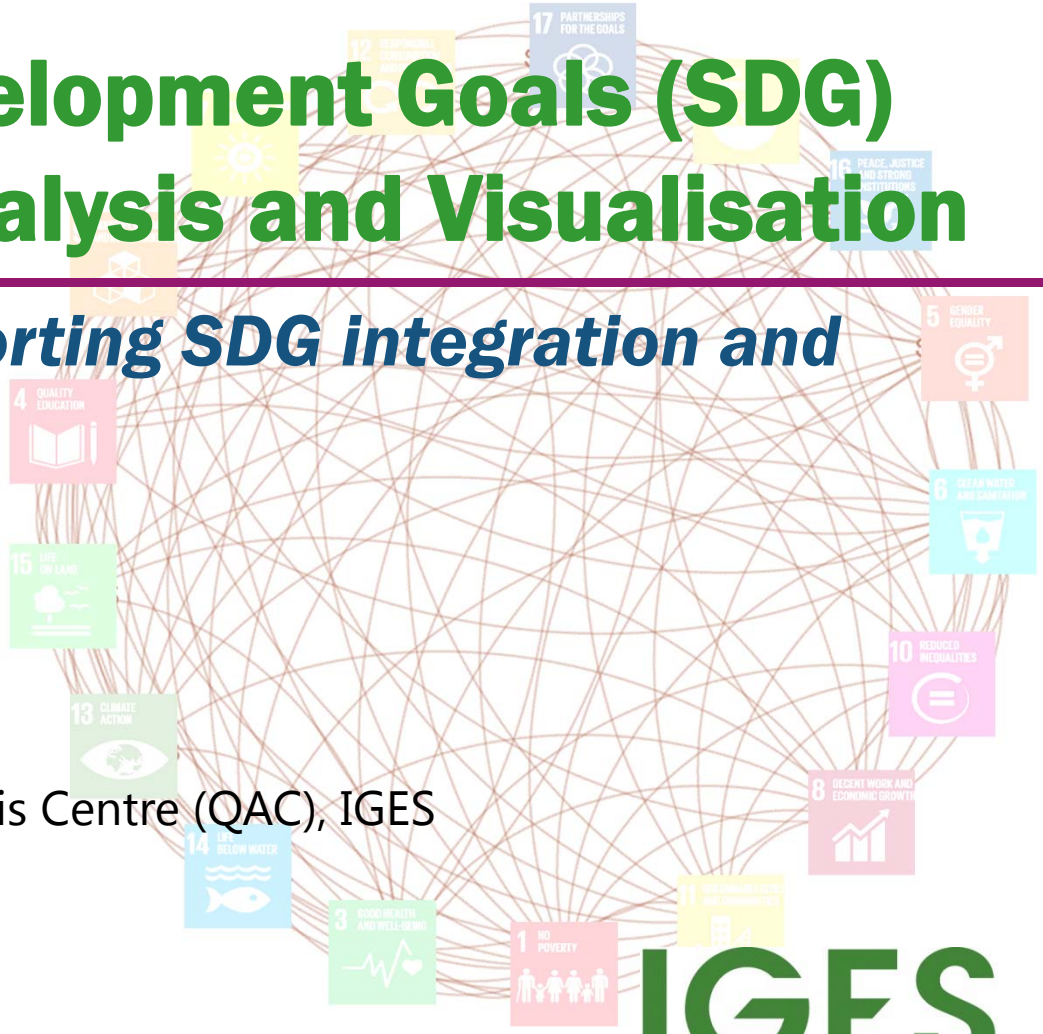
Sustainable Development Goals (SDG) Interlinkages Analysis and Visualisation

A practical tool supporting SDG integration and policy coherence



Dr. Xin Zhou
Research Leader
Strategic and Quantitative Analysis Centre (QAC), IGES

Expert Group Meeting on Science, Technology and Innovation Roadmaps for SDGs, 8-9 May 2018, Tokyo, Japan

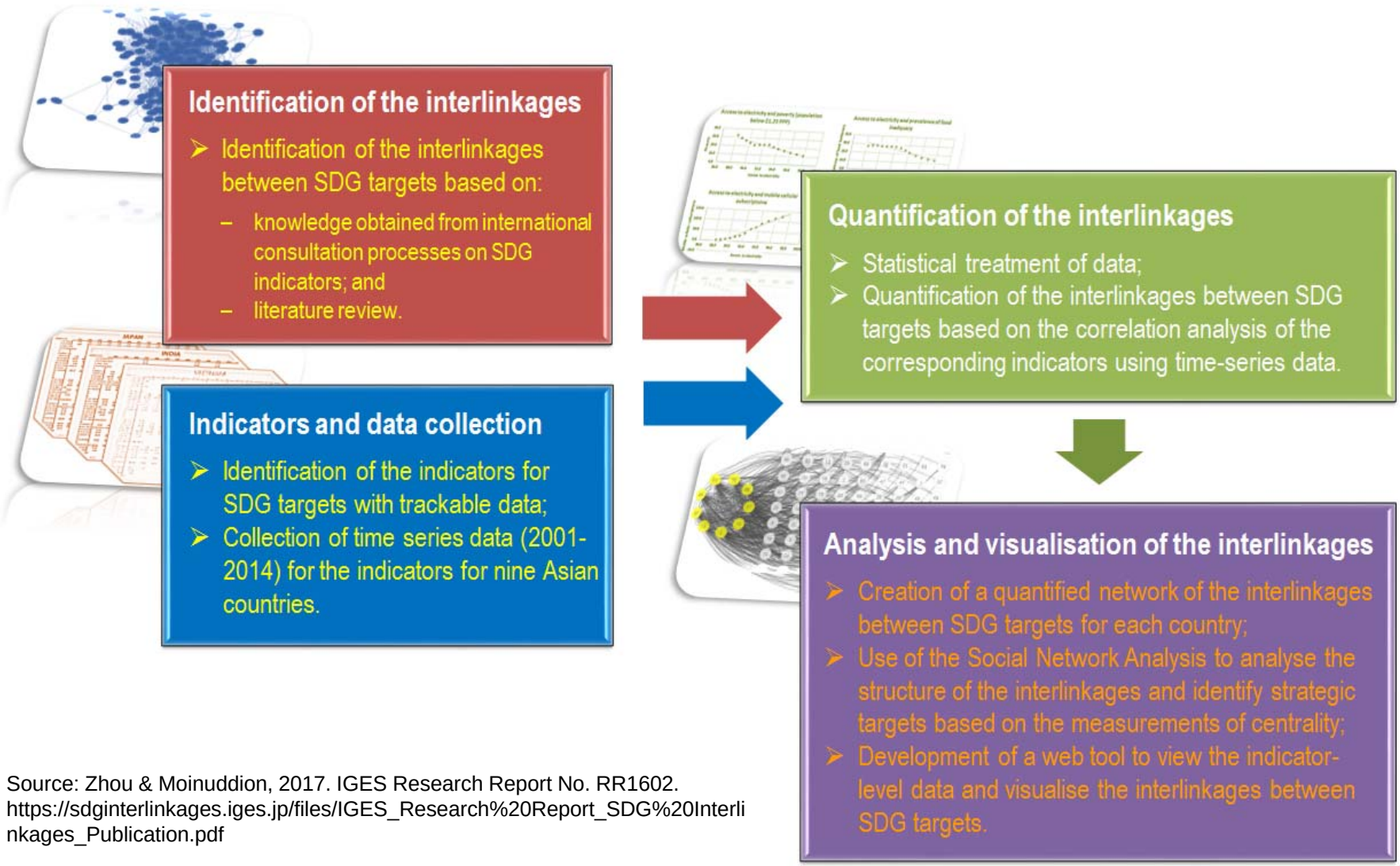
IGES
Institute for Global Environmental Strategies

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

Importance of understanding SDG interlinkages for breaking the silos and for SDG integration

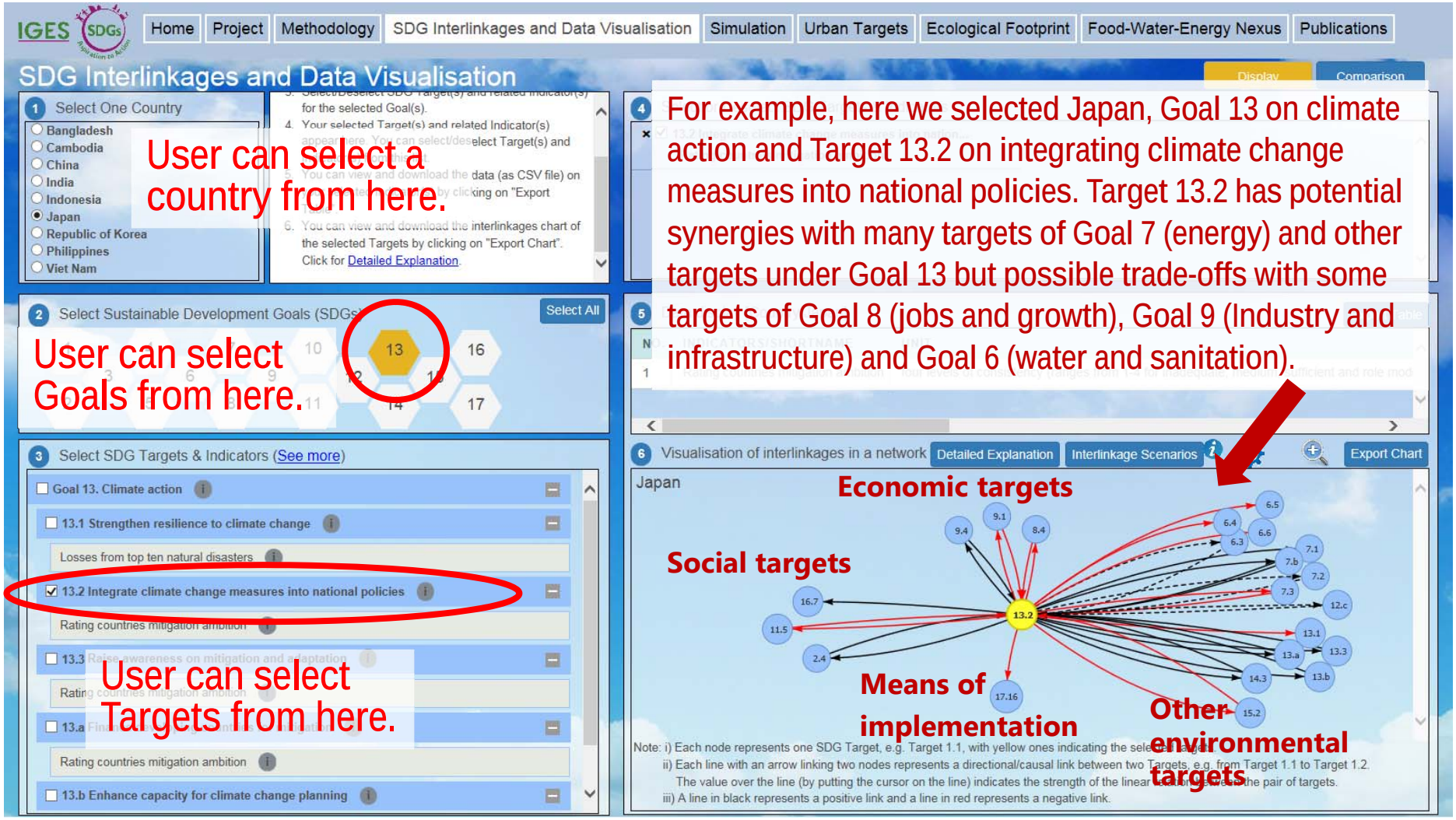
- The nature of indivisibility of SDGs requires a systems approach based on SDG interlinkages from both theoretical and practical perspectives.
- SDG integration has been highly recognised through out the negotiation process of SDGs formation as well as in the planning and reporting processes (VNRs).
- Understanding the interlinkages within and between SDGs is important for SDG integration to address critical issues such as:
  - *How will achieving one target impact on achieving other targets?*
  - *How strong are the impacts?*
  - *Which targets play strategic roles in the network of interlinkages?*
  - *Where are the areas of SDG synergies or trade-offs?*
  - *How countries are different in terms of SDG interlinkages, etc.*

IGES SRF Project: SDG Interlinkages Analysis and Visualization Tool (Version 1)



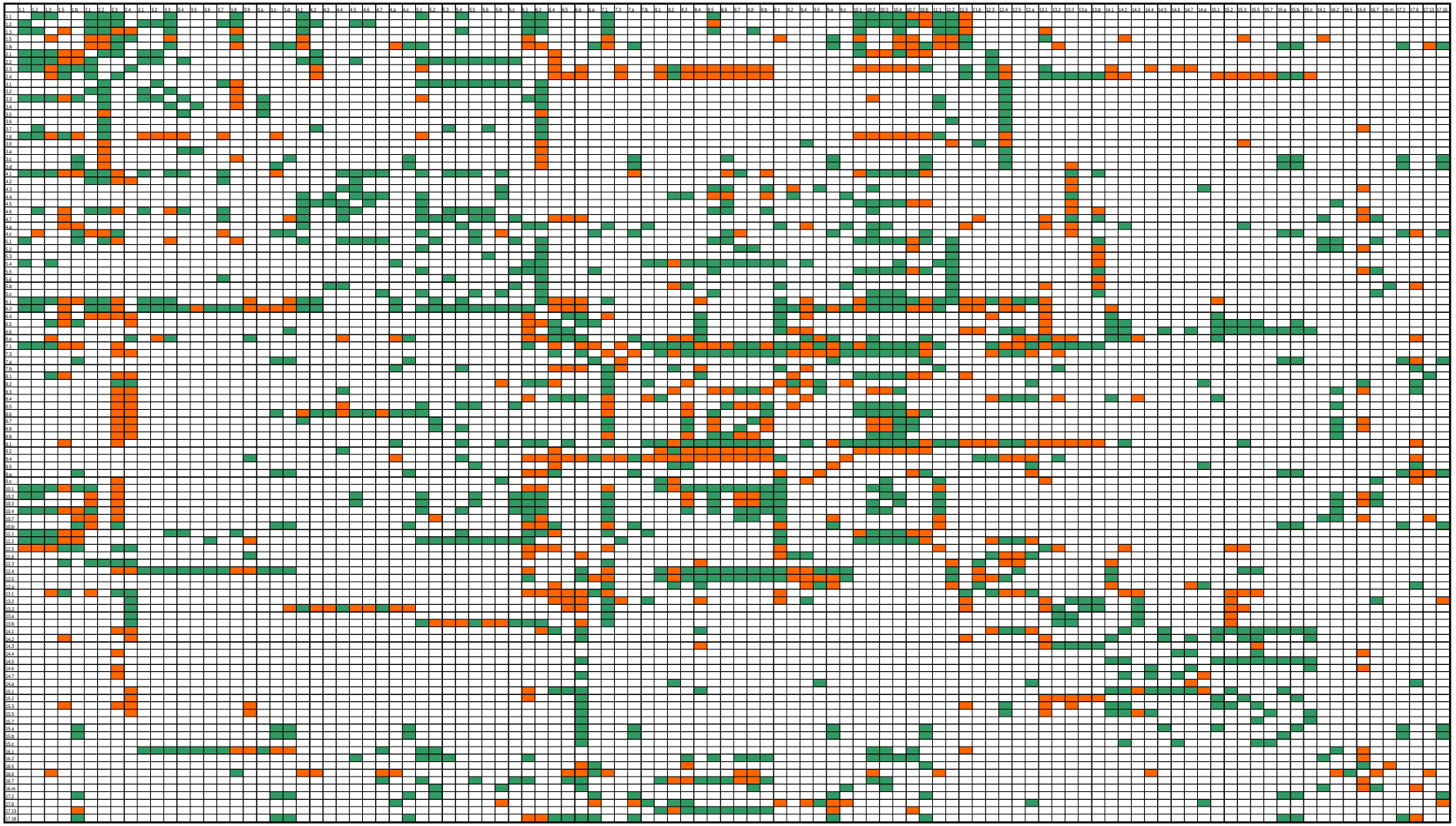
Source: Zhou & Moinuddion, 2017. IGES Research Report No. RR1602. https://sdginterlinkages.iges.jp/files/IGES_Research%20Report_SDG%20Interlinkages_Publication.pdf

IGES SDG Interlinkages and Data Visualisation Web Tool (free online at https://sdginterlinkages.iges.jp/)



Source: A snapshot taken from IGES SDG Interlinkages and Data Visualisation Web Tool for Japan.

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



Source: Zhou & Moinuddion, 2017. IGES Research Report No. RR1602.
https://sdginterlinkages.iges.jp/files/IGES_Research%20Report_SDG%20Interlinkages_Publication.pdf

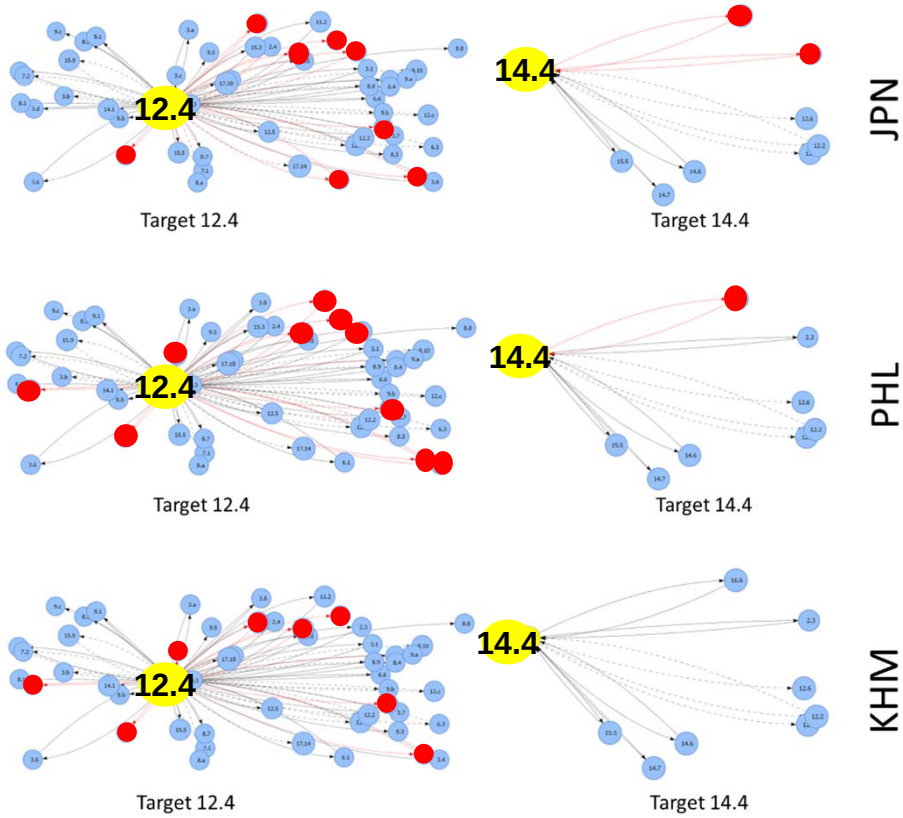
By ranking various centrality metrics strategic targets are identified

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 & Moinuddion, 2017. IGES Research Report No. RR1602.
https://sdginterlinkages.iges.jp/files/IGES_Research%20Report_SDG%20Interlinkages_Publication.pdf

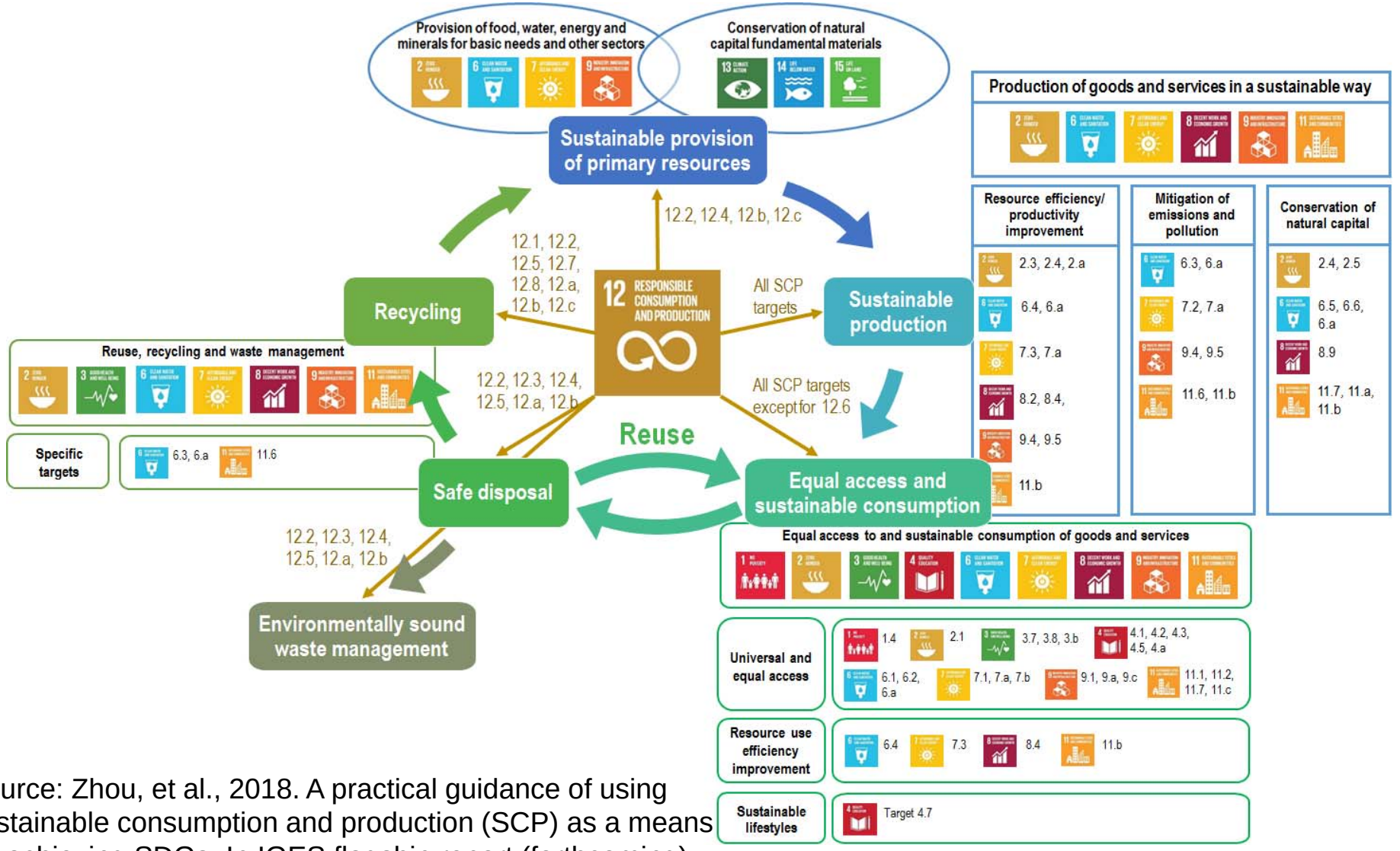
Country specific leverage points identified which help priority setting and efficient resource allocation

- In the network of SDG interlinkages, different targets have varying degrees of **leverage—the extent to which they influence other targets**
- For example, **Target 12.4** (Chemicals and wastes management) is connected with more targets than **Target 14.4** (End overfishing), suggesting it will influence more SDGs.
- Preliminary results indicate that Targets **9.1** on resilient infrastructure, **6.6** on protecting water ecosystems, **15.a** on financial resources for sustainable ecosystems in **JPN**, Targets **2.3** on doubling agriculture productivity, **7.1** on energy accessibility, **12.4** on chemicals and wastes management in **PHL**, and Targets **10.2** on social, economic and political inclusion, **10.3** on discrimination, and **12.4** on chemicals and wastes management in **KHM** are strategic targets.
- Setting strategic targets as priorities helps maximize synergies, minimize trade-offs and in particular optimize limited resources in developing countries.



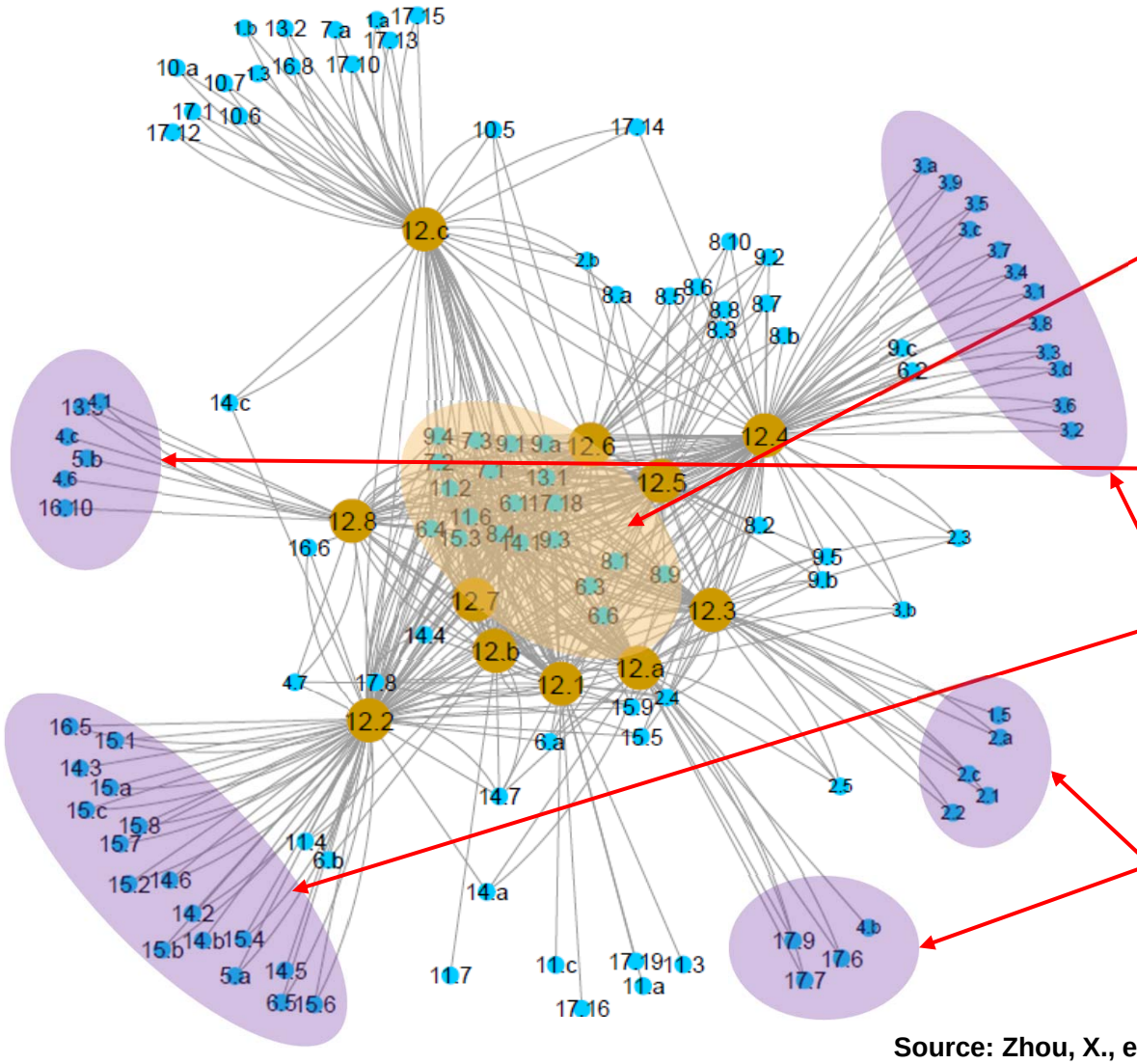
Source: Snapshots taken from IGES SDG Interlinkages and Data Visualisation Web Tool (https://sdginterlinkages.iges.jp/).

A systems approach for achieving SCP based on life-cycle thinking and interactions with other targets



Source: Zhou, et al., 2018. A practical guidance of using sustainable consumption and production (SCP) as a means for achieving SDGs. In IGES flagship report (forthcoming).

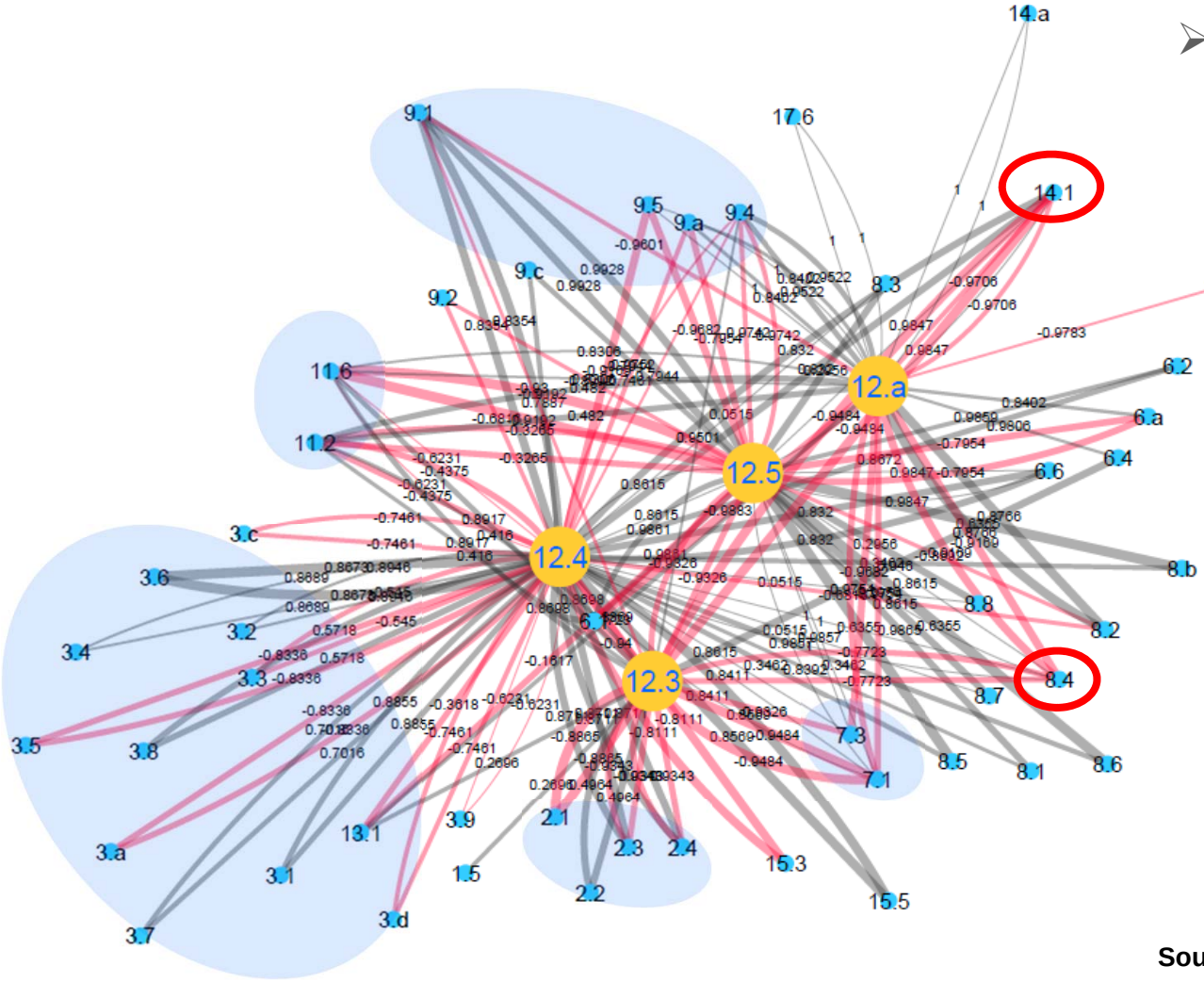
Visualisation of SCP interlinkages with other SDG targets in a network of connections



- Many SCP targets connect with some common targets (e.g. 9.1 Sustainable infrastructure; 7.1 Universal access to energy; 6.4 Water use efficiency; 11.2 Universal access to transport system; 13.1 Resilience to climate change; and 17.18 Data availability in developing countries, etc.)
- Individual SCP targets connect with specific targets (12.8 Sustainable lifestyles connects with some education targets; 12.2 Sustainable resource use connects with many targets on marine and terrestrial environment; 12.4 Chemical and waste management connects with many health and welfare targets; and 12.a R&D for SCP links with some global partnership targets; 12.3 Halve food waste links with ending hanger and sustainable agriculture targets, etc.

Source: Zhou, X., et al. 2018. IGES flagship report chapter (forthcoming).

Features of the quantified SCP interlinkages with other SDG targets: An example in Indonesia



- **Major existing conflicts**
  - Goal 2 Zero hanger
  - Goal 3 Health and well-being
  - Goal 7 Affordable and clean energy
  - Goal 9 Industrial, innovation and infrastructure
  - Goal 11 Sustainable cities
  - 8.4 Improve resource efficiency
  - 14.1 Reduce marine pollution

Source: Zhou, X., et al. 2017. JSPS proposal.

Using the SDG interlinkages tool for SDG integration at different stages of the policy cycle

Planning: Priority setting based on strategic SDG targets in the network of interlinkages; checklists for conducting SEA/SA of national development plans and sectoral programmes based on the synergies and trade-offs.

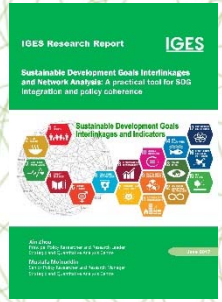
Institutional arrangement: Review of the existing national institutional arrangement; propose effective institutional arrangement based on SDG interlinkages.

Financial arrangement: Efficient allocation based on the synergies by avoiding overlapped investment; effective allocation to address the trade-offs.

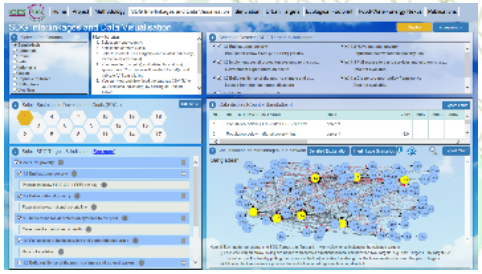
Monitoring and reporting: Help check the quality of indicators; development of headline indicators; monitoring level of SDG integration.

Thank you!

Contact: 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.



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

IGES
Institute for Global Environmental Strategies