

# An Integrated Approach to Sustainable Development through SDG Interlinkages

**Dr. Xin Zhou**

Research Leader, Strategic and Quantitative Analysis Centre (QAC)  
Institute for Global Environmental Strategies (IGES)

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***The SDGs: 17 Goals, 169 Targets and 232 Indicators forming an integrated and indivisible framework for delivering sustainability from a systemic perspective.***



# Importance of taking an integrated approach to sustainable development through SDG interlinkages

- Shifting from a siloed approach to an integrated approach for achieving SDGs is important.
- Understanding the interlinkages between SDG targets is important for taking an integrated approach which however faces huge knowledge gaps.



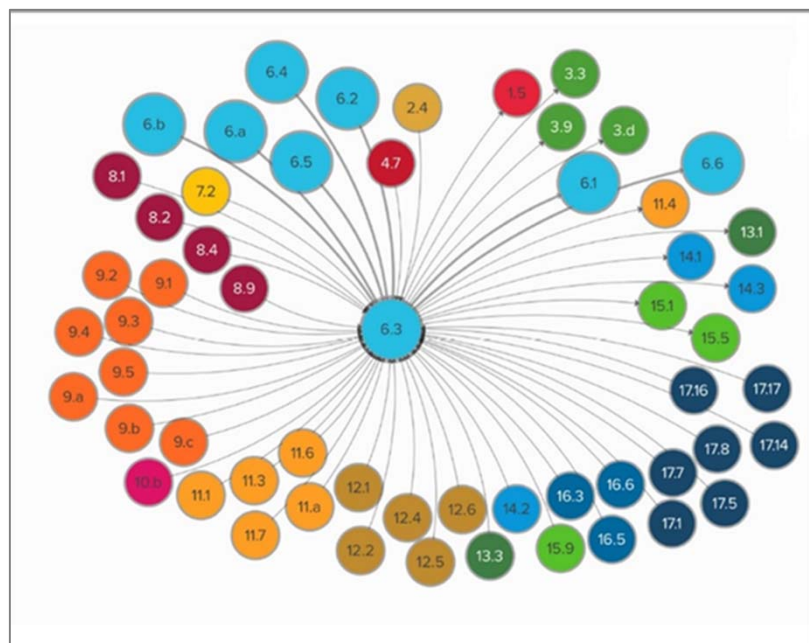
**A siloed approach cutting off the intrinsic interlinkages**



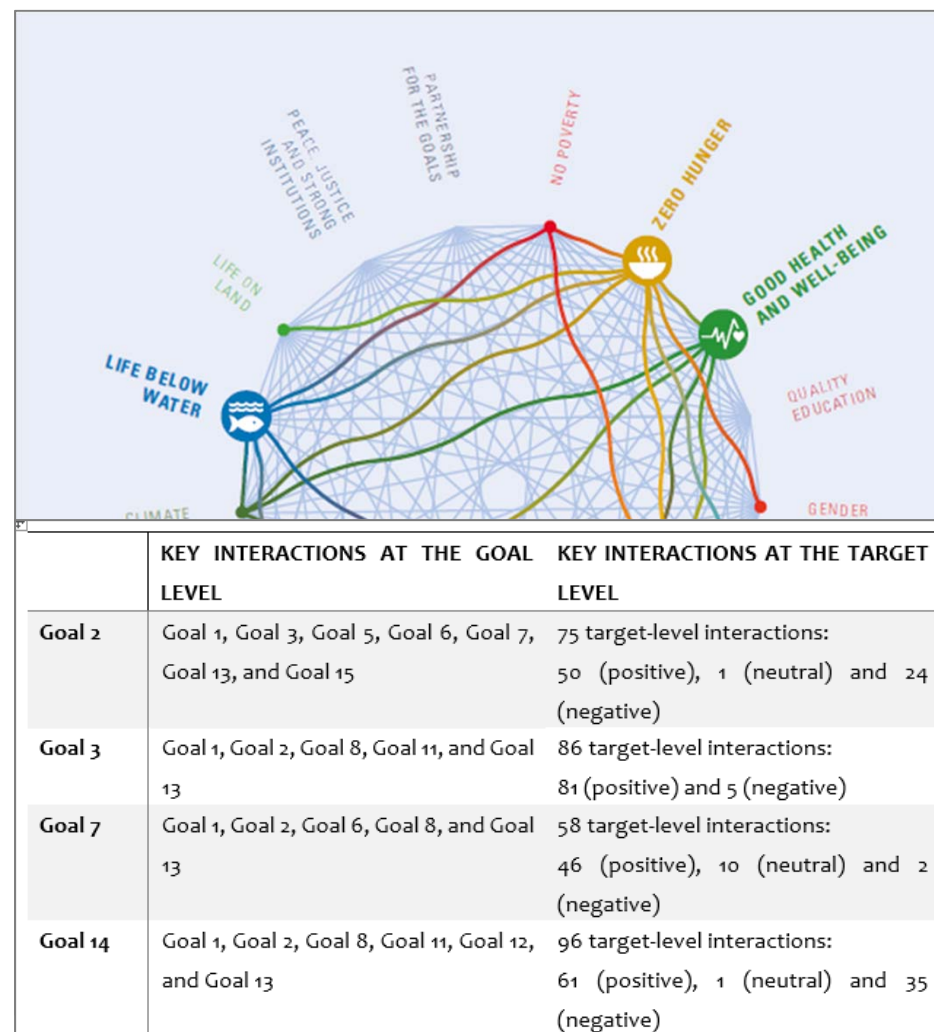
**An integrated approach through SDG interlinkages**

- *How will achieving one target impact on achieving others and how strong are the impacts?*
- *Where are the synergies or trade-offs between the SDG targets?*
- *How countries are different in terms of SDG interlinkages and what are the policy implications? Etc.*

## Some studies focused on understanding the interlinkages through consultation process



Interlinkages of water-related Target 6.3 as identified by the ESCAP study (ESCAP, 2017)



Key interactions at the goal and target level (ICSU, 2017)

# Some attempted to scale various types of SDG interactions

## GOALS SCORING

### INDIVISIBLE

The strongest form of positive interaction in which one objective is inextricably linked to the achievement of another. Reduction of air pollution (12.4) is indivisible from improved health and reducing non-communicable diseases (3.4).

+3

Outdoor and indoor air pollution is responsible for 7 million deaths annually, as well as respiratory and cardiovascular disease but also increases in perinatal deaths. In 2012, ambient (outdoor) air pollution was responsible for 3 million deaths, representing 5.4% of the total deaths. Worldwide, ambient air pollution is estimated to cause about 25% of the lung cancer deaths. Major urban centers in low and middle-income countries are the most exposed to this burden. (WHO, 2016).

### REINFORCING

One objective directly creates conditions that lead to the achievement of another objective. Increasing economic benefits from sustainable marine resources use (14.7) reinforces the creation of decent jobs and small enterprise in e.g. tourism (8.5 and 8.9)

+2

Sustainable and diversified strategies for using the marine resource base open up opportunities for small enterprises in fisheries or other harvesting and associated value-addition activities, as well as activities related to tourism. Many SIDS and LDCs that are rich in these resources also have poor, vulnerable and marginalized coastal communities.

### ENABLING

The pursuit of one objective enables the achievement of another objective. Developing infrastructure for transport (9.1) enables participation of women in the work force and in political life (5.5)

+1

Affordable public transport promotes social inclusion, more equal access to different parts of the city, and enabling employment for marginalized groups. In many places, women do not have access to a car and depend on public transport, walking or bicycling to get around, to work places and to social or political activities (NCE, 2016; GSDR, 2016)

### CONSISTENT

A neutral relationship where one objective does not significantly interact with another or where interactions are deemed to be neither positive nor negative. By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution (14.1) is consistent with target 3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.

0

There is no significant interaction between the two targets.

### CONSTRAINING

A mild form of negative interaction when the pursuit of one objective sets a condition or a constraint on the achievement of another. Conserving coastal areas (14.5) and development of safe affordable housing and basic services (11.1) may constrain each other

-1

Establishing protection areas in the coastal zone and expanding urbanization, infrastructure or transport risks spatial competition especially in densely populated areas. Integrated coastal zone management and marine spatial planning tools are readily available to mitigate spatial competition.

### COUNTERACTING

The pursuit of one objective counteracts another objective. Ensuring access to safe, nutritious and sufficient food can counteract sustainable water withdrawals (6.4) and reduction of chemicals releases (12.4)

-2

Increasing productivity in agriculture is a necessary (but not sufficient) condition to improve food security. In many places, this might entail increased and/or better irrigation as well as increased use of agro-chemical inputs.

### CANCELLING

The most negative interaction is where progress in one goal makes it impossible to reach another goal and possibly leads to a deteriorating state of the second. A choice has to be made between the two. Developing infrastructure (9.1) could be cancelling the reduction of degradation of natural habitats in terrestrial ecosystems (15.1)

-3

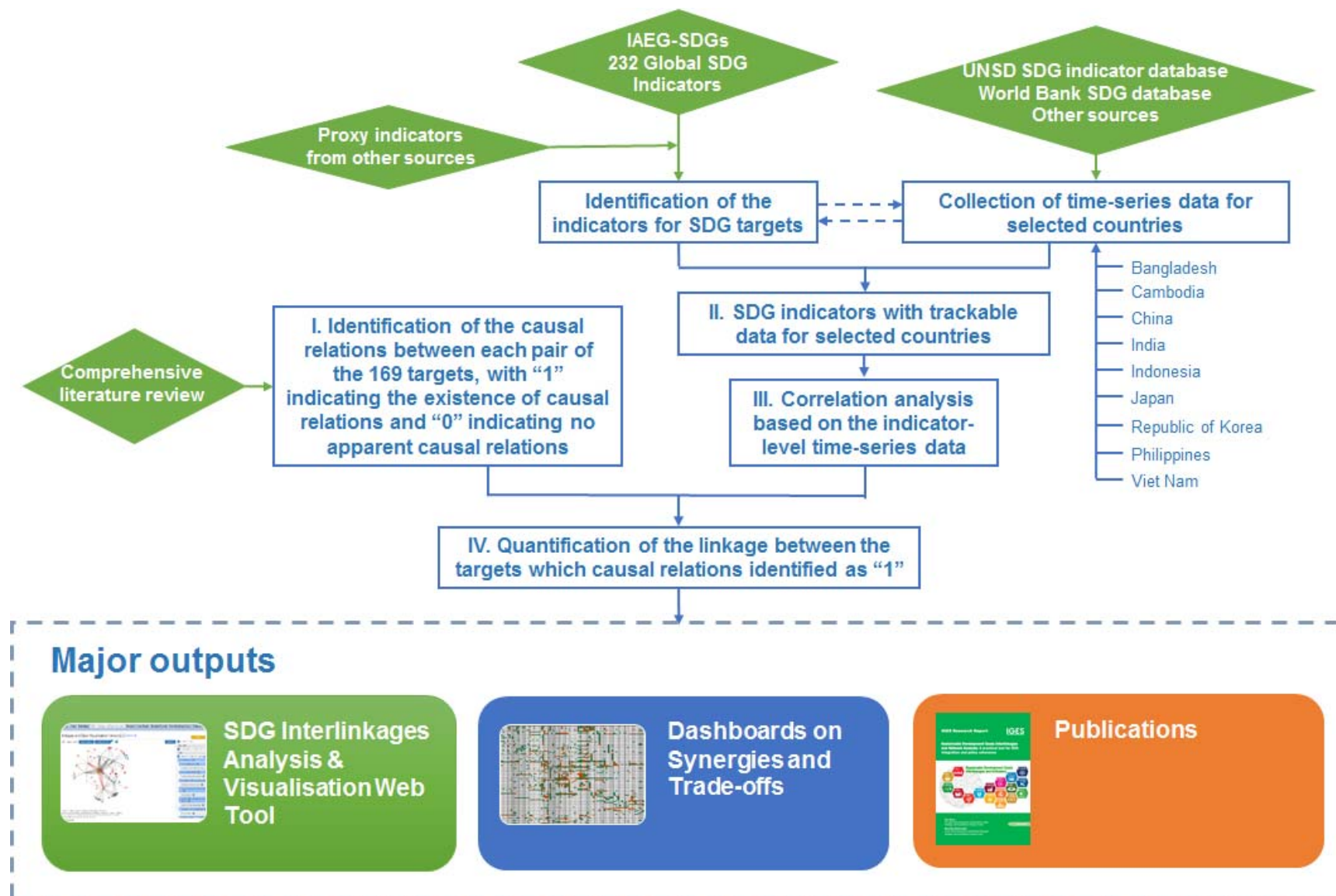
In underdeveloped regions, developing roads, dams, and power grids might be a high priority, although it will cause some unavoidable fragmentation of habitats and compromising the integrity of the natural ecosystem, leading to risks to biodiversity as well as social risks.

Source: Nilsson, et al., 2016

# ***Substantial gaps in existing knowledge***

- **Comprehensive study on the interlinkages** between SDG targets that covers all 169 targets is lacking. There are, however, some on-going efforts on this (e.g. ICSU's guide to SDG interactions (2017) covering SDGs 2, 3, 7 and 14).
- **Quantification of the SDG interlinkages** is limited in the existing literature though there are few works on categorizing different types of interactions with pre-determined weights (Nilsson, et al., 2016; ICSU, 2017, etc.)
- Most of the existing works are limited to the study on SDG interlinkages in general. **Identification and quantification of the SDG interlinkages** at the national and sub-national levels is still missing.
- The focus of most existing works is placed on the identification of the interlinkages. There is little literature which provides **comprehensive analysis on the structure of the network of SDG interlinkages**.

# *IGES initiated a pioneer project on SDG interlinkages and indicators (FY2015-2018)*



# Identification of SDG interlinkages based on literature review

Reference no.	Reference code	SDG coverage	Type of interlinkages/goal to goal (G-G), goal to target (G-T), target to goal (T-G) and target to target (T-T)	Source
1	IAEG-SDGs	All	T-T	IAEG-SDGs, 2015. List of Indicator Proposals (11 August 2015). Available at: <a href="https://unstats.un.org/sdgs/files/List%20of%20Indicator%20Proposals%201-8-2015.pdf">https://unstats.un.org/sdgs/files/List%20of%20Indicator%20Proposals%201-8-2015.pdf</a>
2	SDSN-1	All	T-T through shared indicators.	Leadership Council of the Sustainable Development Solutions Network (SDSN), 2015. Indicators and a Monitoring Framework for the Sustainable Development Goals: Launching a data revolution for the SDGs. A report to the Secretary-General of the United Nations. Available at: <a href="http://unsdsn.org/wp-content/uploads/2015/05/FINAL-SDSN-Indicator-Report-WEB.pdf">http://unsdsn.org/wp-content/uploads/2015/05/FINAL-SDSN-Indicator-Report-WEB.pdf</a>
3	SDSN-Shared indicators	All	T-T through shared indicators.	2015. Indicators for the SDGs: Identifying inter-linkages. SDSN Issue Brief. Available at: <a href="http://unsdsn.org/wp-content/uploads/2015/09/150816-Identifying-inter-linkages-SDSN-Briefing-for-IAEG.pdf">http://unsdsn.org/wp-content/uploads/2015/09/150816-Identifying-inter-linkages-SDSN-Briefing-for-IAEG.pdf</a>
4	ESCAP-SDG6	SDG6	T-T	United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), 2016. Analytical Framework for Integration of Water and Sanitation SDGs and Targets: Using Systems Thinking Approach, Annex I: Full Matrix of Analysis of Direct and Indirect Linkages Between the SDG 6 Targets and the Targets of the Other SDGs. UNESCAP Working Paper. Bangkok: UNESCAP. Available at: <a href="https://sustdev.unescap.org/Files/resource/300add205ca64d4ee4b1c4d1116855ce.pdf">https://sustdev.unescap.org/Files/resource/300add205ca64d4ee4b1c4d1116855ce.pdf</a>
5	WEF-Nexus	SDG2, SDG6 and SDG7.	T-T	Weitz, N., Nilsson, M., Davis, M., 2014. A Nexus Approach to the Post-2015 Agenda: Formulating Integrated Water, Energy and Food SDGs. Available at: <a href="https://www.oecd.org/pcd/Art%20Nexus%20SAIS%20weitz.pdf">https://www.oecd.org/pcd/Art%20Nexus%20SAIS%20weitz.pdf</a>
6	UNECOSOC	All	G-T (for all SDGs except SDG17), G-G (SDG17)	Author(s) and publication date unknown. A Nexus Approach for the SDGs: Interlinkages between the goals and targets. Retrieved from the

## Identification of SDG interlinkages based on literature review (2)

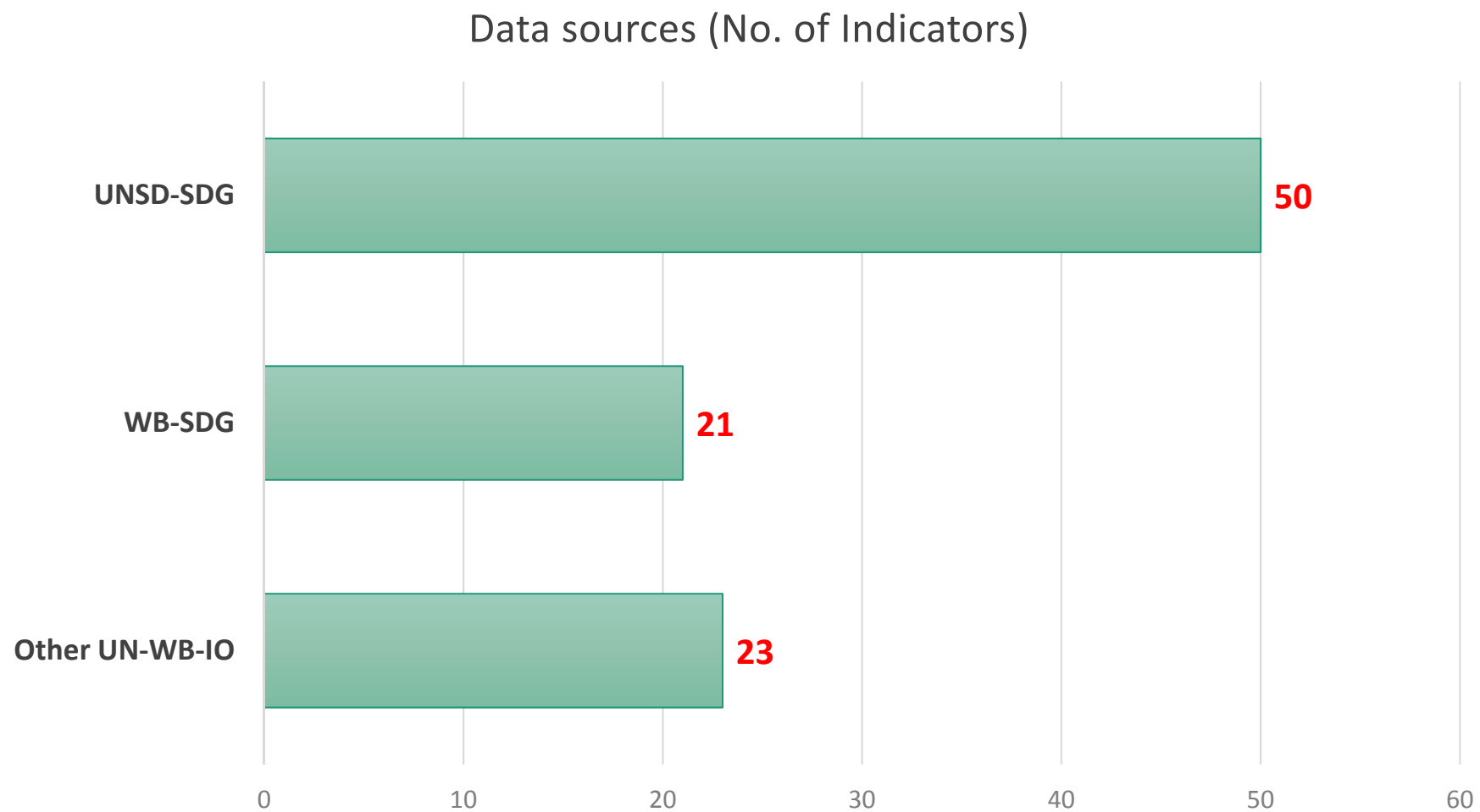
Reference no.	Reference code	SDG coverage	Type of interlinkages/goal to goal (G-G), goal to target (G-T), target to goal (T-G) and target to target (T-T)	Source
				website of the United Nations Economic and Social Council: <a href="https://www.un.org/ecosoc/sites/www.un.org.ecosoc/files/files/en/2016/doc/interlinkages-sdgs.pdf">https://www.un.org/ecosoc/sites/www.un.org.ecosoc/files/files/en/2016/doc/interlinkages-sdgs.pdf</a>
7	UNCTAD-Trade	Trade-related SDGs	T-T (trade-related targets link with each other)	United Nations Conference on Trade and Development (UNCTAD), 2016. Trading into Sustainable Development: Trade, Market Access, and the Sustainable Development Goals. Geneva: United Nations. Available at: <a href="http://unctad.org/en/PublicationsLibrary/ditctab2015d3_en.pdf">http://unctad.org/en/PublicationsLibrary/ditctab2015d3_en.pdf</a>
8	IOM-Migration	Migration-related SDGs	T-T (migration-related targets link with each other)	International Organization for Migration (IOM), publication date not known. 2030 Agenda for Sustainable Development. Available at: <a href="https://unofficeny.iom.int/2030-agenda-sustainable-development">https://unofficeny.iom.int/2030-agenda-sustainable-development</a>
9	Stakeholder Forum_1	All except for SDG17	G-G, T-G, T-T	Cutter, A., Osborn, D., Romano, J., Ullah, F., publication date unknown. Sustainable Development Goals and Integration: Achieving a better balance between the economic, social and environmental dimensions. Available at: <a href="http://www.stakeholderforum.org/fileadmin/files/Balancing%20the%20dimensions%20in%20the%20SDGs%20FINAL.pdf">http://www.stakeholderforum.org/fileadmin/files/Balancing%20the%20dimensions%20in%20the%20SDGs%20FINAL.pdf</a>
10	Stakeholder Forum_SDG12	SDG12	T-T	Coopman, A., Osborn, D., Ullah, F., Auckland, E., Long, G., publication date unknown. See the Whole: Implementing the SDGs in an integrated and coherent way. A Research Pilot by Stakeholder Forum, Biregional and Newcastle University. Available at: <a href="http://www.stakeholderforum.org/fileadmin/files/SeeingTheWhole.ResearchPilotReportOnSDGsImplementation.pdf">http://www.stakeholderforum.org/fileadmin/files/SeeingTheWhole.ResearchPilotReportOnSDGsImplementation.pdf</a>
11	ICSU-2017	SDGs 2, 3, 7, 14	G-G and T-T	ICSU, 2017. A guide to SDG interactions: From science To implementation. Available at: <a href="https://www.icsu.org/cms/2017/05/SDGs-Guide-to-Interactions.pdf">https://www.icsu.org/cms/2017/05/SDGs-Guide-to-Interactions.pdf</a> .

Source: Zhou and Moinuddin, 2017. IGES Research Report.

# *Identification of SDG indicators and data collection*

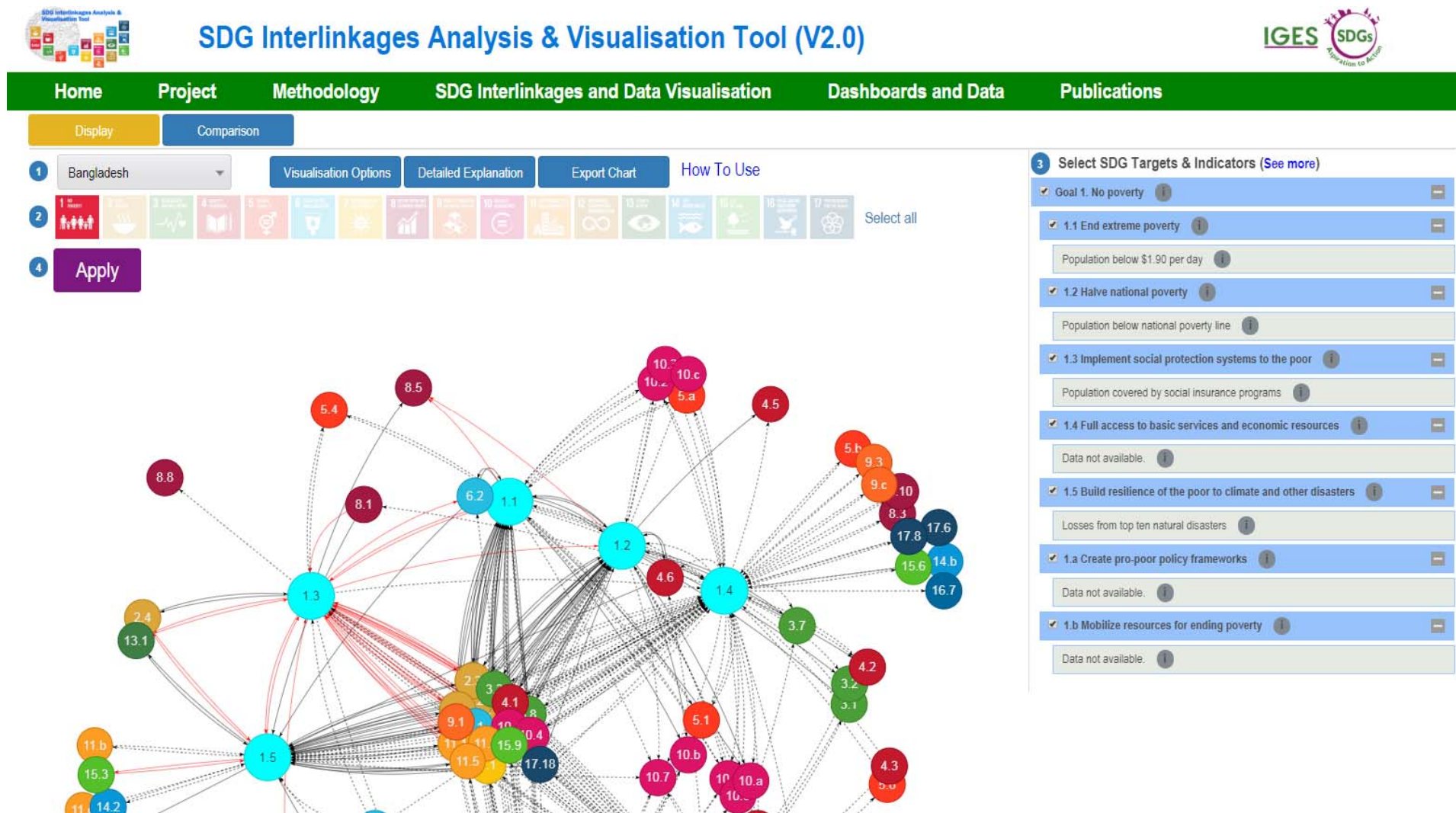
- 🌐 232 indicators of the Global Indicators Framework adopted by the UN General Assembly in July 2017 are used.
- 🌐 Identification of target-level indicators with trackable time-series data is based on the following steps
  - Check major data sources for data availability for the SDG/proxy indicators
    - UNSD SDG indicators database
    - World Bank SDG database
    - Other UN/World Bank databases
    - Other sources
  - Identification of the best representative indicator (only one) for each of the targets

# 94 SDG indicators and data sources



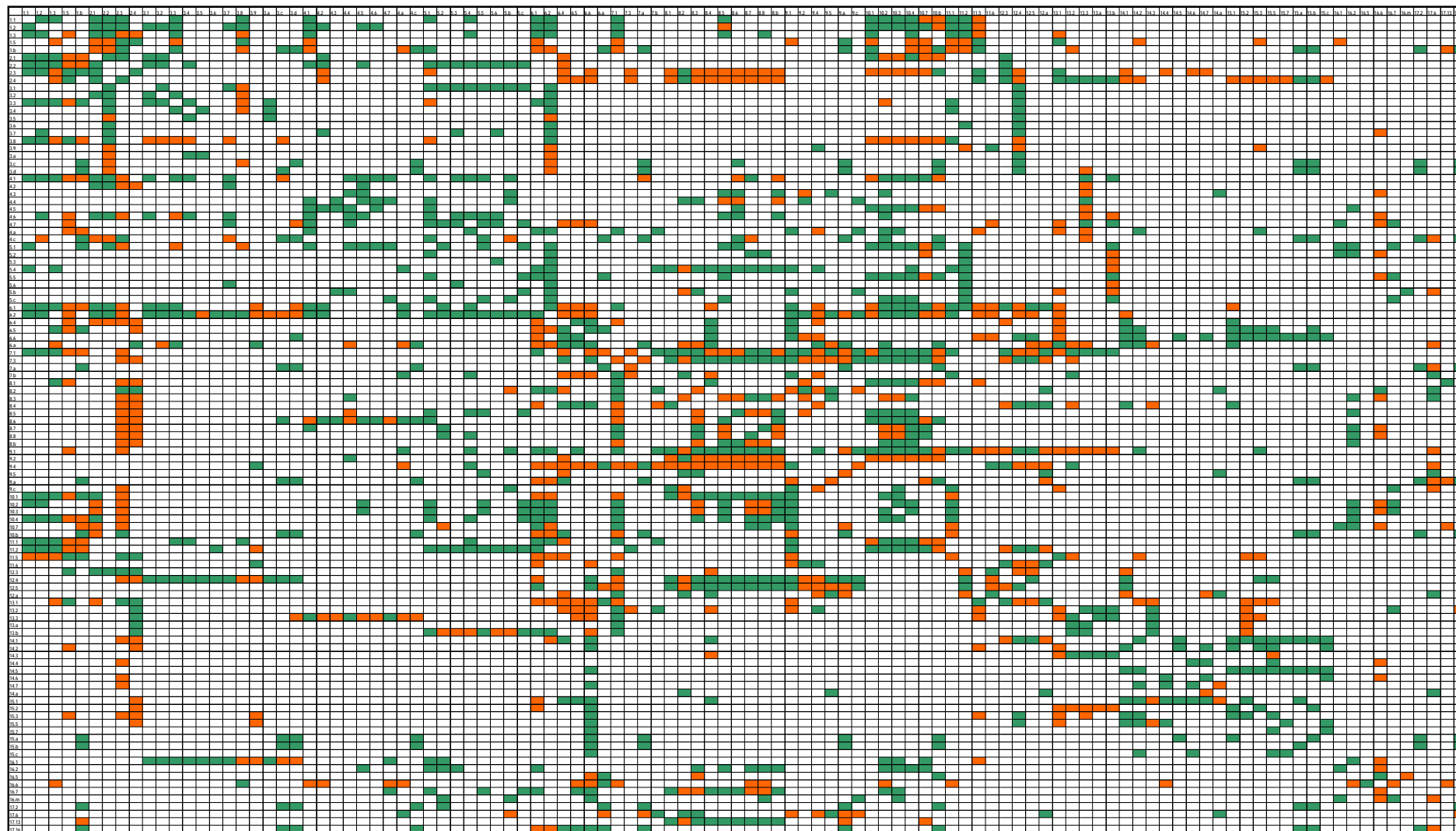
# IGES SDG Interlinkages Analysis & Visualisation Tool (V2.0)

(<https://sdginterlinkages.iges.jp/visualisationtool.html>)



Source: A snapshot taken from IGES SDG Interlinkages Analysis and Visualisation Web Tool.

## *The dashboards for Japan indicating potential reinforcing (green) and conflicting (red) interlinkages*



Source: Zhou & Moinuddin, 2017. IGES Research Report No. RR1602.

[https://sdginterlinkages.iges.jp/files/IGES\\_Research%20Report\\_SDG%20Interlinkages\\_Publication.pdf](https://sdginterlinkages.iges.jp/files/IGES_Research%20Report_SDG%20Interlinkages_Publication.pdf)

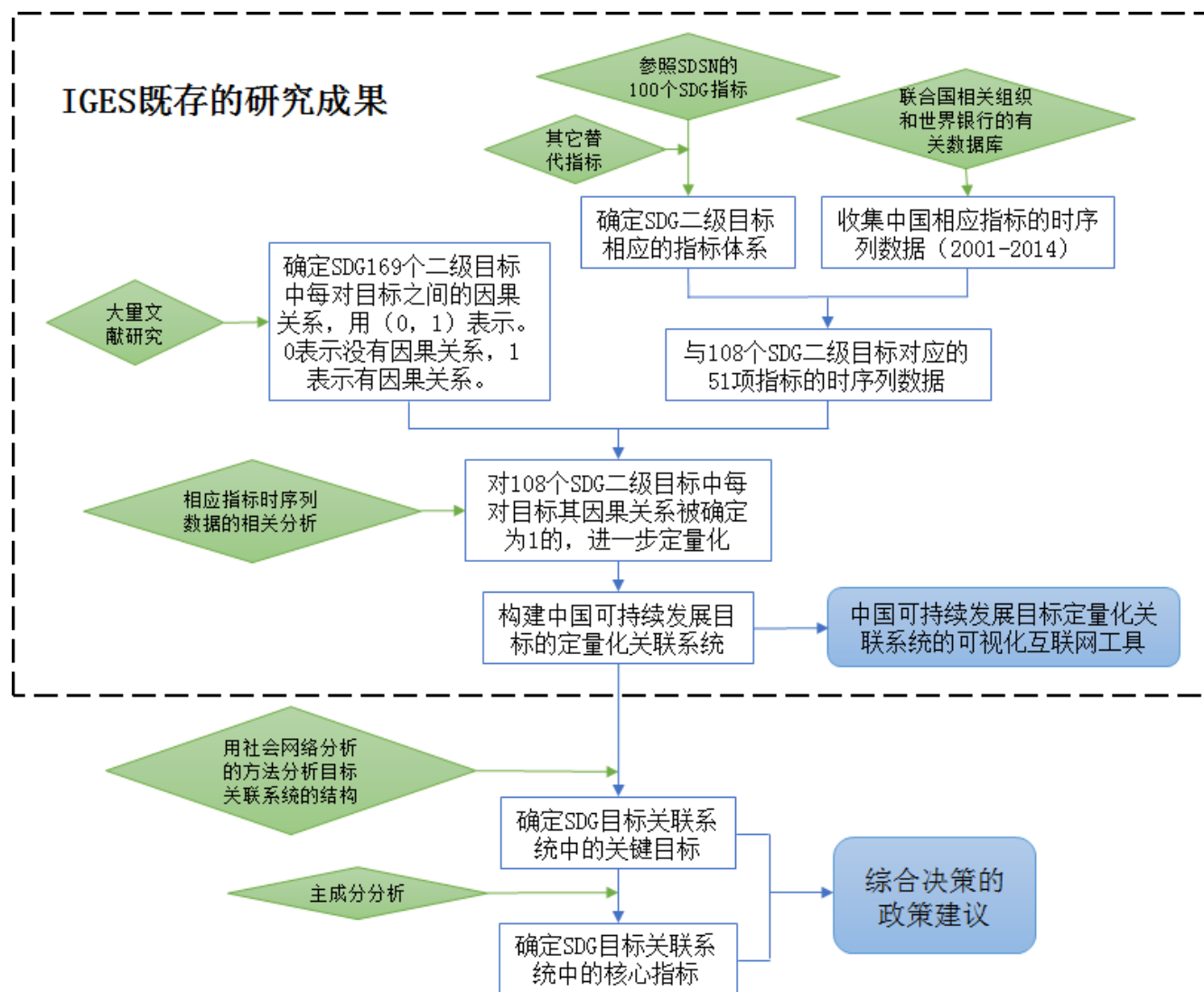
## Strategic targets identified by ranking various centrality metrics using SNA

Rank	In-degree	Out-degree	Degree	Closeness	Eigenvector	Betweenness
1	6.2	6.2	6.2	15.7	2.3	6.2
2	2.3	9.1	7.1	15.c	7.1	12.4
3	6.1	7.1	6.1	14.a	6.1	2.3
4	7.1	6.1	2.3	14.5	10.2	6.6
5	10.2	12.4	9.1	14.6	10.4	2.4
6	6.6	2.4	12.4	14.4	6.2	7.1
7	10.3	2.3	2.4	14.7	10.3	6.1
8	10.4	4.1	6.6	14.3	9.1	9.1
9	8.5	6.a	10.2	5.3	8.5	16.6
10	10.b	7.3	1.b	9.5	10.7	1.b
11	2.4	9.4	5.1	5.6	1.5	13.3
12	9.1	1.b	10.4	15.b	8.3	11.2
13	12.4	5.1	10.3	13.a	2.1	2.2
14	8.3	11.2	4.1	3.a	8.7	5.1
15	10.7	1.2	9.4	3.5	8.8	8.6
16	1.b	6.6	8.5	3.6	2.4	6.a
17	6.4	12.5	11.2	3.2	10.b	8.2
18	2.2	4.c	2.2	14.2	6.4	5.b
19	5.1	4.6	1.5	3.4	8.b	10.b
20	1.5	10.2	10.b	15.5	11.1	13.b


Source: Zhou & Moinuddin, 2017. IGES Research Report No. RR1602.

[https://sdginterlinkages.iges.jp/files/IGES\\_Research%20Report\\_SDG%20Interlinkages\\_Publication.pdf](https://sdginterlinkages.iges.jp/files/IGES_Research%20Report_SDG%20Interlinkages_Publication.pdf)

# Application: Determination of strategic targets and core indicators for SDG integration in China



# *A practical case study for Bangladesh on integrated priority setting for SDGs*

 **Objective and purpose:** To provide science-based evidence to the Bangladesh government supporting their integrated priority setting and institutional arrangements for SDGs planning and implementation

## **Approach**

- Review Bangladesh's policies related to MDG and national planning;
- Consult governmental agencies and other stakeholders involved in SDG planning (Governance Innovation Unit, Prime Minister's Office)
- Reconcile governmental plans with the findings of IGES SDG interlinkages analysis
- Provide scientific evidence for efficient priority setting and institutional arrangement based on strategic targets and synergies and trade-offs identified by SDG interlinkages analysis

# Priority / key Targets for Bangladesh

## Targets that are identified by both GIU-PMO and IGES

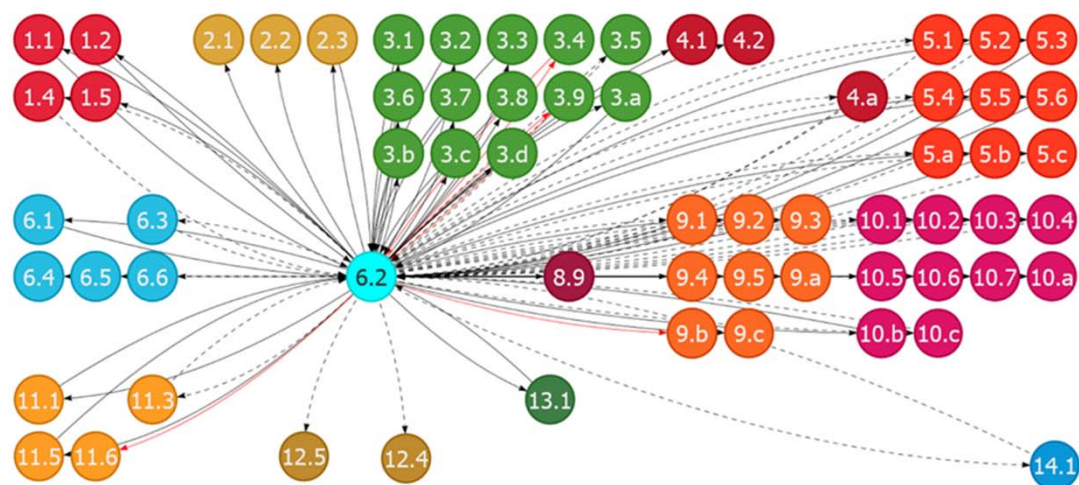
- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1.1 End extreme poverty</li> <li>1.2 Halve national poverty</li> <li>2.2 End malnutrition</li> <li>2.4 Build sustainable food production systems</li> <li>6.1 Universal access to safe drinking water</li> <li>6.2 Universal access to sanitation and hygiene</li> </ul> | <ul style="list-style-type: none"> <li>7.1 Universal access to energy</li> <li>7.2 Increase renewable energy</li> <li>8.1 Sustain inclusive economic growth</li> <li>8.5 Decent work for all</li> <li>13.1 Strengthen resilience to climate change</li> </ul> |
|---|---|

## GIU-PMO only

## IGES recommendations only

- |  |  |  |   |
|--|--|--|---|
| <ul style="list-style-type: none"> <li>3.2 End preventable young children deaths</li> <li>3.6 Halve traffic deaths</li> <li>4.4 Increase skilled workers for decent jobs</li> <li>4.a Improve education facilities</li> <li>5.3 Eliminate forced marriage</li> <li>5.5 Enhance women's participation in decision-making</li> <li>8.6 Improve youth employment</li> <li>9.1 Develop resilient infrastructure</li> <li>9.2 Promote inclusive and sustainable industrialization</li> <li>9.c Universal and affordable access to ICT</li> <li>10.1 Income growth of bottom 40% population</li> </ul> | <ul style="list-style-type: none"> <li>10.7 Improve equality of migrants</li> <li>11.2 Universal access to sustainable transport system</li> <li>12.5 Reduce waste generation</li> <li>14.5 Conserve 10 per cent of coastal areas</li> <li>15.1 Sustainable use of terrestrial and inland freshwater</li> <li>15.3 Combat desertification and soil degradation</li> <li>16.9 Provide legal identity to all</li> <li>16.a Capacity building for preventing violence and terrorism</li> <li>17.1 Capacity building for tax collection in developing countries</li> <li>17.8 Enhance ICT in LDCs</li> </ul> | <ul style="list-style-type: none"> <li>1.3 Implement social protection systems to the poor</li> <li>1.5 Build resilience of the poor to climate and other disasters</li> <li>2.1 End hunger</li> <li>2.3 Double agriculture productivity</li> <li>2.5 Maintain agricultural genetic diversity</li> <li>3.3 End epidemics of diseases</li> <li>3.8 Universal health coverage</li> <li>3.b Access to essential medicines</li> <li>5.1 End gender discrimination</li> <li>9.a Enhance international aid to build resilient infrastructure</li> <li>10.a Special trade treatment for LDCs</li> </ul> | <ul style="list-style-type: none"> <li>10.b Encourage ODA to LDCs</li> <li>11.1 Universal access to urban housing and basic services</li> <li>12.2 Sustainable resource use</li> <li>17.9 International support for sustainable development</li> <li>17.18 Capacity building for developing countries in</li> </ul> |
|--|--|--|---|

## *Institutional arrangements through SDG interlinkages for Bangladesh: An example of Goal 6*



### Key target analysed under this Goal

 Target 6.2 Universal access to sanitation and hygiene

# Interlinkages analysis of Target 6.2 on sanitation and hygiene for Bangladesh

## Synergistic with Target 6.2

1.1	1.2	2.1	2.2	2.3
3.1	3.2	3.6	3.7	3.8
3.a	3.b	3.c	4.1	5.3
5.6	6.1	9.2	9.4	9.c
10.a	10.b	11.1	1.5	3.3
4.2	5.5	5.b	9.a	11.5
13.1				

## Conflicting with Target 6.2

3.9	9.b	11.6	3.4	5.1
6.4				

## Linked with Target 6.2 but the nature of the link unavailable (data missing)

1.4	3.5	3.d	4.a	5.2
5.4	5.a	5.c	6.3	6.5
6.6	8.9	9.1	9.3	9.5
10.1	10.2	10.3	10.4	10.5
10.6	10.7	10.c	11.3	12.4
12.5	14.1			

## Legend

Strong +ve	Weak +ve	Strong -ve	Weak -ve	n.a.
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## Statistical information on the linkages

- Target 6.2 is mostly linked with social goals, with some environmental goals and a few economic ones.
- It has a number of reinforcing links (31/64 targets) and a few conflicting ones (6/64 targets).
- The nature of the links for the remaining 22 targets is unknown due to data unavailability, the nature (synergistic or conflicting) could not be identified.



## Observations on the nature of the interlinkages of Target 6.2 and its impact on other Goals/Targets

- Sanitation and hygiene has strong influence on the Targets under Goal 3 on Good health and well-being
- Improved sanitation and hygiene policies also reinforce poverty reduction and fight against hunger in Bangladesh.
- The gender dimension of sanitation and hygiene is clear from the critical connection between the Target 6.2 with Goal 5 on gender equality.
- Sanitation and hygiene is strongly linked with social inclusiveness

# Potentially reinforcing and conflicting interlinkages of the key targets for Bangladesh with other targets

Key targets	Interlinked targets																						
1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.5	3.3	3.8	4.1	5.1	5.4	5.a	6.1	6.2	7.1	8.5	10.1	10.2	10.3	10.4	10.5	10.6
	10.7	10.a	10.b	10.c	11.1	11.2	11.5	15.9															
1.2	1.1	2.1	2.2	2.3	2.5	3.1	3.2	3.3	3.7	3.8	4.1	4.2	4.5	4.6	6.1	6.2	7.1	8.5	10.1	10.2	10.3	10.4	10.5
	10.6	10.7	10.a	10.b	10.c	11.1	11.2	11.5	15.9														
1.3	1.1	1.2	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.3	3.8	4.1	5.4	6.1	6.2	7.1	8.5	8.8	10.1	10.4	11.1	11.2	11.5
	12.c	13.1	15.9																				
1.5	1.3	2.1	2.2	2.3	2.4	2.5	3.3	3.8	4.1	6.1	7.1	9.1	9.a	10.1	10.4	10.7	11.1	11.2	11.5	11.b	11.c	13.1	14.2
	15.3	15.9	16.1																				
2.1	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.2	2.3	3.1	3.2	3.3	4.2	5.1	5.2	5.3	5.4	5.5	5.6	5.a	5.b	5.c	6.4
	7.1	7.2	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.a	10.b	10.c	12.3										
2.2	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.1	3.1	3.2	3.3	3.4	4.1	4.2	4.5	5.1	5.2	5.3	5.4	5.5	5.6	5.a	5.b
	5.c	6.4	7.1	7.2	12.3																		
2.3	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.1	2.4	2.5	2.a	3.1	3.2	3.3	3.4	3.9	4.2	5.1	5.5	5.a	6.1	6.2	6.3
	6.4	6.6	7.1	7.2	7.3	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	8.10	8.a	8.b	9.3	10.1	10.2	10.3	10.4	10.5
	10.6	10.7	10.a	10.b	10.c	11.5	12.3	12.4	13.1	14.1	14.4	14.6	14.7	15.1	15.2	15.3	15.5						
2.4	1.3	1.5	2.1	2.3	2.a	3.3	4.2	6.3	6.4	6.5	6.6	7.1	7.2	7.3	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9
	8.10	8.a	8.b	11.5	12.2	12.3	12.4	13.1	13.2	13.3	13.a	13.b	14.1	14.2	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9
	15.a	15.b	15.c																				
2.5	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.3	2.a	3.b	4.2	6.4	9.5	9.a	12.3	12.a	13.1	15.3	15.5	15.6	17.6	17.7	17.8
	17.9																						
3.3	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.2	2.3	3.1	3.2	3.4	3.8	3.a	5.1	6.1	6.2	6.3	8.1	8.5	8.6	10.2	11.1
	12.4																						
3.8	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.a	3.b	3.c	5.1	6.2	6.3	8.1	8.5
	8.6	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.a	10.b	10.c	11.1	12.4										
3.b	2.2	2.5	2.b	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.a	3.c	3.d	6.2	6.3	8.a	9.5	9.a	10.a	12.4	12.a
	14.6	15.c	17.6	17.7	17.8	17.9	17.10	17.11	17.12														
4.1	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.1	2.2	2.3	3.1	3.3	3.4	3.7	3.c	4.4	4.5	4.6	4.7	5.1	5.3	5.4	5.5
	5.b	7.a	8.6	8.7	8.b	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.a	10.b	10.c	12.8	13.3	13.b	16.a				
5.1	1.1	1.4	1.b	2.1	2.2	2.3	3.3	3.8	4.1	4.4	4.5	4.6	4.7	4.b	5.2	5.5	5.a	5.c	6.2	8.5	8.6	10.1	10.2
	10.3	10.4	10.5	10.6	10.7	10.a	10.b	10.c	11.2	11.7	13.b	16.1	16.2	16.7	16.b								
6.1	1.1	1.2	1.3	1.4	1.5	1.a	1.b	2.1	2.2	2.3	3.1	3.2	3.3	3.9	3.d	4.1	4.2	4.a	5.2	5.4	6.2	6.3	6.4
	6.5	6.6	7.1	7.2	7.3	8.4	9.1	9.4	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.a	10.b	10.c	11.1	11.2	11.3	11.4	11.5
	11.6	11.7	11.a	11.b	11.c	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.a	12.b	12.c	13.1	15.1					
6.2	1.1	1.2	1.4	1.5	2.1	2.2	2.3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.a	3.b	3.c	3.d	4.1	4.2	4.a
	5.1	5.2	5.3	5.4	5.5	5.6	5.a	5.b	5.c	6.1	6.3	6.4	6.5	6.6	8.9	9.1	9.2	9.3	9.4	9.5	9.a	9.b	9.c

Legend:

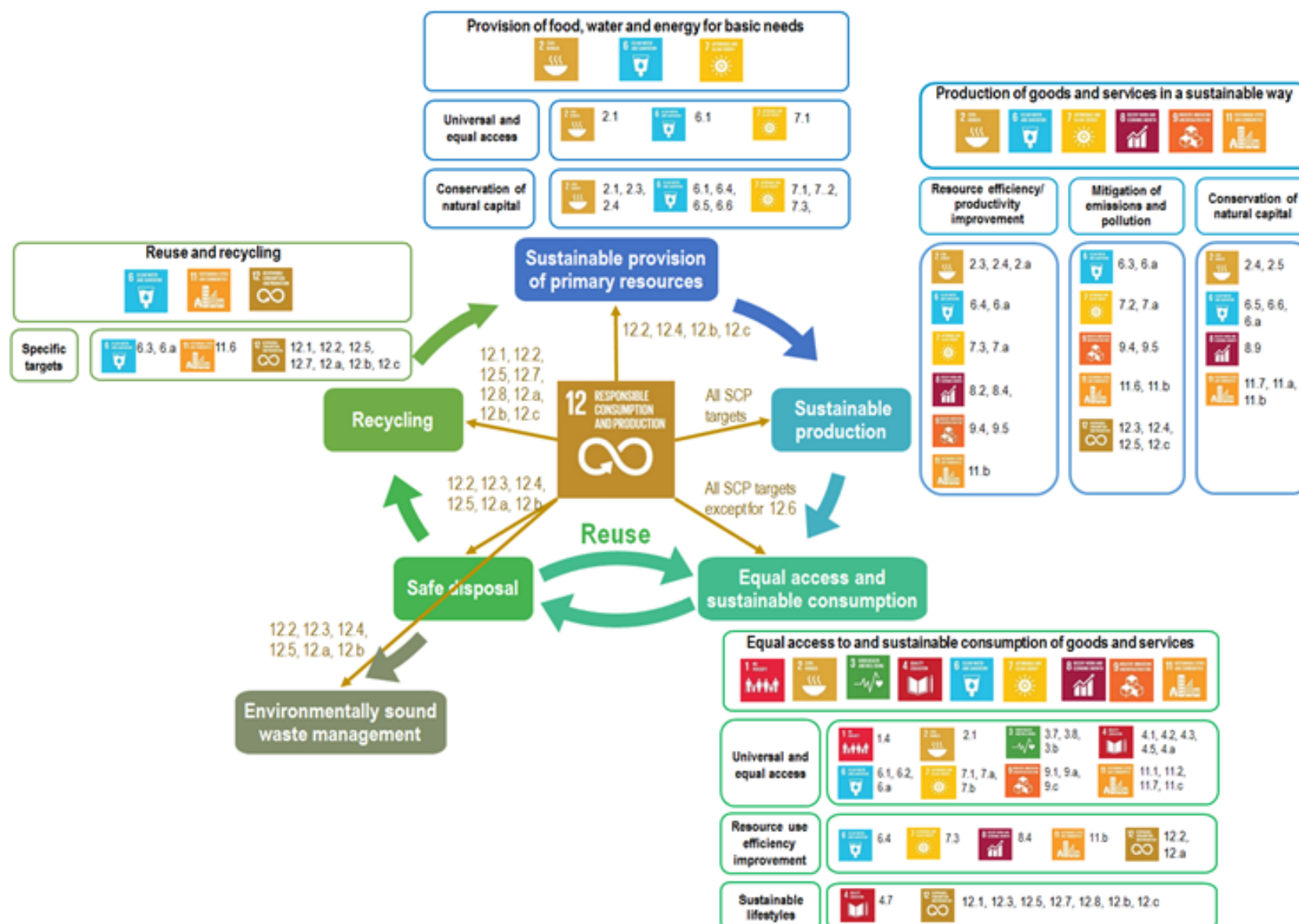
Strong +ve	Weak +ve	Strong -ve	Weak -ve	n.a
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# Recommendations for institutional arrangements for Target 6.2 in Bangladesh

- Appropriate institutional arrangements needed for effective implementation
- Governmental mapping of relevant ministries/divisions (target level)
- Inst. arrangement could be further enhanced based on SDG interlinkages analysis results

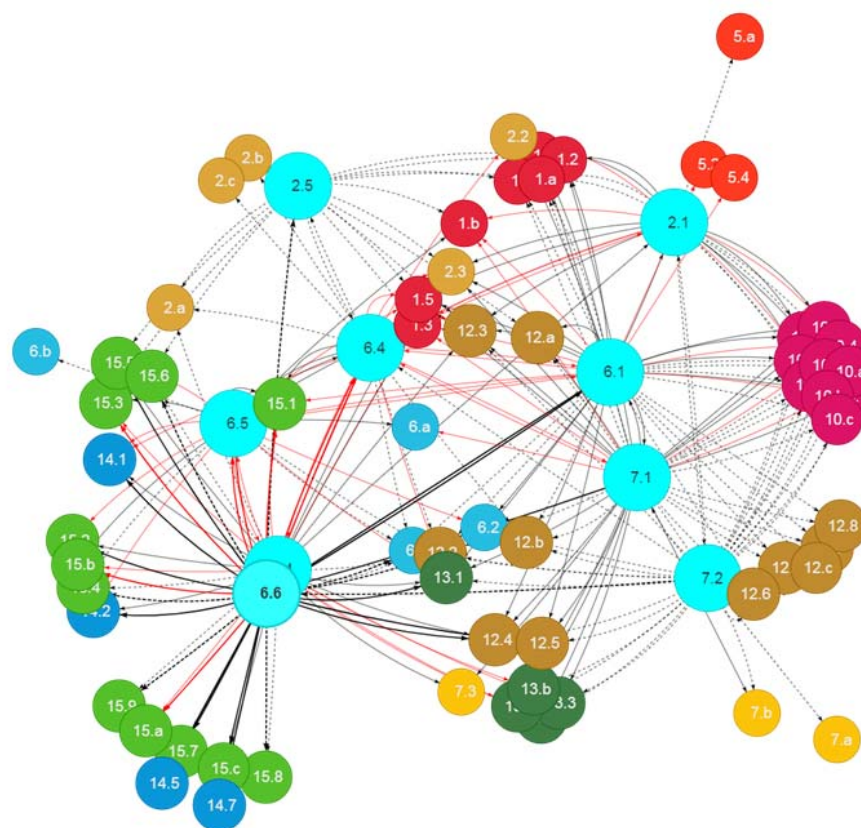
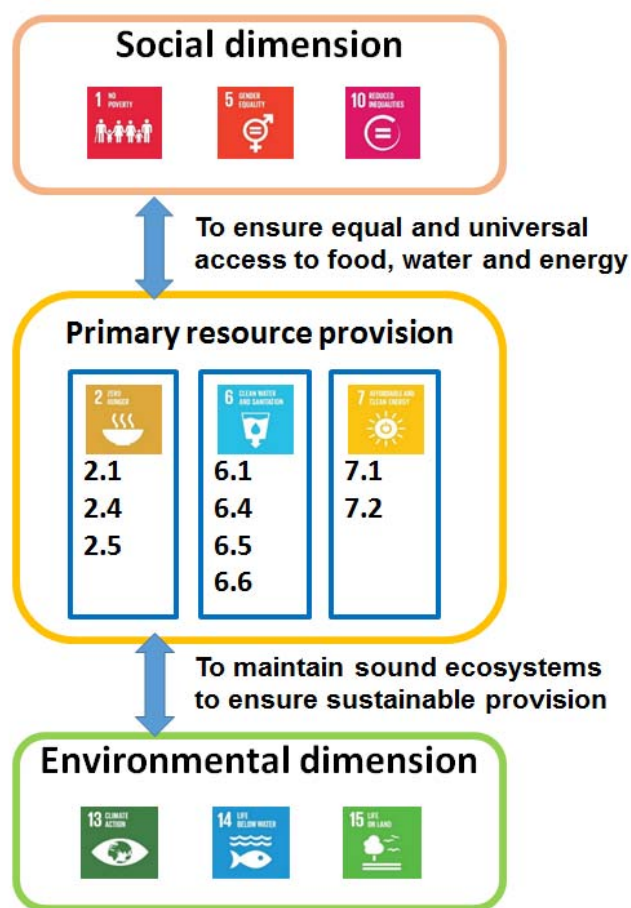
Lead/Co-Lead	Associates	
Lead: LGD	<b><i>Ministries and divisions that are identified by both GED and IGES</i></b>	
	MoE; MoEF; MoF; MoHFW; MoPME; MoWCA; SID	
	<b><i>Additional provided by GED</i></b>	<b><i>Additional recommended by IGES</i></b>
	MoInf; PMO	<u>Strong links</u> CD; ERD; GED; ICTD; MoA; MoC; MoFL; MoInd; MoLE; MoST; MoTJ; PTD; RTHD  <u>Weak links</u> FD; LJD; MoCA; MoCAT; MoDMR; MoEWOE; MoFA; MoHA; MoHPW; MoSW; MoWR; RDCD

## A systems approach for achieving sustainable consumption and production based on resource life cycle and SDG interlinkages



## Resource life cycle and SDG interlinkages for SCP: An example of primary resource provision

**Resource life cycle:** Primary resource provision, production, consumption, safe disposal and environmentally sound waste management, and 3Rs



# Using IGES SDG interlinkages tool to diagnose the existing synergies and trade-offs: A case for Bangladesh

## Main messages:

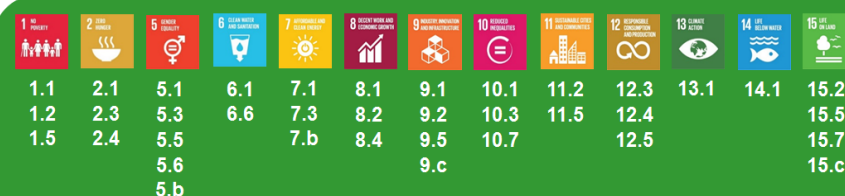
- Existing production and consumption are not sustainable by deteriorating some areas and conflicting with many others.
- Removing the existing conflicts requires transformational changes towards decoupling and social inclusiveness.
- IGES SDG Interlinkages Tool supports integrated policymaking through diagnosing existing interlinkages, identifying key synergies and trade-offs and providing practical solutions.
- For Bangladesh, key issues and policy recommendations include: (i) need for mainstreaming SCP into national plans and related sectoral strategies; and (ii) need urgently to address common trade-offs and the deteriorated target areas.



**Deteriorated Targets (6.4, 6.5, 6.a, 7.a, 9.4, 9.a and 11.6) and major adverse impacts**



**Common key trade-offs of SCP-related Targets**



**Common key synergies of SCP-related Targets**

# Potential applications of the SDG interlinkages tool for SDG integration at different stages of the policy cycle

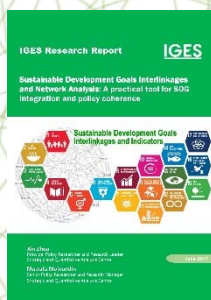


# *Linking big data and SDG interlinkages*

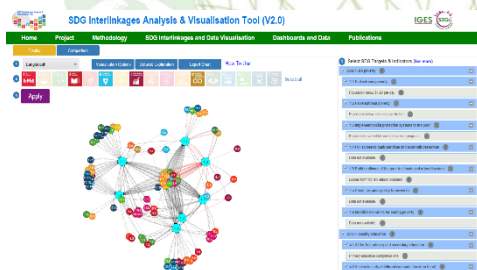
- Identification of SDG interlinkages: Internet-based text mining and data mining
- Improve indicators and data: Earth big data for monitoring environmental-related indicators

# Thank you!

Contact: [zhou@iges.or.jp](mailto:zhou@iges.or.jp)



Zhou, X., Moinuddin, M., 2017. Sustainable Development Goals Interlinkages and Network Analysis: A practical tool for SDG integration and policy coherence. IGES Research Report. Hayama: IGES. Available at: [https://sdginterlinkages.iges.jp/files/IGES\\_Research%20Report\\_SDG%20Interlinkages\\_Publication.pdf](https://sdginterlinkages.iges.jp/files/IGES_Research%20Report_SDG%20Interlinkages_Publication.pdf).



Zhou, X., Moinuddin, M., Li, Y., 2017. SDG Interlinkages and Data Visualisation Web Tool. Hayama: IGES. Available at: <https://sdginterlinkages.iges.jp/visualisationtool.html>.