Sustainable Development Goals (SDG) Interlinkages Analysis and Visualisation

A practical tool supporting SDG integration and policy coherence
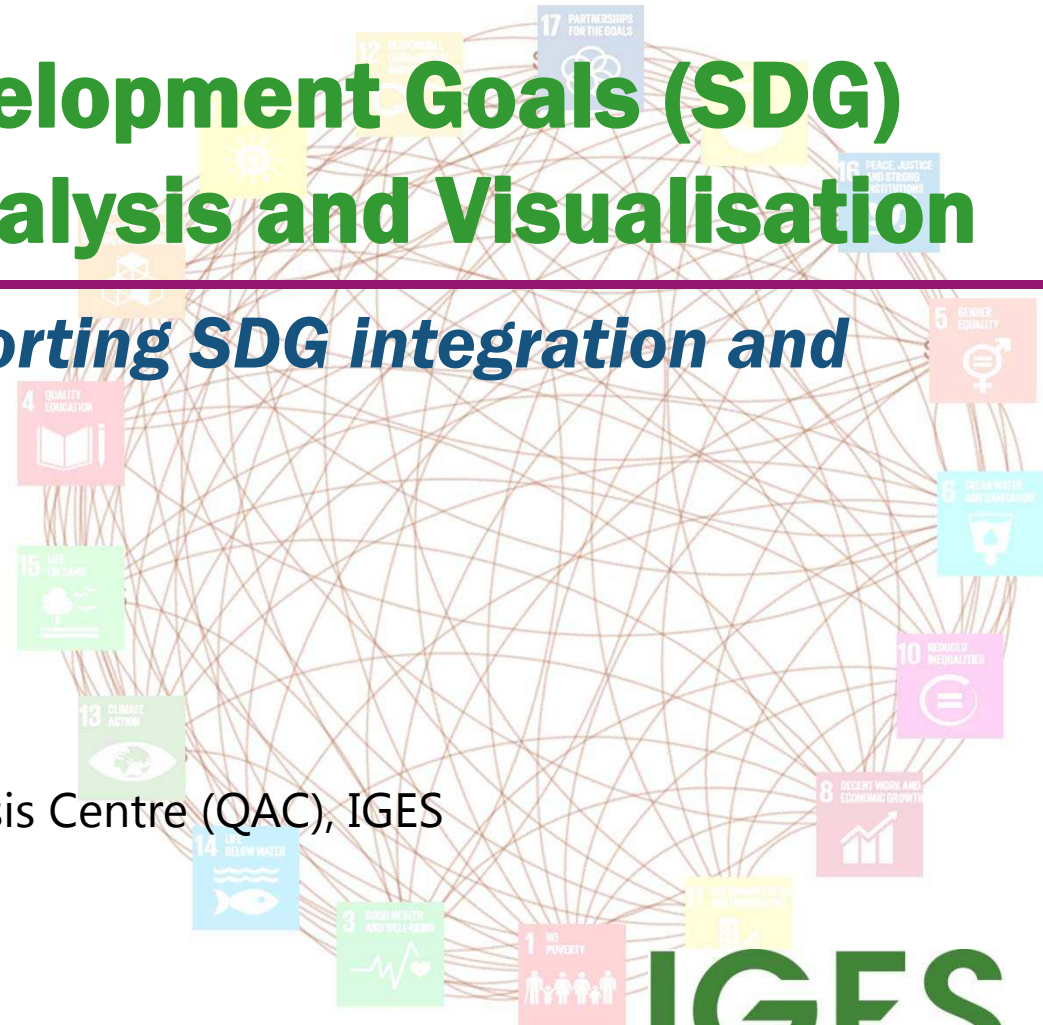
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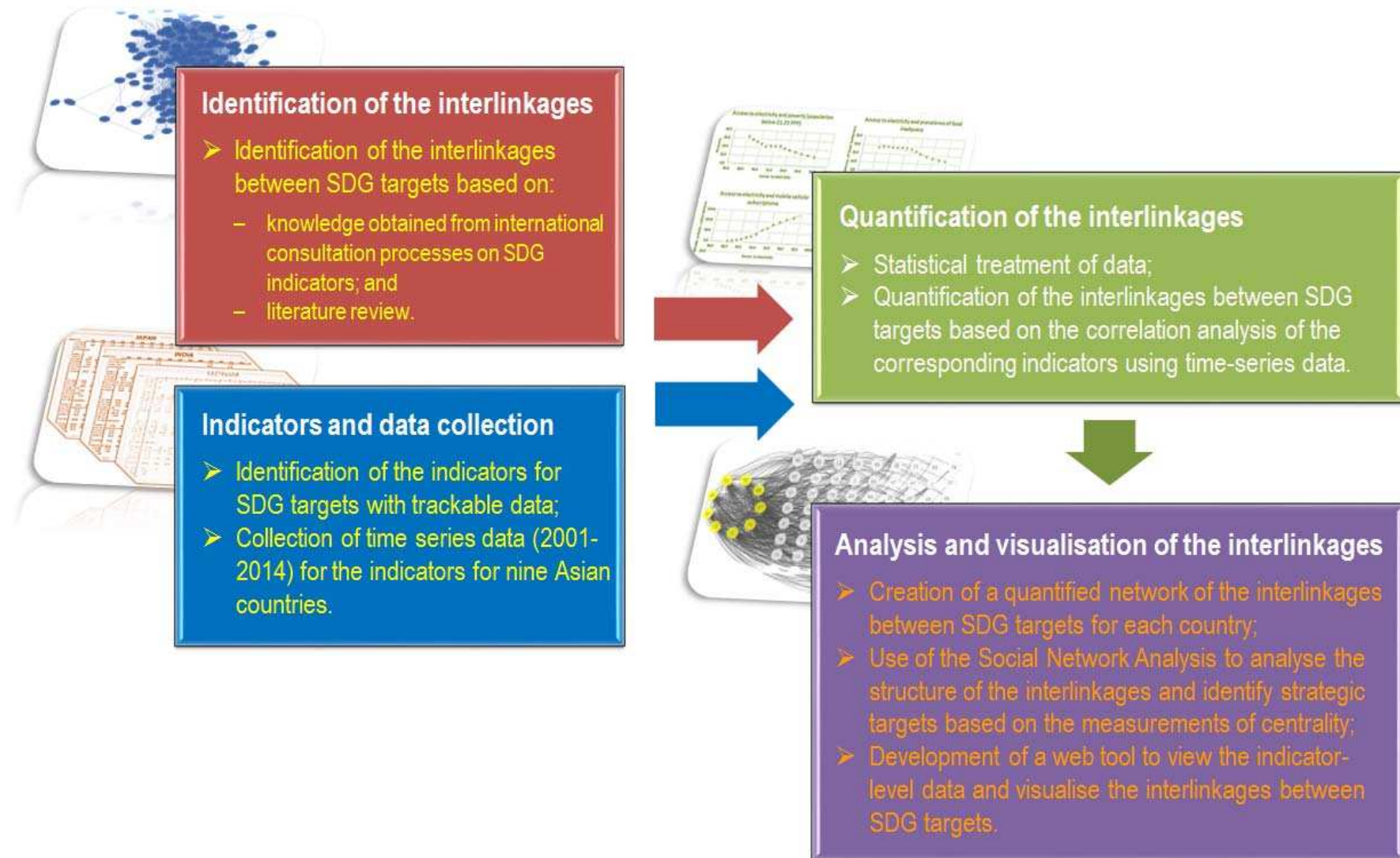
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Importance of SDG interlinkages analysis and existing knowledge gaps for SDG integration

➤ 17 SDGs and 169 targets inherently connect with each other forming an indivisible network for delivering sustainability from a systemic perspective.

➤ SDG integration has been highly recognised through out the negotiation process of SDGs formation as well as in the planning and reporting processes.

➤ 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?*
  - *Where are the areas of SDG synergies or trade-offs?*
  - *How countries are different in terms of SDG interlinkages, etc.*

IGES' innovative and practical tool on SDG interlinkages analysis and visualisation

Identification of the interlinkages

➤ Identification of the interlinkages between SDG targets based on:
  – knowledge obtained from international consultation processes on SDG indicators; and
  – literature review.

Indicators and data collection

➤ Identification of the indicators for SDG targets with trackable data;
➤ Collection of time series data (2001-2014) for the indicators for nine Asian countries.

Quantification of the interlinkages

➤ Statistical treatment of data;
➤ Quantification of the interlinkages between SDG targets based on the correlation analysis of the corresponding indicators using time-series data.

Analysis and visualisation of the interlinkages

➤ Creation of a quantified network of the interlinkages between SDG targets for each country;
➤ Use of the Social Network Analysis to analyse the structure of the interlinkages and identify strategic targets based on the measurements of centrality;
➤ Development of a web tool to view the indicator-level data and visualise the interlinkages between SDG targets.

IGES SDG Interlinkages and Data Visualisation Web Tool Version 1.0 (free access at https://sdginterlinkages.iges.jp/)

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

Country-specific dashboards indicating potential reinforcing (green) and conflicting (red) linkages
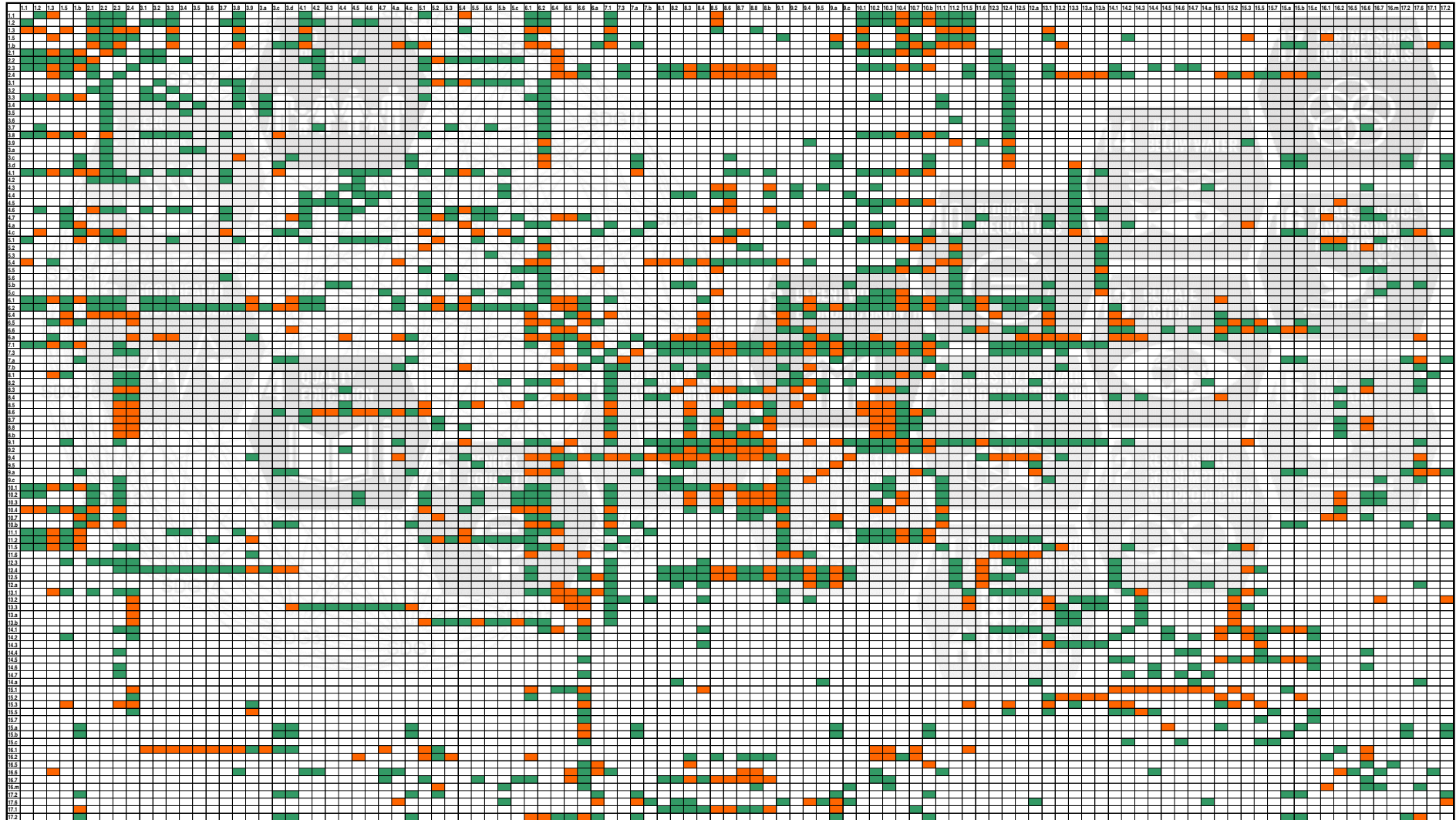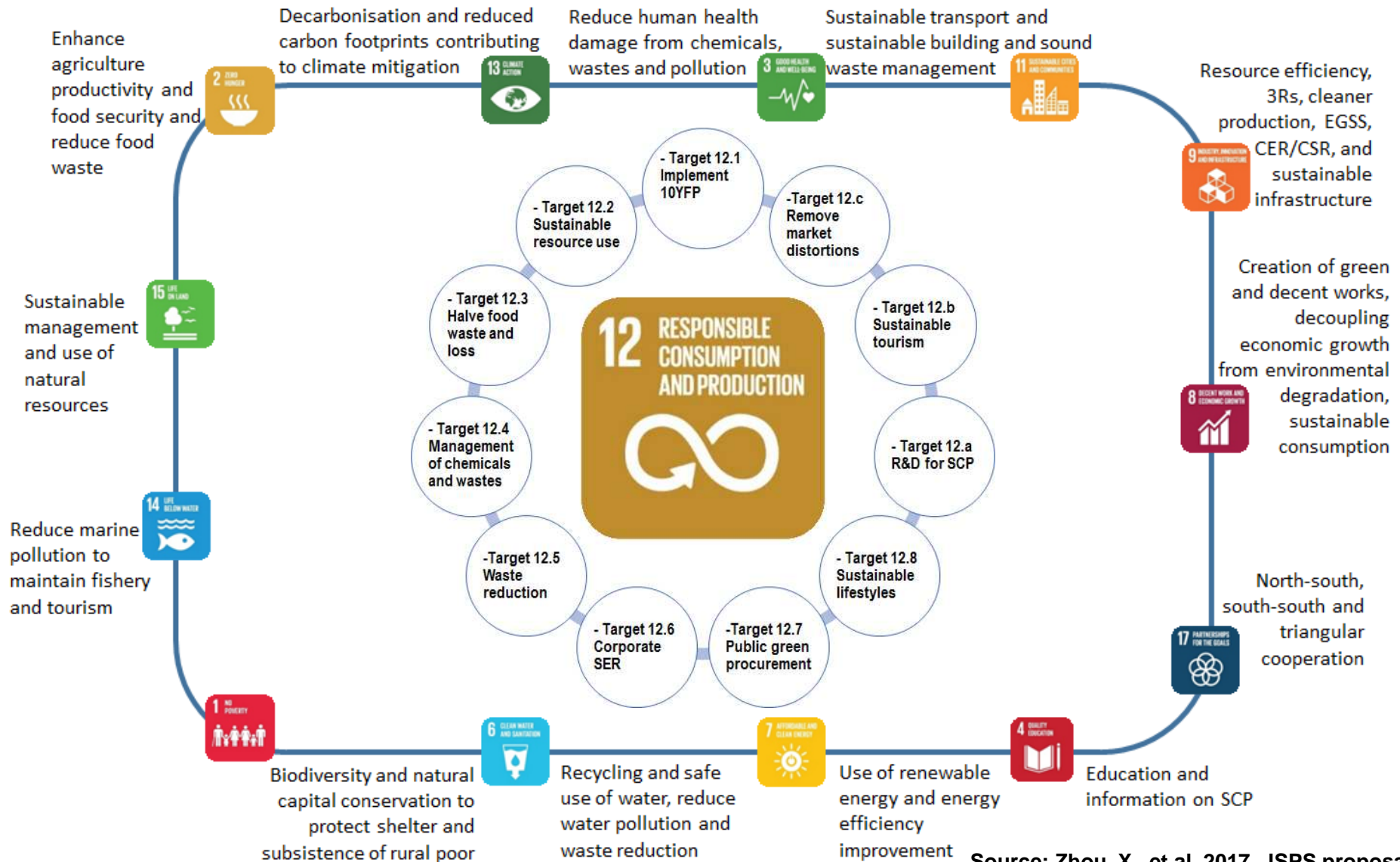

Bangladesh

Using Social Network Analysis techniques, ranking various centrality metrics help identify strategic SDG targets

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

A conceptual framework of Goal 12 as an overarching theme links extensively with other goals and targets

Enhance agriculture productivity and food security and reduce food waste

Decarbonisation and reduced carbon footprints contributing to climate mitigation

Reduce human health damage from chemicals, wastes and pollution

Sustainable transport and sustainable building and sound waste management

Resource efficiency, 3Rs, cleaner production, EGSS, CER/CSR, and sustainable infrastructure

Sustainable management and use of natural resources

Creation of green and decent works, decoupling economic growth from environmental degradation, sustainable consumption

Reduce marine pollution to maintain fishery and tourism

North-south, south-south and triangular cooperation

Biodiversity and natural capital conservation to protect shelter and subsistence of rural poor

Recycling and safe use of water, reduce water pollution and waste reduction

Use of renewable energy and energy efficiency improvement

Education and information on SCP

- Target 12.1 Implement 10YFP
- Target 12.2 Sustainable resource use
- Target 12.c Remove market distortions
- Target 12.3 Halve food waste and loss
- Target 12.b Sustainable tourism
- Target 12.4 Management of chemicals and wastes
- Target 12.a R&D for SCP
- Target 12.5 Waste reduction
- Target 12.8 Sustainable lifestyles
- Target 12.6 Corporate SER
- Target 12.7 Public green procurement

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

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

Features of the quantified SCP interlinkages with other SDG targets: An example in Indonesia
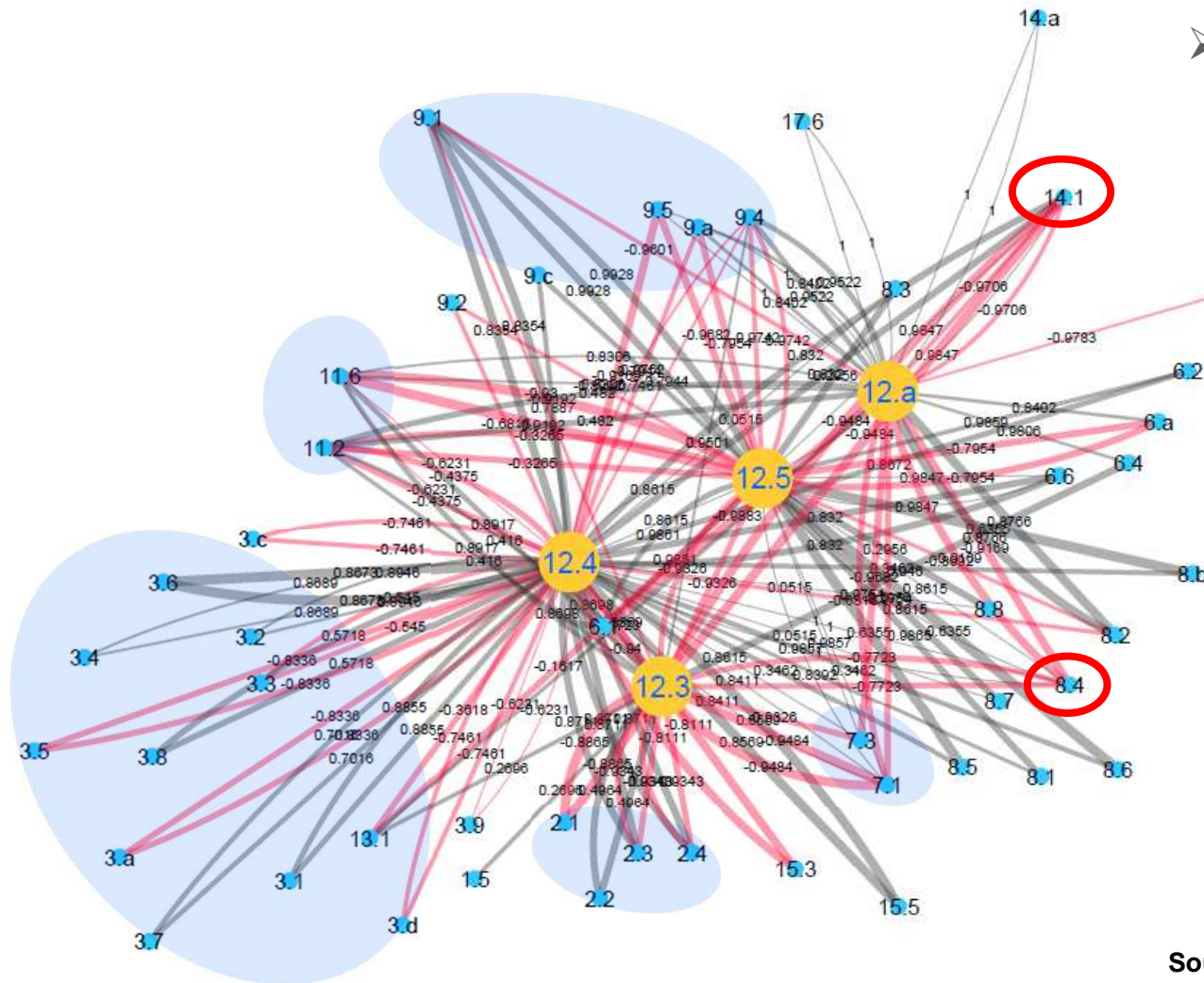
➢ **Major existing conflicts**
- Goal 2 Zero hanger
- Goal 3 Health and well-being
- Goal 7 Affordable and clean energy
- Goal 9 Industrial, innovation and infrastructure
- Goal 11 Sustainable cities
- 8.4 Improve resource efficiency
- 14.1 Reduce marine pollution
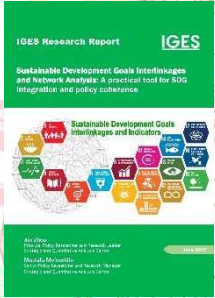
Source: Zhou, X., et al. 2017. JSPS proposal.

Applications of the tool for SDG integration

Planning: Priority setting, checklist for SEA, SA

Institution: Which gov. organizations should be involved

Financing: Efficient resource allocation based on the synergies, informed investment decisions (three African countries)

Monitoring: Development of headline indicators (China)

Thank you!

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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%20Int erlinkages_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.

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