Conceptualizing and Operationalizing Sustainable Development Goals through System Theory Perspectives: Recommendations for the Post-2015 Targets

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CSEND Working Paper No. 1/2015

April 2015, Geneva

Centre for Socio-Eco-Nomic Development (CSEND)
www.csend.org

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Abstract

There is a distinct interrelatedness in the post-2015 goals and targets for Sustainable Development (SD). This seems to be not fully reflected by the indicators listed in the Working draft of the Bureau of the United Nations Statistical Commission (UNSC) on the process of the development of an indicator framework for the goals and targets of the post-2015 development agenda. Social, economic, environmental and institutional activities have an effect on each other for which indicators cannot be found easily in silos. Also, what is not explicitly covered in the present set of targets is that sustainable development needs social coherence, and there should be indicators around for this essential aspect of community-life and collaboration.

Introduction

There is a distinct interrelatedness in the post-2015 goals and targets for sustainable development. This seems to be not fully reflected by the indicators listed in the Working Draft on the development of an indicator framework for the goals and targets of the post-2015 development agenda. Social, economic, environmental and institutional activities have an effect on each other for which indicators cannot be found easily in silos. Also, what is not explicitly covered in the present set of targets is that sustainable development needs social coherence, and there should be indicators around for this essential aspect of community-life and -collaboration

For SD-effects to occur, an institutional infrastructure must be in place, and this is even more valid for the social effects of SD as it is this infrastructure that fosters social cohesion. An adequate institutional infrastructure allows social coherence - social interrelations - to be built and enhanced. Otherwise, social problems are likely to turn repetitive, social identities cannot be formed and social conflicts remain unsolved. Without social coherence, “social remembering” (Misztal 2003) cannot come into effect. Borrowing from Durkheim (1964) one could say only when civic groups become disciplined in the act of memory and coherence, social control gets manifest without needing external surveillance - the opposite of what Durkheim (1964) has called “social amnesia” or “social anomie”. Social remembering facilitates social transformation processes and processes to overcome community and/or inter-community conflicts. As SD inevitably goes hand in hand with all sorts of transformations, it will have to deal with conflicts that arise from misconception or divergence of interests. Also, SD will always encounter a mismatch between personal or group standards and wider social standards; more often than not this is due to the lack of a social ethic which produces moral deregulation and extinguishes legitimate aspirations. Anomie is commonly associated with low regulation, but overly rigid (e.g. totalitarian) societies would also produce anomic individuals (Saner and Saner-Yiu (2012). Applying this to SD policies, any individual strife for improving social and ecological situations may turn out to be futile activism; a person who wishes to promote the ideas of SD needs a social structure to participate in. Otherwise, well-meant intentions can lead to deviant behavior.

One way out of the dilemma could be to conceptualize sustainable development on the basis of the *Capability Approach.* This approach was developed from the discussion on needs expressed in the Brundtland definition of SD (Brundtland, 1987): needs in a more abstract definition can be linked to the definition of capabilities as will be explicated below. On this basis, current sustainability indicators would be complemented (or replaced) by capability-based indicators (Leßmann and Rauschmayer 2013). This would allow to better grasp the focus on

well-being than by discussing the weakness or strength of sustainability (Neumayer 2010). The capability approach also combines the issues of intra- and inter-generational equity in regard to governance and provision of public services and would yield a more integrated understanding of social, economic and environmental development

Another approach relates to *capacity development*. Capacity building is inherent in several of the targets. They are listed in Annex I.

Activities leading to capacity development, be it individual or institutional, are of *systemic* nature: When viewed from an investor's or a donor's perspective, the scope of capacity development goes beyond the traditional focus on internal functioning of one formal organization, i.e. its structure, systems, strategies, staff, skills and so on - what might be termed the 'micro' aspect of capacity development. More and more, designers and participants of development projects have to look at the 'macro' aspect, i.e. the behavior and functioning of 'work communities', particularly clusters of groups and organizations which deal with complex multifaceted functions such as environmental protection or rural health improvement. This involves attention to wider systems and relationships, including members of the general public, specific beneficiaries, key stakeholders such as politicians, the media, other donors and indeed, any groups or individuals who are in a position to influence the direction and growth of performance. Capacity development can thus span a wide range of activities ranging from staff training inside a single department to efforts at large scale organizational change that span whole countries (Morgan 1997). Capacity development, also, is about institutional, social and group learning that involves both technical, personal and collective change. It is for this reason that the UNDP defines capacity development as "*the process* by which individuals, groups, organizations, institutions and societies develop abilities to perform functions, solve problems and set and achieve objectives" (UNDP 1997, p. 3). We are thus left with the task to define *process indicators for capacity development.*

The third issue which needs to be encompassed by both target-setting and monitoring for SD is *social coherence*. As stated above, SD can only thrive if all members of a society support the concept, and this requires social coherence, empathy and shared commitment. There have been many attempts to measure social coherence; the most advanced perception has been the World Bank's definition of social capital: „… the norms and networks that enable people to act collectively" (Woolcock and Narayan 2000, p. 226)[1]. This closely relates to the issue of targets for SD: When building social capital is a prerequisite for attaining SD, we need to measure social capital development as well.

The Capability Approach

The Capability Approach is a leading paradigm in development economics that has formed development policy during the last 20 years. With its focus on human development it has highlighted the interaction between social and economic development. While the concept was first envisaged on the individual level (Sen 1984), the importance of collectivities for human capabilities was accentuated later on: Ibrahim (2006), emphasizing the interactive relationship between individual capabilities and social structures, incorporates the collective dimension through the concepts of collective freedoms, collective agency, institutions and social capital. Pelenc et al. (2013) add the ex-ante dimension of responsibility and introduce the idea of collective agency as a responsible entity acting so as to generate sustainable human development.

Capabilities, in the original meaning of Amartya Sen, are the alternative combinations of "functionings" an individual can achieve. The concept of "functionings" has been introduced by Amartya Sen (Sen 1984); it denotes the various attainments a person may value – varying from

[1] The term will be briefly discussed in the section "Social Coherence" that follows third.

elementary issues like nourishment and shelter to complex ones such as self-esteem and community participation (Sen, 2000). Sen connects this to the use of the term “targeting” in eradicating poverty (Sen 1992): Poverty, in this context, is „capability deprivation“ (Sen, 1992, p. 15). And, for Sen, in targeting poverty the poor should be agents rather than patients, i.e. they should be assisted in using their capabilities to improve their situation. The same would go for targeting sustainable development. In consequence, Leßmann and Rauschmayer (2013), have suggested to replace ‘needs’ in the Brundtland definition of sustainable development (SD) with ‘capabilities’: The Brundtland definition depicts SD as a behavior that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987) Denoting capabilities instead of needs would help to alleviate the cognitive and moral burden on individuals: Demanding individuals to consciously choose sustainable actions may prove to be not highly successful when people have other „needs“ due to low standard of living or subsistent livelihood. If this burden of adjustment is placed on collective institutions, collective action to achieve SD is then moved away from the individual to larger groups, communities of a society.

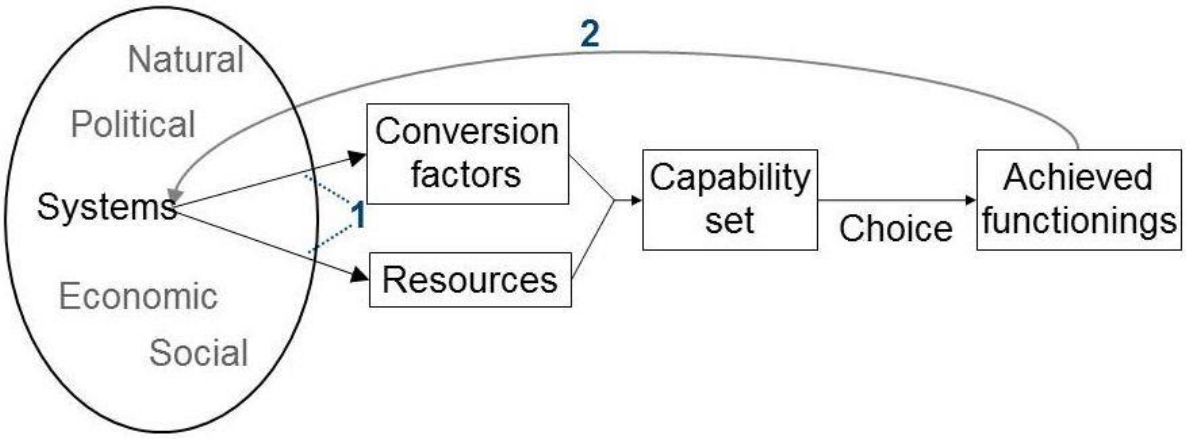
Needs have often been understood as basic material needs for food and water, shelter, etc. and SD has therefore been seen as a fair distribution of basic commodities for the present, combined with the maintenance of natural capital for securing ecosystem services in the longer run. This understanding easily leads to decisions that may be perceived as restrictions to individual potential of both the contemporary and the future generations. So, what is necessary is to make the impacts of current decisions on future human well-being (or needs) visible. This is only possible on a systemic level, i.e. by exhibiting how drivers, statuses and impacts interrelate in the socio-ecological-economic systems. This exhibit must comprise the dynamic development of the systems, such as uncertainty including ignorance, risk, and ambiguity (Leach et al. 2010).

What a person can do and be – his/her capability-set – depends on the one hand on his/her resources and on the other hand on what has been called “*conversion factors*” (Polishchuk and Rauschmeyer 2011), i.e. the elements which impact his/her ability to use resources for achieving material and psychological wellbeing. With this, we get to the systems perspective that combines both structural factors and individual and collective agencies. *Resources* are mainly thought of as material resources, e.g., commodities and services, which encompass environmental resources like wood and water. *Conversion factors* can be classified into personal, social and environmental factors. Personal conversion factors refer to health, sex, age, skills, talents, etc. of the person. Social conversion factors relate to the opportunities and constraints given by the social environment of the person. Ecosystem services e.g. the cleansing of the air by woods, are environmental conversion factors.

The three types of conversion factors are interrelated. For example only if public transport services exist, people have the opportunity to go by bus. The traffic infrastructure exemplifies that environmental and social conversion factors interact. What kind of transport facilities are available and used is as much shaped by natural conditions as by political decisions. Similar statements can be made regarding education, health, credit schemes, while accessibility of these services are more results of political choice.

Resources and conversion factors link individual capabilities to the systemic level in that they describe which economic and environmental commodities and services are available for the individual and which economic, social and environmental conditions the individual requires to convert resources into “functionings”.

Figure 1: Linking capabilities to the systemic level



Source: Leßmann, O., & Rauschmayer, F. (2013), p. 5.

Figure 1 shows how individual capabilities come about and how the natural and manmade systems play in by influencing resources and conversion factors (arrows 1 pointing out from "Systems"). This establishes a link between an individual's way of life and the systemic level (arrow 2). Arrow 2 captures direct effects like the consumption of non-renewable resources as well as indirect effects such as the political reverberation of individual decisions.

The system depicted in Fig. 1 will change over time. Gaining knowledge on these changes can be gleaned from systems science. Systems science has developed models that deal with separate subsystems, e.g. models on social change, on ecosystem change etc. Any of such systems has to account for the resilience of socio-ecological systems (Walker et al. 2006). Systems science methodology could be harnessed to achieve measuring scalable impact, e.g. through Multi-Criteria-Decision Analysis (Midgley and Reynolds 2004). If the contemporaneous interrelations have been detected (arrows 1) - as well as their dependency on the systems - then this can be projected into the future.

Operationalizing this model raises two sets of challenges. One is related to the issue of multidimensionality, the other one to the issue of dynamics.

Multidimensionality necessitates dimensions that enable measurement. There is an ongoing discussion about the use of lists of dimensions within the Human Development community (http://hdr.undp.org/en/rethinking-work-for-human-development). Nussbaum (2011, pp. 33–34) has proposed a list of ten central functional capabilitie which we consider worthy to be taken into consideration in order to address the undergirding value of SD. They are:

1) being able to live a normal length of lifespan;
2) having good health;
3) maintain bodily integrity;
4) being able to use senses, imagination, and think;
5) having emotions and emotional attachments (and social empathy);
6) possess practical reason to form a conception of the good;
7) have social affiliations that are meaningful and respectful;
8) express concern for other species;
9) able to play; and
10) have control over one's material and political environment.

Operationalization of these or other capabilities dimensions requires finding suitable data and forming indicators for each dimension. But whatever the outcome, they will not be far from quite a few of the post-2105 indicators already constructed.

A second challenge of the current model is the difficulty in capturing dynamics at a systemic level. This problem is exacerbated by the long-term frame of SD issues. So far, the capability approach is a static model that has not yet been convincingly designed dynamically. But there are authors who evaluate in the long-term, like Alkire (2008). She uses a prospective approach that aims at identifying "which concrete actions are likely to generate a greater stream of expanded capabilities and a better state of affairs" (Alkire 2008, p. 32). Still, there remain difficulties of such a prospective analysis because it will always have to survey individuals whose value systems may vary. An example would be measuring the "quality of life". One traditional approach to measuring the quality of life focuses upon the resources in control of an individual. But what really counts is an individual's ability to convert resources into a valuable functioning. E.g., having a laptop might be a source of value creation, but if an individual turns blind or unable to read, the laptop would not automatically augment quality of life. "The value of the living standard lies in the living, and not in the possessing of commodities which has derivative and varying relevance" (Sen 1987, p. 25). So what we need is a measure that not only notes down incremental changes of resources available to the individuals and groups over time, but also changes in the perception of value

Alkire (2007) suggests that one way to determine measures that fulfill the requirements of being instrumental and relevant to resultant outcomes might be to turn SD to an issue not of the individual behavior and choice but that of collective behavior and institutional responses. This reframing shifts the moral burden from individuals as it frees them from the sometimes impossible task of uniting as many people as possible to undertake common actions in order to be heard or to influence. Instead, the proposed reframing emphasizes building collective norms that facilitate and enable the greater scale of transition to SD. Introducing collective institutions and thus shifting the responsibility from the consumer- to the citizen-identity of the individual - will be the requisite step in implementing SDGs.

Soma and Vatn (2011) argue that by deploying a participatory process, it is possible to arrive at a shared vision about a common good rather than dealing with complex interconnected SDGs on individual interests, no matter how enlightened this individual choice could be, relating to one's own standard of living or well-being. It has been suggested, among others by Evans (2002) to introduce the term "collective capabilities" for denoting capabilities that can only be achieved collectively, and SD is a prime example of such a phenomenon. Shaping the appropriate indicators for the post-2015 goals might start with the target groups of goal 17 (see below).

Process Indicators for Capacity Development

Systems thinking for capacity development has several implications which relate to measurement issues (Morgan 1997, p. 6):

- Capacity constraints are likely to stem not from a single cause (i.e. lack of skilled staff) but from a pattern or deeper structure of interlocking forces that combine to prevent system improvement.
- Cause and effect have a complex relationship separated by place, function and time. Results 'chains' are usually difficult to plot. Indicators do not explain why complex systems works the way they do.
- Once the scope of activity goes beyond a single organization, mediation, communication, negotiation, levels of trust and facilitation become critical. This points to the concept of social coherence and social capital.
- System dynamics - entropy, virtuous and vicious circles, balancing or stabilizing behavior - act continuously on capacity systems. Participants need to understand their effects on capacity development (or erosion).

- Understanding and shaping organizational relationships, for example through partnerships, networks or participation, become critical. The influence of contextual factors becomes much greater on the progress of events.

From there, efforts at capacity development require a separate emphasis to 'process' issues; this attention will help participants achieve product results where they work and the quality of their services at the frontline where the basic units of the public administration meets the citizens. Performance targets without sufficient attention to process and feedback at the process dimension can lead to outcomes and impacts that are not sustained in the long run.Vice versa, processes not directly helpful in tackling key constraints and resolving problems -i.e. in the daily operations - become abstract and unproductive. Process capability is an epi-phenomenon or post-competency which emerges after more competencies of sub-processes have been acquired by a group or community Focusing on both performance and process need to be supported by measurement tools.

Additionally, capacity building indicators, if they are to be effective in driving progress, must reflect the interests and choices of those affected by the capacity building activity. Since many capacity programs in developing countries will be through public-private partnerships, the use and relevance of capacity indicators thus become part of the process in defining or articulating state-civil society relations. This again connects to established norms, political culture, social coherence as well as a governance management system that would ensure the appropriate multi-stakeholder engagement, effective interfacing linkages, process- and outcome-transparency and differentiated accountability.

Social coherence: An indispensable prerequisite for SD

A more systemic view on SD has been postulated early on. . One fundamental framework was established in this context by Schleicher-Tappeser and Strati (1999) who included four "systemic principles" -- *diversity, subsidiarity, networking and partnership* -- into the process of ensuring SD and of furnishing basic approaches to achieve SD goals. Diversity, though originating from biological ecology, is applicable to social relations as well, and like in the realm of biology, where diversity stems from bio-systems that are encircled by a larger system, social systems are also subsystems of a larger system within a complex eco-system. In these sets of systems there is always a trade-off between autonomy and integration, which links the concept of diversity to the principle of subsidiarity. In general terms, subsidiarity calls for a high degree of autonomy and self-governance in the smallest possible units. This applies for policy making, welfare, technical systems or flows of goods and resources. A direct line from there leads to networks and partnerships in human, institutional and other relations. Partnership implies a tacit "agreement" in striving for fair and peaceful resolution of conflicts and acceptance of dissent and multiple perspectives. Partnership will be further enhanced by the fourth component, participation, i.e. the relationship between individuals and institutions, meaning that the individuals concerned should be involved in or given voice to decision-making about their future. The more of these four principles are practiced within a society, the easier it will achieve SD.

There are indicators which can be construed to measure the degree of realization of these four principles. As with the progress reports of capacity development, including these indicators into the set of measurement tools for the post-2015 targets would help to determine how a nation has advanced on the path to reaching the goals.

An alternative to measuring social coherence through indicators which measure the status of the four above-mentioned principles would be through valuing stocks of social capital. This would go beyond the World Bank's "narrow" definition of social capital, which mainly is a qualitative concept i.e. the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions." (World Bank, 2013). The World Bank suggests five key aspects of social capital:

- groups and networks - collections of individuals that promote and protect personal relationships which improve welfare;

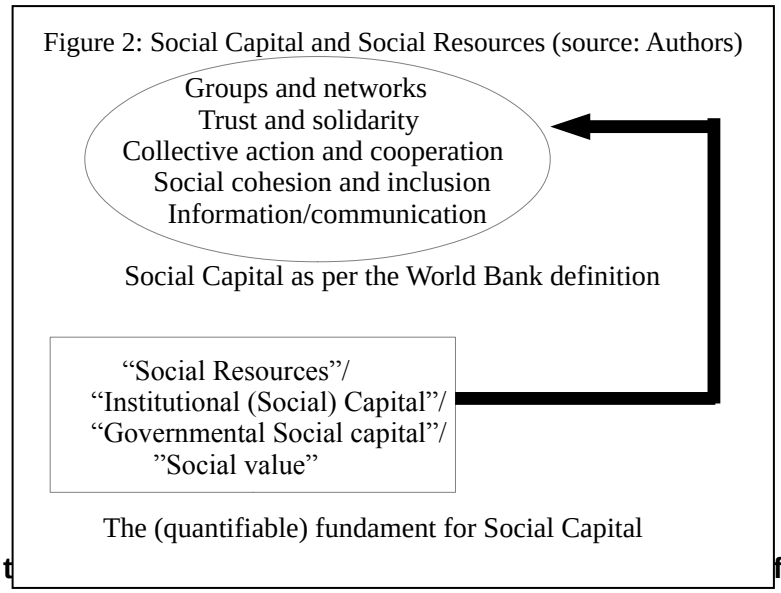
- trust and solidarity- elements of interpersonal behavior which fosters greater cohesion and more robust collective action;
- collective action and cooperation - ability of people to work together toward resolving communal issues;
- social cohesion and inclusion - mitigates the risk of conflict and promotes equitable access to benefits of development by enhancing participation of the marginalized; and;
- information and communication - breaks down negative social capital and also enables positive social capital by improving access to information.

These aspects emphasize that bonding is a key competence for social capital formation and also links the concept to groups-boundary spanners (Wittrock 1991); however, the measurement challenge based upon the World Bank definition is to identify a contextually relevant set of indicators and to establish an empirical correlation with relevant benefit indicators. Whichever of these can be envisaged, it would always be difficult to make comparisons based on this definition between nations and over time as these indicators are both time-sensitive and highly contextual.

One other approach to "social capital" could be by expanding the definition beyond the qualitative denominators to incorporate quantifiable concepts. This would lead to what could be referred to as "social resources". It would encompass measuring the value of a society's social institutional infrastructure. Other terms that also comprehend this wider interpretation of social capital are: "Social value", "Social Resources", "Institutional (Social) Capital", and "Governmental Social capital" (North, 1990). From a measurement standpoint, this requires that at first some type of value must be assigned to the political, legal and institutional environments, because it is these assets that "produce" or "condition" the social capital. Thus, social capital is viewed in this approach as a dependent variable whereas the networks approaches as per the "narrow" definition largely treat social capital as an independent variable (Claridge, 2004). The post-2105 agenda should be used to open a new discussion on how to assign monetary values to social infrastructure. Otherwise, there remains the question about the usefulness of measuring the five key aspects that compose the "narrow definition" of social capital (an output of formal institutions), if no value can be attributed to the formal institutions which produce the output. When in many developing countries these institutions need to be brought to a higher level of efficiency and effectiveness, it would be a worthy undertaking to develop a system that measures this progress.

The following figure demonstrates the relation between social resources as the fundament on which social capital can be built.

Figure 2: Social Capital and Social Resources (source: Authors)



Exemplifying the t for Goal 17

Goal 17 of the Post-2015 agenda focuses on implementation and partnerships. This necessitates a process (and progress) perspective; and since progress in any of the developing nations will depend highly on how all members of the society collaborate, the social capital issue comes into the limelight. With this, the question must be raised if decisions on a collective level, as they will have more impact than those taken on the individual level, should become part of a monitoring process.

Almost all of the targets in this part of the agenda fall within the domain of international cooperation and support. For instance, target 17.1 relates to support for improving domestic capacity for tax and other revenue collection including better monetization of respective natural resources, and the pertinent indicators are Total Tax/GDP and Total Tax Per Capita. Both indicators are rated A*AA,* meaning that they are deemed to be feasible, i.e. methodology exists and data are available; to be suitable, i.e. there is a common understanding on what the indicators express; and to be relevant, i.e. they aptly label the target. But neither can be used to estimate whether a tax system is fair and equitable, nor will the indicators exhibit if taxes are paid as levied and if the tax system has changed. This is where a process indicator would come into question. Also, there is a systemic relation between what citizens believe to be a fair tax system and responsive government, i.e. connecting tax payments to the supply of public goods (Bird et al. (2006). So a composite indicator would have to be applied here which mirrors both tax income and good governance. Beyond that, still, the *support* that this target asks for is not revealed through the two indicators Tax/GDP and Tax Per Capita.

Similarly, for targets 17.2 through 17.5 as well as 17.9 (on development assistance, additional financial resources for developing countries, debt financing, investment agreements and implementation support), the pertinent indicators measure the achievements the pertinent indicators measure the achievements i.e. the impact of the assistance but they do not measure the process nor noting choices made for implementation which might be the culprit in poor performance. This critique is also valid for targets 17.10 through 17.12 on trade development and targets 17.6 through 17.8 referring to technology transfer. Also, if we look at the very general expression of target 17.13, it may be questioned if GDP can really measure whether global macroeconomic stability and policy coordination and policy coherence have been brought about. It does neither reflect the level of wellbeing of the citizens and their respective consumption capability, nor the reduction of system risks and vulnerability.

Targets 17.14 and 17.15 concern international agreements; concluding such agreements will certainly promote sustainable development as well as poverty eradication, and what the corresponding indicators would have to show is if this effect has been achieved. The same applies to targets 17.16 and 17.17 on (global) partnerships. A partnership issue may as well be found in targets 17.18 and 17.19 on building adequate statistical foundations for measuring progress on sustainable development. This would not be possible without a concerted action of national and international bodies, for which, again, an indicator is needed that monitors the progress.

Annex II gives a wider overview of the targets catalogued above; it lists the deficiencies of the indicators and gives some suggestions for improvement. The list reveals that the systemic aspect inherent in the capability approach, in measuring capacity building, and in the concept of social capital are not sufficiently accounted for in the indicators. A good example is targets 17.6 through 17.8 which refer to technology transfer. The indicators provided at this stage would suffice to determine if the targets have been reached. But other than transfers of financial funds, technology proliferation needs absorptive capacity, experimental spaces and partnerships at local, regional and national levels between industries, research facilities and government authorities as well as employee training and strategic adaptations of educational curricula. This build-up of networking, institutional capabilities and social capital must be monitored – progress should be measured and reported.

One issue which seems to require more encouragement (and which highlights the concern of this contribution) is the statistics on partnerships. The indicators on partnerships (targets 17.16 and 17.17) were rated as non-feasible and of low relevance. However, progress in any part of the world requires concerted action through partnerships – no industry, no country can "go it alone" today. For these issues, all the ingredients are needed that have been enumerated within the three approaches exhibited in this contribution: Capabilities on a collective level for SD readiness, capacity building and social capital. So, it makes much sense to have statistics on partnerships; and beyond just tallying the numbers of partnerships and PPP projects, indicators should be put in place which measure if there is sufficient social coherence in a nation's society to allow for small- and large-scale partnerships. The indicators should as well reveal if there are shifts in the collective capabilities towards higher acceptance of SD objectives and if enough capacity has been grown to comprehend and to successfully handle multi-lateral partnerships in research, trade and industry.

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Annex I: Post-2015 sustainable development targets which refer to capacity building

- Target 2.4 "Strengthen the capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters",

- Target 2.a “Enhance agricultural productive capacity“,
- Target 3.d “Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks“,
- Target 6.a “Capacity-building support to developing countries in water- and sanitation-related activities“,
- Target 8.1 “Strengthen the capacity of domestic financial institutions“
- Target 11.3 “Enhance … capacity for participatory, integrated and sustainable human settlement planning“,
- Target 12. a “Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production“,
- Target 13.1 “Strengthen resilience and adaptive capacity to climate-related Hazards“,
- Target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation“,
- Target 13.b “Promote mechanisms for raising capacity for effective climate change-related planning“,
- Target 14.a “Increase scientific knowledge, develop research capacity and transfer marine technology .. to improve ocean health“,
- Target 15.a “.. ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development”,
- Target 15.c .. “increasing the capacity of local communities to pursue sustainable livelihood opportunities“, Target 16.a “..building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime“,
- Target 17.8“ Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism“,
- Target 17.9 „Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals“). However, the indicators that are prosed to measure this capacity building targets point to achievements and not to activities which would produce these achievements.

Annex II: Selected Indicators for the targets of Goal 17 (“Strengthen the means of implementation and revitalize the global partnership for sustainable development”): Deficiencies and suggestions for improvement

Target /	Brief description	Weaknesses of the indicator(s)	Suggestions

Indicator			
17.1	International support for domestic resource mobilization		
17.1.1 rated* AAA	Total Tax/GDP	Neither can be used to estimate whether a tax system is fair and equitable, nor will the indicators exhibit if taxes are paid as levied and if the tax system has changed.	(1) Find a composite indicator which mirrors both tax income and good governance
17.1.2 rated AAA	Total Tax Per Capita	The indicators do not monitor the support effort.	(2) Measure the support effort.
17.2	Implement official development assistance		
17.2.1 rated BAA	Net ODA as percentage of donors' gross national income (GNI)	This would serve to determine if the targets have been reached. But the impact of the assistance should also be determined.	(1) Determine ODA targets
17.2.2 rated BBB	Proportion of sector-allocable ODA to basic social services		(2) Monitor fulfillment of ODA targets
17.3	Additional finance for developing countries f		
17.3.1/2 rated BBB / CBB	Cost of remittances	While reducing the cost of remittances will certainly enhance financial inclusion in developing countries, it does not suffice to fully ease transfer payments from overseas.	Determine which other means be put in place to remove blockages for funds transfers; monitor the outcome.
17.4	Reduce debt distress of highly indebted poor countries		
17.4.1/2 rated CBB	Debt relief achievements under HIPC initiative	The HIPC Initiative is nearly completed with 35 countries having already reached the completion point.	While monitoring the progress in the remaining countries, means should be explored to prevent HIPCs from falling into debt traps again, with carefully gauging the effects.
17.5	Investment promotion regimes		
17.5.1/2 rated CBB / BBB	Including SD orientated targets/monitoring policy changes	Including SD orientated targets and changing investment policies may still conceal institutional deficiencies / the lack of other prerequisites for SD policies	Connect SD oriented targets to targets that monitor
17.6	Access to science, technology and innovation; knowledge sharing		
17.6.1/2	Sharing patent information/	Technology proliferation needs	Set up indicators to

rated BBA / CBB	exchanging technical staff	absorptive capacity; if the build-up of this capacity is not checked, exchange programs will fail	measure absorptive capacity
17.7	Providing environmentally sound technologies		
17.7.1/2 rated CBB	STEM (= Science, Technology, Engineering, Mathematics) investment	Measuring STEM investment as a percentage of GDP or per capita may not reveal if sufficient innovative entrepreneurial capacity exists	Complement the measure by an indicator on innovation
17.8	Enabling technology (information and communication)		
17.8.1/2 rated AAA/ BAA	Internet penetration / quality of internet access	Capable telecommunications is fundamental for economic efficiency and productivity; however, this resource an only produce value if handled by a well-trained workforce	Complement the measure by an indicator on information technology training
17.13	Global economic stability		
17.13.1/2 rated AAA	GDP / account surplus or deficit	It may be questioned if GDP can really measure whether global economic stability and policy coordination and policy coherence have been brought about.	Complement by indicators on good governance
17.14	Policy coherence		
17.14/1/2 rated BBB	International agreements and coordination on environmental safety and on fighting pollution	The indicators just score the number of counties which joined agreements and coordination mechanisms	Complement by indicators that exhibit how the agreements are implemented
17.15	Fiscal cooperation		
17.15/1/2 rated CBB	Extent of sharing fiscal information	The indicators are given a non-feasibility ranking; this may demonstrate a wrong view on the positive effects of international fiscal cooperation on SD.	More explication is needed on the issue which might revert the rating of the indicators.
17.18	Availability of high-quality, timely and reliable data		
17.18.1/2 rated AAA	Statistical legislation and international agreements	What is missing is an approach that relates macro-level indexes to the micro level.	Develop macro-micro linkages in SD indexes
17.19	Measuring "beyond GDP"		
17.19.1/2 rated BBB/CBB	Building welfare indices	The System of National Accounts to which the Nordhaus/Tobin Index connects does not fully cover public goods.	Connect public goods usage with measuring performance at the business level.

* Ratings of the indicators on a scale of A to C for feasibility (first letter), suitability (second letter), and relevance (third letter), were provided by the participating countries' representatives

Target 17.9 (on national plans to implement SD goals and on South-South cooperation) was not listed in the above Table because these constitute genuine progress reports, which the authors of this contribution deem to be an adequate type of measurement. Likewise, targets 7.10

through 17.12, which are on trade development, were not mentioned in the Table, because it is thought that the low ranks given to the corresponding indicators may point to a tendency that rejects the positive effects of international trade on sustainable development. This would be an adverse propensity which needs to be corrected by careful elucidation of what matters and what does not.

Similarly, targets 17.16 and 17.17 are not presented in the above list as it looks like that the understanding on partnership needs to be improved among the participants of the work group: They have rated the indicators on partnerships as non-feasible and of low relevance. But information on private partnerships and private-public partnerships also reveal if there are shifts in the collective capabilities of handling cooperation and if enough capacity has been grown to comprehend and to successfully handle multi-lateral collaboration in research, trade and industry.