopt a Lifetime Approach to Product Manufacture;
- Promote Technology Transfer and Share Best Practices;
- Green Global Value Chains;
- Support Green Industry Research and Innovation;
- Foster Green Industries and Jobs;
- Set Green Industry Targets;
- Make Finance Available to Green Industry;

The co-benefit to participating industries is an increase in competitiveness, stemming from improved efficiency, updated production processes, optimized waste management and adoption of environmental and efficiency standards. Consequently, pursuance of these engagements is expected to attract fresh investments and open new markets, as well as lead to growth in the 'green' jobs sector, ultimately facilitating the transition to a Green Economy.

⁵¹ United Nations Industrial Development Organization, 2013, Lima Declaration: Towards inclusive and sustainable industrial development, http://www.unido.org/fileadmin/Lima_Declaration.pdf, accessed on 16 July 2014

⁵² United Nations Environment Programme, The Business Case for the Green Economy, UNEP, Nairobi, 2012

⁵³ International Finance Corporation, n.d., IFC and Small and Medium Enterprises, <http://www.ifc.org/wps/wcm/connect/967d26804b7eee0986a5c6bbd578891b/IFC-SME-Factsheet2012.pdf?MOD=AJPERES>, accessed on 16 July 2014

3. OPERATIONALIZING THE GREEN INDUSTRY PLATFORM

The Green Industry Platform does not have an independent legal status, but instead operates as a consensual framework, administered jointly by UNIDO and UNEP, for those entities signing the *Statement of Support*.

Signature of the *Statement of Support* and subsequent participation in the Platform is open to chief executives and heads of organization from the public, private and civil society sectors with an interest in advancing Green Industry. Prior to the Platform's launch, invitations were issued by UNIDO's Director General to all United Nations member states, pre-identified businesses leading on sustainability issues, and select civil society and international organizations. Simultaneously, an open call to participation was issued through UNIDO and UNEP's member states and various global networks. As a result, nearly 200 national governments, government ministries, intergovernmental organizations, multinational corporations, small- and medium-sized enterprises, clean technology business associations, academic institutions, research and innovation organizations, financial institutions, philanthropic organizations, corporate foundations and non-governmental organizations, amongst others, have signed the *Statement of Support*.

Participation in the Green Industry Platform is voluntary and free of charge, however, when pursuing and promoting the engagements in the *Statement of Support*, signatories may incur costs associated with the form of participation they choose. Such costs may

include those associated with the promotion of the Platform's objectives, the participation in meetings, and internal investment costs associated with implementation or innovation.

While participation in the Platform is subject to basic due diligence screening on the part of the Platform's convenors, the Platform, being aspirational in nature does not seek to pre-judge the commitment level of participating entities. On the contrary, the more resource-intensive and polluting an industry, the greater potential and urgency there is in improving it. All eligible companies are nonetheless expected to observe core United Nations principles, such as those of the United Nations Global Compact (UNGC), and are subject to regular reporting requirements for the duration of their participation.

The Platform's administrative structure is headed by an Executive Board consisting of the Director General of UNIDO and the Executive Director of UNEP, acting on their respective mandates, and supported by a private sector chief executive in an advisory role. The Platform's primary advisory body is the Advisory Board, responsible for developing and recommending the Platform's focus, strategy and work plan. The Advisory Board consists of representatives of five national governments, five private sector entities and five international and civil society organizations, to adequately reflect the geographic, sector and size diversity of the Platform's membership. The composition of the Advisory Board is as follows:

Governments	Businesses	Organizations
Colombia (Ministry of Trade, Industry and Tourism)	Broad Group (China)	European Commission, Environment Directorate-General
Jordan (Ministry of the Environment)	Microsoft Corporation (United States of America)	Global Environment Facility
Kenya (Ministry of Foreign Affairs)	Novozymes A/S (Denmark)	Global Green Growth Institute
Philippines (Department of Environment and Natural Resources)	soleRebels (Ethiopia)	International Chamber of Commerce
Poland (Ministry of the Environment)	ViyellaTex Group (Bangladesh)	Turkish Association for Energy Efficiency

The Advisory Board is supported by the Platform's Technical Expert Committee, consisting of 12 members, with expertise in the implementation of Green Industry policies and practices across the manufacturing sector and who have been appointed by the Platform's Executive Board. The Technical Expert

Committee advises on detailed aspects of the Platform's operations, such as Green Industry definitions, indicators, technologies and opportunities, and reviews and contributes to all recommendations made to the Advisory Board on the Platform's programme of work.

4. STATUS AND ACHIEVEMENTS TO DATE

The Green Industry Platform currently counts 200 participants from all regions of the world and a wide variety of industrial sectors. Around 30 governments, 100 businesses and 70 international and civil society organizations have thereby publicly engaged to pursue or promote core Green Industry policies and practices throughout their sphere of operations and influence.

These 200 members are provided with a constantly evolving palette of tools and engagement opportunities by the Platform's convenors. Amongst these are the following:

Awareness Raising	<ul style="list-style-type: none"> Profiling Green Industry objectives and achievements through events, engagement, actions at the enterprise, national and regional level
Convening	<ul style="list-style-type: none"> Bringing together members to discuss specific themes, approaches and issues Connecting members to third parties on areas of mutual interest
Networking and Information Sharing	<ul style="list-style-type: none"> Sharing contact information between signatories Providing a web portal to exchange information amongst signatories Providing one-stop advisory services for signatories seeking specific information Providing an introductory and mediating role
Partnering	<ul style="list-style-type: none"> Providing a framework for members to explore possible partnerships between different sectors and stakeholder groups Identifying and encouraging synergies and partnerships between members Identifying possible partnerships with non-members such as in the supply chain context
Researching	<ul style="list-style-type: none"> Identifying strengths and weaknesses of current Green Industry approaches and commissioning research on relevant topics
Promotional / Advocacy	<ul style="list-style-type: none"> Providing a framework in which members' actions in pursuance of Green Industrial policies and practices can be made public and promoted

The Platform's development and achievements since its inception in 2012 have so far fallen into three distinct stages, namely: the launch of the Platform (2012/2013), engagement through global forums to promote the uptake of the Green Industry concept (2013) and developing concrete cooperation activities with participants (2014).

In the phase from mid-2012 to early 2013, activities surrounding the Platform centered around holding preparatory meetings and staging the official launch of the Platform at Rio+20. At the same time, the first 70 or so government, business and civil society signatories were recruited, while the Platform's governance and administrative structure was put in place.

Throughout 2013, various international events were held promoting the concept of the Green Industry Platform and encouraging engagement amongst a diversity of stakeholders. Global events in New York, San Jose, Seoul, Nairobi, London and Brussels were organized to familiarize government and private sector representatives with the tenets of Green Industry. Additionally, the high-level Paris Forum was organized by UNIDO and UNEP to advocate overarching Green Industry policy reforms. UNIDO also held the 3rd Green Industry Conference, in Guangzhou, to solidify international commitment to the Green Industry agenda.

After conducting a global outreach campaign, the year 2014 saw a shift of emphasis to developing concrete cooperation activities and projects with and for Platform members. An illustrative example is Green Industry Platform member DNV Business Assurance working with UNIDO to implement joint projects in the field of water footprint measurement and promoting water management best practices. In this context, DNV Business Assurance and UNIDO are creating a self-assessment tool to assist SMEs in developing countries evaluate their water footprint in restricted stages of the product life cycle, in particular the so-called 'cradle-to-gate' assessment made from agricultural production through processing and production up to the factory gate (before the product is transported to the consumer). The tool will allow SMEs to measure and mitigate the water footprints of their products and services. Additionally, larger buyer companies will benefit from their supply chains becoming more transparent and sustainable. In a next step, the tool will be made available to all Platform members free of charge for their use.

Another Green Industry Platform member, Microsoft Corporation, is collaborating with UNIDO to foster the development of an environmentally sound e-waste recycling industry in developing countries. With the active support of UNIDO's global networks, the

joint activities focus on promoting an environmental service industry in developing countries, preparing national e-waste assessment reports, establishing partnerships with national and international institutions from the public and private sector, and facilitating the establishment of local and regional e-waste dismantling and recycling facilities.

Against this background, the Green Industry Platform has been used to promote Microsoft's *Greener IT Challenge* to wider audiences and encourage more environmentally sustainable decisions by the purchasers and disposers of personal computers in developing countries. The initiative is based on the understanding that many of the tools to improve purchasing decisions exist today in the form of programmes and standards, yet most organizations and individuals are often unaware of them. Through Microsoft and the Platform's outreach activities, computer buyers and users are supported by being offered simple training and self-certification for individuals, and signposting to existing standards and programmes. Participants also receive assistance on making their systems more environmentally-friendly and cost-effective, by for instance buying only certified computers manufactured sustainably, adjusting power settings to reduce energy consumption and recycling old machines when they are out of commission.

Adding to the Green Industry Platform's outreach activities, is its generation and dissemination of specialized knowledge products. Food and beverage value chains are the subject of a report series portraying best practices, effective measures and innovations to 'green' production and processing measures in a systematic and holistic manner. The reports focus on the meat, fruit and vegetables and soft drinks industries and are expected to serve as a point of orientation for practitioners in the adoption of Green Industry policies and practices to improve the environmental and economic performance of their industries.

While many of the measures reported on can be adopted by individual companies, the realization of several others will require support from other actors along the supply chain including government agencies, aid and development organizations, financial institutions, researchers, educators and the private sector. The Green Industry Platform can therefore serve as an effective tool for related policy development and implementation in the future.

To further evaluate the need and potential for Green Industry policy development support, UNIDO is working together with another Platform member, the International Chamber of Commerce, as well as Gothenburg and Tel Aviv universities, to carry out a global survey on Green Industry implementation

opportunities and barriers. The survey aims to identify issues of concern to companies and private sector institutions related to the adoption and implementation of Green Industry policies and practices, in order to develop targeted and action-oriented responses. Survey results will be published and circulated free of charge, and will, in addition to guidance from the Platform's advisory bodies, contribute to shaping the future work programme of the Green Industry Platform.

5. CURRENT AND FUTURE CHALLENGES

A critical challenge to the future development of the Green Industry Platform is the mobilization of financial resources, both for the maintenance of the basic services provided by the Platform convenors, but also to stimulate partnership activities amongst Platform participants. The Platform operates as a non-profit body and requires funding support for core operations from donors. Start-up costs have been initially covered from the UNIDO and UNEP budgets, with support from bilateral and multi-lateral donors; however, these have been understood to be modest in size and not intended to take the place of government or private market investment in specific manufacturing activities.

In this regard, a second challenge presents itself, namely the stimulation of sufficient member engagement to leverage consistent co-financing of cooperation projects and activities. Experience has so far shown that those companies most active in the Green Industry Platform are either those whose core business model is closely tied to sustainability, who have sufficient resources to commit to such activities, or who perceive sustainability as being imperative to their future business success.

Due to a real or perceived overload of sustainability initiatives,⁵⁴ the Green Industry Platform must however ensure to maintain a clearly delimited niche in the global development agenda in order to maintain the interest level of participants and meet their expectations. Resource mobilization for the Green Industry Platform as such remains a challenge, since the intangible benefits of network participation, such as awareness raising, access to relevant information, and knowledge transfer are difficult to quantify and therefore difficult to sell. It follows that more emphasis needs to be placed on the mobilization of funds tied to more traditional, project-based activities between members and convenors of the Platform.

⁵⁴ Demmerling, T., *Corporate Social Responsibility Overload? Intention, Abuse, Misinterpretation of CSR from the Companies' and the Consumers' Point of View*, Anchor Academic Publishing, Hamburg, 2014

A related challenge is that of enforcing the Platform members' reporting requirements. Each participant is obliged to regularly report on their progress towards the engagements contained in the *Statement of Support*, yet as a voluntary initiative, the incentives to do so currently do not stretch beyond public recognition. The case for reporting will need to be effectively made in particular to SMEs, in order to secure an active level of participation from all the Platform's members.

6. A NETWORK FOR SUSTAINABILITY

Macro-level rearrangements of the world's economy of natural resources are brought about through factors beyond any one government's, business's or organization's ability to manage. Borderless environmental threats such as climate change and water scarcity, as well as fluctuating commodity prices and shifting global consumption patterns, can only be met at the international level if global resources are secured for the long term.⁵⁵

It is clear that traditional international institutions and mechanisms are ill-equipped for the task of rapidly reacting to volatile markets, such as resource prices, despite the urgent need for a response. New modes of international engagement are therefore ever more critical, especially as key decision-making nodes on global resources are becoming diffused beyond traditional spheres.⁵⁶

As a solution, the Green Industry Platform offers a coherent and accessible, global, sector-based approach to sustainable industrial development, which brings all stakeholders together in constructive dialogues and initiatives. Through a voluntary - consensus-based - coalition, the Platform is capable of reacting to real-world complexities and utilizing the resources of multiple, diverse, participants to bypass obstructive structures, tackle common obstacles, and move closer to realizing a shared goal, to the benefit of all its participants.

⁵⁵ Lee, B., Preston, F. et al., *Resources Futures*, Chatham House, London, 2012

⁵⁶ Lee, B., Preston, F. et al., *Resources Futures*, Chatham House, London, 2012

Part 3 Conclusions and Recommendations

Kazuki Kitaoka, Joaquin Fuentes & Irene Pirca



Main conclusions

Recent decades have seen a period of upheaval and experimentation with new transnational forms of governance in global policymaking. This new global environment presents broader challenges as well as greater potential for global governance, and therefore for advancing development. In order to respond to a wide and steadily growing complexity of contemporary issues – from safeguarding the environment, to combating major health scourges, to increasing job opportunities and productivity, and combating corruption- governments, international organizations, private industries and nongovernmental organizations have progressively recognized the utility of reorganizing their operations from a macro-perspective through concerted action based on networks and partnerships.

In view of the centrality of partnerships and networks as a key means of implementation of the post-2015 development agenda, this report has made an attempt to advance the understanding of these new and flexible forms of global governance. Strengthened global partnerships will be a catalyst for the international community for advancing towards an ambitious and transformative sustainable development agenda be-

yond 2015; therefore the present report also stresses the role of international organizations in further leveraging the knowledge and resources of all relevant actors in the current development landscape in order to maximize the impact of any development strategy at global, regional and national levels. The most salient emerging messages are:

→ *Transnational organizations, partnerships and networks are a promising means towards improving global sustainability governance. They represent an increasingly dense institutionalized organizational field, making cooperation among diverse stakeholders a potentially successful governance tool. States, international organizations, private sector, and NGOs now find themselves on the same playing field – and are progressively recognizing their interdependence and potential in shaping the environment in which they function. The emergence of new and cross-sectoral networks and knowledge platforms are a response to that interdependence, so as to confront issues that no single sector or industry could successfully tackle alone. They bring together distinct groups with varying perspectives and interests, combining knowledge from different sources in new ways to result in new knowledge.*

→ *Given the magnitude of the governance challenges we are facing today, much remains to be done if we are to capitalize on the rich potential of knowledge platforms and information agencies, and to fully put them to work in promoting the structural change necessary to advance inclusive and sustainable growth and development. Multi-stakeholder and cross-sectoral networks need to be action-oriented, responsive to new emerging challenges to development, and must find innovative solutions for financing if they are to create shared prosperity. In view of a set of ambitious yet feasible future development goals, new mechanisms of international engagement are of most importance, especially as key decision-making nodes on which global resources are becoming dispersed beyond traditional domains.*

→ *A multi-stakeholder partnership framework is the foundation of any successful large-scale development strategy. Developing countries, and middle income countries in particular, need models of cooperation that better suit their development priorities and enhance their productive capacities, including through knowledge exchanges, better access to financing for development, environmentally-friendly technology and capacity building. Successfully implementing the future developmental framework in the post-2015 era requires approaches that harness globally available knowledge, technology and innovation, and capital. Partnerships and networks are therefore a major pillar for catalyzing and mobilizing ac-*

tion and the critical mass necessary for a tangible transformation towards inclusive and sustainable development. Clearly, the strengthening of local, regional and global networks in this context has the potential to unleash new sources of growth, competitiveness, innovation and job creation. If constructed carefully, multi-stakeholder partnerships and networks can facilitate participation and voluntary engagement and capitalize on the assets and strengths of different sectors and industries.

→ *International organizations have the characteristics to successfully encourage the formation of well-designed voluntary organizations and networks particularly given their convening power, legitimacy and neutrality, and expertise. Partnerships are voluntary mechanisms of governance; therefore they require a coordinating and steering body that ensures that gaps and liability issues do not arise. While a binding framework for networks is neither realistic nor desirable, IOs can provide such networks with adequate support in devising parameters that foster policy coherence for development, as well as transparency and accountability of network participants and processes. Organizational institutions that are capable of coordinating, implementing and monitoring combined action that promote and encourage sustainable development are key elements for effectively addressing existing imbalances and deficits in global governance, and therefore bringing about the structural changes that lie at the core of the post-2015 development agenda.*

→ *Increased involvement in global networks and partnerships by multilateral and international organizations will require important changes in their organizational structures and cultures. A call for further organizational reform on the part of all development actors – industry, civil society, government, and other international organizations- seems to be driven not only by pressures emanating from their environment but most importantly, by opportunities. A renewed sense of partnership is crucial to leveraging available resources as well as stakeholders' comparative advantage, including in the areas such as research, technology, innovation, finance and human capital. Effective global governance networks will require political leadership, adapted institutional/ organizational arrangements of stakeholders, and the commitment of real resources.*

Recommendations



Building on the conclusions of previous Network for Prosperity reports as well as the findings of experts in the present edition, the following recommendations have been formulated for the consideration of UNIDO Member States, particularly in the framework of the emerging post-2015 development landscape:

- i. The international community should encourage and prioritize initiatives and partnerships that promote innovation and knowledge networking among countries and industries as integral elements of any global and national strategy toward inclusive and sustainable growth and development. Network governance should be at the centre of the future international development framework, as a crucial means of tackling the complexities and challenges of today's globalization and development landscape.
- ii. Member States should consider investing in institutional infrastructures, and in networks and partnerships that allow industries and public institutions alike to diffuse and transfer knowledge, technology and investments with the objective of providing new knowledge and opportunities. Networks and partnerships are meant to complement, not replace, national governments. States must be willing to invest substantial resources into these new forms of governance, and in return, networks can help them and their partners achieve global and national development aspirations, while maintaining their competence and serving their citizens.
- iii. Technology innovation should be a priority for the international community to inform equitable, sustainable solutions to the most pressing issues currently confronting both developed and developing countries. Technology networks for global sustainability have the potential to support the decision-making and implementation of the Sustainable Development Goals.
- iv. Multi-stakeholder partnerships and networks should contribute to enhanced policy cooperation and coordination for a more coherent international financial architecture in support of sustainable development. Innovative financing modalities and cross-sector partnerships should embrace new actors and new donors in order to improve the mobilization and allocation of resources for sustainability across all relevant areas and processes of the post-2015 development agenda. Development finance can be a catalyst for change, especially when spurred by increased transparency and accountability.

Annexes

ANNEX 1 - METHODOLOGICAL NOTE ON THE CONNECTEDNESS INDEX

Selection of Variables

Three research phases screened the identified datasets and made a selection of a first group of indicators. The aim was to identify variables which either directly measured a degree of connectedness or of networks or phenomena that are instrumental to strengthen networks. This initial selection was further refined considering the following criteria. First, we took into account the data coverage, both in terms of number of countries and years. Some of the selected indicators contain data only for a few sets of countries (typically, for one specific region such as barometers), and others only for one specific year that does not match with other selected indicators. As a result they were excluded from the index construction. Secondly, we performed an analysis of the content of each specific variable in order to identify indicators containing mixed concepts, i.e., composite indicators which contain networks measures but also capture other concepts that were not related to networks. If we could not separate them out we did not include them.

Lastly, we performed an analysis to identify whether two or more indicators measured the same concept in order to avoid overload the composite connectedness index aggregating several times the same concept. Strongly related indicators were not included. For example, several indicators measure the economic flow between countries using more or less the same data. Another indicator initially selected for inclusion, as a proxy for inter-organizational networks, was patents. There is a significant body of literature that identifies patents as an interesting source for uncovering relations between organizations since several patents are co-owned between organizations (see Owen-Smith and Powell, 2004). However, patents do overlap with industry-university collaboration.

RE-SCALING OF VARIABLES

After the selection of indicators, the first step on creating the Connectedness Index and its three sub-indices was to re-scale each of the original indicators from 0 to 1, in order to normalize all indicators according to one identical scale. Normalization was required prior to data aggregation because the indicators have different measurement units (Nardo et al, 2005). In other words, as the original indicators have different scales - for example, 0-100 in the case of KOF political globalization, and 1-7 in the case of University industry collaboration – we have transformed all the original indicators to one common scale ranging from 0-1, to make them comparable. We also applied the standardization method (Freudenberg, 2003), also called z-scores, which converts indicators to a scale with a mean of zero and standard deviation of one. The results of both methods were very similar and we opted for the re-scaling method, since it produces a small interval (0.1), increasing the effect of each part in the composite indicator, more than the z-scores transformation (Nardo et al, 2005).

The following procedure was used to calculate the indices.

Firstly, for the international networks sub-index:

- i. Re-scale Political and Economic Globalization 2011 on 0-1 scale using the formula:

$$(1) \text{ Re-scaled score} = \frac{(\text{Country Score} - \text{Minimum Country Score})}{(\text{Maximum Country Score} - \text{Minimum Country Score})}$$

The minimum and maximum values of all countries available in the KOF Index of Globalization 2011 were considered. For 27 of the 207 countries, KOF index of economic globalization was not available. In these cases, KOF actual flows were used to replace economic globalization. Also, for 26 countries for which we have calculated

the international networks sub-index, both economic globalization and actual flows were not provided by KOF Index of Globalization in 2011. For these 26 countries it was considered the average score among all countries in the same region, according to the United Nations Statistics Division Standard Country and Area Codes Classification. As Netherlands Antilles is not assigned to a region by the UNSD, it was considered as part of Latin America and the Caribbean.

- ii. Calculate the arithmetic mean of the re-scaled Political and Economic Globalization
- iii. Re-scale the average using formula (1)

Secondly, the Inter-organizational networks sub-index:

- i. Re-scale Networks and supporting industries using formula (1). The minimum and maximum values of all countries available in the Global Competitiveness Report 2011-2012 were used.
- ii. Re-scale University x Industry Collaboration using formula (1). The minimum and maximum values of all countries available in the Global Competitiveness Report 2011-2012.
- iii. Professional Association is the percentage of interviewees that are member of one professional association. It was created using the most recent data for each country from the World Values Survey, in the following way:

$$(2) \text{ Professional Association} = \frac{\text{percentage of active members} + \text{percentage of inactive members}}{\text{No. of interviewees}}$$

- iv. Re-scale Professional Association using formula (1). The minimum and maximum values considering all countries in the selected surveys were used. For countries whose data were not available in the World Values Survey, but data was available in the European Values Survey, the later was used. For countries whose data were not available in these sources, it was considered the average score of all countries in the same region. As there weren't countries from Oceania (apart from Australia and New Zealand) it was considered the average score of all developing countries.
- v. Calculate the arithmetic mean of the three re-scaled components
- vi. Re-scale the average

Thirdly, the Intra-organizational networks sub-index was created as follows:

- Re-scale the percentage of Firms Offering Formal Training using formula (1). The minimum and maximum values were used, considering the most recent survey for each country.
- Re-scale On-the-job training using formula (1). The minimum and maximum values were used, considering all countries available in the Global Competitiveness Report 2011-2012.
- Calculate the arithmetic mean of the two components. When only one component was available, the single value was considered without averaging.
- Re-scale the average using formula (1).

Lastly, the Connectedness Index was calculated as the arithmetic mean of its three components: international networks, inter-organizational networks and intra-organizational networks.

For the aggregation of the indicators we choose the arithmetic mean - equal weighting (Nardo et al, 2005, p. 21) -, since this is an exploratory study and we do not intend to give privilege to one specific indicator over another one, setting distinct weights for each indicator. Also, the possibility was considered to use geometric aggregation in order to avoid full compensability, i.e. poor performance in one indicator being compensated by a high performance in other (Nardo et al, 2005, p. 79). However, as we have natural zeros in the professional association indicator, applying geometric aggregation would imply a loss of variance in our composite indicator.

Comparing the connectedness-index on the basis of median

It could be objected that in theory, through the re-scaling method, the interpretation of the median may be misleading since there is a theoretical possibility for interconnectedness to be low, although the median is high, because the maximum observation in a dataset (real observations) is far removed from a theoretical maximum. In other words, one could, on the basis of theory, construct a theoretical maximum for the sub-indices and compare that with the observed maximum in the dataset. If there is a significant gap between the theoretical maximum and the observed maximum, the median might be high, but the interconnectedness theoretically low. This argument could also be reversed with regard to the minimum scores. As a result, we assume that the observed maximum and minimum correspond to a significant degree to the theoretical maximum and minimum. We did not find indications that this might not be the case. In addition, we use the median mostly for comparative purposes.

Use of the Pearson Correlation Coefficient

Given the linear relationship between the variables (see Figures 1-3) the Pearson Product-Moment Correlation Coefficient was used to calculate the correlation between the different indicators. The Pearson correlation(r) measures the degree of linear relationship between two variables and ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are related. The sign of the correlation coefficient (+, -) defines the direction of the relationship, either positive or negative. A positive correlation coefficient means that as the value of one variable increases, the value of the other variable increases; as one decreases the other decreases. A negative correlation coefficient indicates that as one variable increases, the other decreases, and vice-versa.

The significance (probability) of the correlation coefficient is determined from the t-statistic. The probability of the t-statistic indicates whether the observed correlation coefficient occurred by chance if the true correlation is zero. In other words, it asks if the correlation is significantly different than zero.

Classification of Countries According to Level of Development

Table 10: Countries' classification according to The World Bank Country Groups by Income

High Income: OECD	High Income: non OECD	Upper Middle Income	Lower Middle Income	Low Income
Australia	Bahrain	Albania	Armenia	Bangladesh
Austria	Barbados	Algeria	Bolivia	Benin
Belgium	Brunei Darussalam	Angola	Cameroon	Burkina Faso
Canada	Croatia	Argentina	Cabo Verde	Burundi
Chile	Cyprus	Azerbaijan	Côte d'Ivoire	Cambodia
Czech Republic	Kuwait	Bosnia and Herzegovina	East Timor	Chad
Denmark	Latvia	Botswana	Egypt	Ethiopia
Estonia	Lithuania	Brazil	El Salvador	Gambia
Finland	Malta	Bulgaria	Georgia	Kenya
France	Oman	China	Ghana	Kyrgyzstan
Germany	Puerto Rico	Colombia	Guatemala	Madagascar
Greece	Qatar	Costa Rica	Guyana	Malawi
Iceland	Russian Federation	Dominican Republic	Honduras	Mali
Ireland	Saudi Arabia	Ecuador	India	Mozambique
Israel	Singapore	Hungary	Indonesia	Nepal
Italy	Trinidad and Tobago	Iran	Lesotho	Rwanda
Japan	United Arab Emirates	Jamaica	Mauritania	Tajikistan
Korea, Republic of	Uruguay	Jordan	Moldova	Tanzania
Luxembourg		Kazakhstan	Mongolia	Uganda
Netherlands		Lebanon	Morocco	Zimbabwe
New Zealand		Libyan Arab Jamahiriya	Nicaragua	
Norway		Macedonia	Nigeria	
Poland		Malaysia	Pakistan	
Portugal		Mauritius	Paraguay	
Slovakia		Mexico	Philippines	
Slovenia		Montenegro	Senegal	
Spain		Namibia	Sri Lanka	
Sweden		Panama	Swaziland	
Switzerland		Peru	Syrian Arab Republic	
United Kingdom		Romania	Ukraine	
United States		Serbia	Viet Nam	
		South Africa	Zambia	
		Suriname		
		Thailand		
		Tunisia		
		Turkey		
		Venezuela		

Source: The World Bank

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