

Input-output analysis in the SEEA – results of a survey

- Where do we go next?

Nancy Steinbach, Statistics Sweden

With contributions from: Nils Brown, Viveka Palm, Mårten Berglund SCB, Maaïke Bouwmeester, Arturo de la Fuente, Stephan Moll Eurostat, Ivan Hascic, OECD



SEEA and what we do

- Whatever the national accounts does – we can do too!
- Looking at use and demand interlinking the economy and the environment is what we do!

NATIONAL- RAKENSKAPER		2018	2019	2020	2021	2022
Bakgrunn						
1. Brutto innenlandisk produkt		1 234 567 890	1 345 678 901	1 456 789 012	1 567 890 123	1 678 901 234
2. Nett innenlandisk produkt		1 123 456 789	1 234 567 890	1 345 678 901	1 456 789 012	1 567 890 123
3. Brutto verdiskaping		1 345 678 901	1 456 789 012	1 567 890 123	1 678 901 234	1 789 012 345
4. Nett verdiskaping		1 234 567 890	1 345 678 901	1 456 789 012	1 567 890 123	1 678 901 234
5. Brutto lønsumme		1 456 789 012	1 567 890 123	1 678 901 234	1 789 012 345	1 890 123 456
6. Nett lønsumme		1 345 678 901	1 456 789 012	1 567 890 123	1 678 901 234	1 789 012 345
7. Brutto investering		1 567 890 123	1 678 901 234	1 789 012 345	1 890 123 456	1 901 234 567
8. Nett investering		1 456 789 012	1 567 890 123	1 678 901 234	1 789 012 345	1 890 123 456
9. Brutto eksport		1 678 901 234	1 789 012 345	1 890 123 456	1 901 234 567	2 012 345 678
10. Nett eksport		1 567 890 123	1 678 901 234	1 789 012 345	1 890 123 456	1 901 234 567
11. Brutto import		1 789 012 345	1 890 123 456	1 901 234 567	2 012 345 678	2 123 456 789
12. Nett import		1 678 901 234	1 789 012 345	1 890 123 456	1 901 234 567	2 012 345 678
13. Brutto konsum		1 890 123 456	2 012 345 678	2 123 456 789	2 234 567 890	2 345 678 901
14. Nett konsum		1 789 012 345	1 890 123 456	1 901 234 567	2 012 345 678	2 123 456 789
15. Brutto sparing		1 901 234 567	2 012 345 678	2 123 456 789	2 234 567 890	2 345 678 901
16. Nett sparing		1 890 123 456	1 901 234 567	2 012 345 678	2 123 456 789	2 234 567 890
17. Brutto finansiering		2 012 345 678	2 123 456 789	2 234 567 890	2 345 678 901	2 456 789 012
18. Nett finansiering		1 901 234 567	2 012 345 678	2 123 456 789	2 234 567 890	2 345 678 901
19. Brutto utlån		2 123 456 789	2 234 567 890	2 345 678 901	2 456 789 012	2 567 890 123
20. Nett utlån		2 012 345 678	2 123 456 789	2 234 567 890	2 345 678 901	2 456 789 012
21. Brutto låneopptak		2 234 567 890	2 345 678 901	2 456 789 012	2 567 890 123	2 678 901 234
22. Nett låneopptak		2 123 456 789	2 234 567 890	2 345 678 901	2 456 789 012	2 567 890 123
23. Brutto utlån minus netto låneopptak		2 345 678 901	2 456 789 012	2 567 890 123	2 678 901 234	2 789 012 345
24. Nett utlån minus netto låneopptak		2 234 567 890	2 345 678 901	2 456 789 012	2 567 890 123	2 678 901 234
25. Brutto utlån minus netto låneopptak minus netto finansiering		2 456 789 012	2 567 890 123	2 678 901 234	2 789 012 345	2 890 123 456
26. Nett utlån minus netto låneopptak minus netto finansiering		2 345 678 901	2 456 789 012	2 567 890 123	2 678 901 234	2 789 012 345
27. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing		2 567 890 123	2 678 901 234	2 789 012 345	2 890 123 456	2 901 234 567
28. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing		2 456 789 012	2 567 890 123	2 678 901 234	2 789 012 345	2 890 123 456
29. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering		2 678 901 234	2 789 012 345	2 890 123 456	2 901 234 567	3 012 345 678
30. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering		2 567 890 123	2 678 901 234	2 789 012 345	2 890 123 456	2 901 234 567
31. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport		2 789 012 345	2 890 123 456	2 901 234 567	3 012 345 678	3 123 456 789
32. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport		2 678 901 234	2 789 012 345	2 890 123 456	2 901 234 567	3 012 345 678
33. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import		2 890 123 456	2 901 234 567	3 012 345 678	3 123 456 789	3 234 567 890
34. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import		2 789 012 345	2 890 123 456	2 901 234 567	3 012 345 678	3 123 456 789
35. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering		3 012 345 678	3 123 456 789	3 234 567 890	3 345 678 901	3 456 789 012
36. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering		2 901 234 567	3 012 345 678	3 123 456 789	3 234 567 890	3 345 678 901
37. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum		3 123 456 789	3 234 567 890	3 345 678 901	3 456 789 012	3 567 890 123
38. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum		3 012 345 678	3 123 456 789	3 234 567 890	3 345 678 901	3 456 789 012
39. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing		3 234 567 890	3 345 678 901	3 456 789 012	3 567 890 123	3 678 901 234
40. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing		3 123 456 789	3 234 567 890	3 345 678 901	3 456 789 012	3 567 890 123
41. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering		3 345 678 901	3 456 789 012	3 567 890 123	3 678 901 234	3 789 012 345
42. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering		3 234 567 890	3 345 678 901	3 456 789 012	3 567 890 123	3 678 901 234
43. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport		3 456 789 012	3 567 890 123	3 678 901 234	3 789 012 345	3 890 123 456
44. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport		3 345 678 901	3 456 789 012	3 567 890 123	3 678 901 234	3 789 012 345
45. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport minus netto import		3 567 890 123	3 678 901 234	3 789 012 345	3 890 123 456	3 901 234 567
46. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport minus netto import		3 456 789 012	3 567 890 123	3 678 901 234	3 789 012 345	3 890 123 456
47. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering		3 678 901 234	3 789 012 345	3 890 123 456	3 901 234 567	4 012 345 678
48. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering		3 567 890 123	3 678 901 234	3 789 012 345	3 890 123 456	3 901 234 567
49. Brutto utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum		3 789 012 345	3 890 123 456	3 901 234 567	4 012 345 678	4 123 456 789
50. Nett utlån minus netto låneopptak minus netto finansiering minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum minus netto sparing minus netto investering minus netto eksport minus netto import minus netto finansiering minus netto konsum		3 678 901 234	3 789 012 345	3 890 123 456	3 901 234 567	4 012 345 678

National Accounts

MILJØSTATISTIKK		2018	2019	2020	2021	2022
1. Luftforurensning		123 456	134 567	145 678	156 789	167 890
2. Klimagasser		234 567	245 678	256 789	267 890	278 901
3. Avfall		345 678	356 789	367 890	378 901	389 012
4. Vannforbruk		456 789	467 890	478 901	489 012	500 123
5. Luftkvalitet		567 890	578 901	589 012	600 123	611 234
6. Støy		678 901	689 012	700 123	711 234	722 345
7. Jordforurensning		789 012	800 123	811 234	822 345	833 456
8. Maritim forurensning		890 123	901 234	912 345	923 456	934 567
9. Luftforurensning		901 234	912 345	923 456	934 567	945 678
10. Klimagasser		912 345	923 456	934 567	945 678	956 789
11. Avfall		923 456	934 567	945 678	956 789	967 890
12. Vannforbruk		934 567	945 678	956 789	967 890	978 901
13. Luftkvalitet		945 678	956 789	967 890	978 901	989 012
14. Støy		956 789	967 890	978 901	989 012	1 000 123
15. Jordforurensning		967 890	978 901	989 012	1 000 123	1 011 234
16. Maritim forurensning		978 901	989 012	1 000 123	1 011 234	1 022 345
17. Luftforurensning		989 012	1 000 123	1 011 234	1 022 345	1 033 456
18. Klimagasser		1 000 123	1 011 234	1 022 345	1 033 456	1 044 567
19. Avfall		1 011 234	1 022 345	1 033 456	1 044 567	1 055 678
20. Vannforbruk		1 022 345	1 033 456	1 044 567	1 055 678	1 066 789
21. Luftkvalitet		1 033 456	1 044 567	1 055 678	1 066 789	1 077 890
22. Støy		1 044 567	1 055 678	1 066 789	1 077 890	1 088 901
23. Jordforurensning		1 055 678	1 066 789	1 077 890	1 088 901	1 099 012
24. Maritim forurensning		1 066 789	1 077 890	1 088 901	1 099 012	1 110 123
25. Luftforurensning		1 077 890	1 088 901	1 099 012	1 110 123	1 121 234
26. Klimagasser		1 088 901	1 099 012	1 110 123	1 121 234	1 132 345
27. Avfall		1 099 012	1 110 123	1 121 234	1 132 345	1 143 456
28. Vannforbruk		1 110 123	1 121 234	1 132 345	1 143 456	1 154 567
29. Luftkvalitet		1 121 234	1 132 345	1 143 456	1 154 567	1 165 678
30. Støy		1 132 345	1 143 456	1 154 567	1 165 678	1 176 789
31. Jordforurensning		1 143 456	1 154 567	1 165 678	1 176 789	1 187 890
32. Maritim forurensning		1 154 567	1 165 678	1 176 789	1 187 890	1 198 901
33. Luftforurensning		1 165 678	1 176 789	1 187 890	1 198 901	1 209 012
34. Klimagasser		1 176 789	1 187 890	1 198 901	1 209 012	1 220 123
35. Avfall		1 187 890	1 198 901	1 209 012	1 220 123	1 231 234
36. Vannforbruk		1 198 901	1 209 012	1 220 123	1 231 234	1 242 345
37. Luftkvalitet		1 209 012	1 220 123	1 231 234	1 242 345	1 253 456
38. Støy		1 220 123	1 231 234	1 242 345	1 253 456	1 264 567
39. Jordforurensning		1 231 234	1 242 345	1 253 456	1 264 567	1 275 678
40. Maritim forurensning		1 242 345	1 253 456	1 264 567	1 275 678	1 286 789
41. Luftforurensning		1 253 456	1 264 567	1 275 678	1 286 789	1 297 890
42. Klimagasser		1 264 567	1 275 678	1 286 789	1 297 890	1 308 901
43. Avfall		1 275 678	1 286 789	1 297 890	1 308 901	1 320 012
44. Vannforbruk		1 286 789	1 297 890	1 308 901	1 320 012	1 331 123
45. Luftkvalitet		1 297 890	1 308 901	1 320 012	1 331 123	1 342 234
46. Støy		1 308 901	1 320 012	1 331 123	1 342 234	1 353 345
47. Jordforurensning		1 320 012	1 331 123	1 342 234	1 353 345	1 364 456
48. Maritim forurensning		1 331 123	1 342 234	1 353 345	1 364 456	1 375 567
49. Luftforurensning		1 342 234	1 353 345	1 364 456	1 375 567	1 386 678
50. Klimagasser		1 353 345	1 364 456	1 375 567	1 386 678	1 397 789

Environmental statistics

MILJØ- RAKENSKAPER		2018	2019	2020	2021	2022
1. Brutto innenlandisk produkt		1 234 567 890	1 345 678 901	1 456 789 012	1 567 890 123	1 678 901 234
2. Nett innenlandisk produkt		1 123 456 789	1 234 567 890	1 345 678 901	1 456 789	

Input-output analysis

- Developed in the 1940's by Wassily Leontief – who received the Nobel Memorial Prize in Economic Science for his work in this area
- A host of tables – to look at interdependences between industries and sectors – as well as – in our case – to look at what impact the economy has on emissions due to demand

A feeling of scattered knowledge at the statistical offices

- In 2012 the UN et al published "SEEA CF Applications and Extensions "
- Sweden has worked in the field since early 2000's – but who else is working with it not from an academic institution?



Survey results – the base

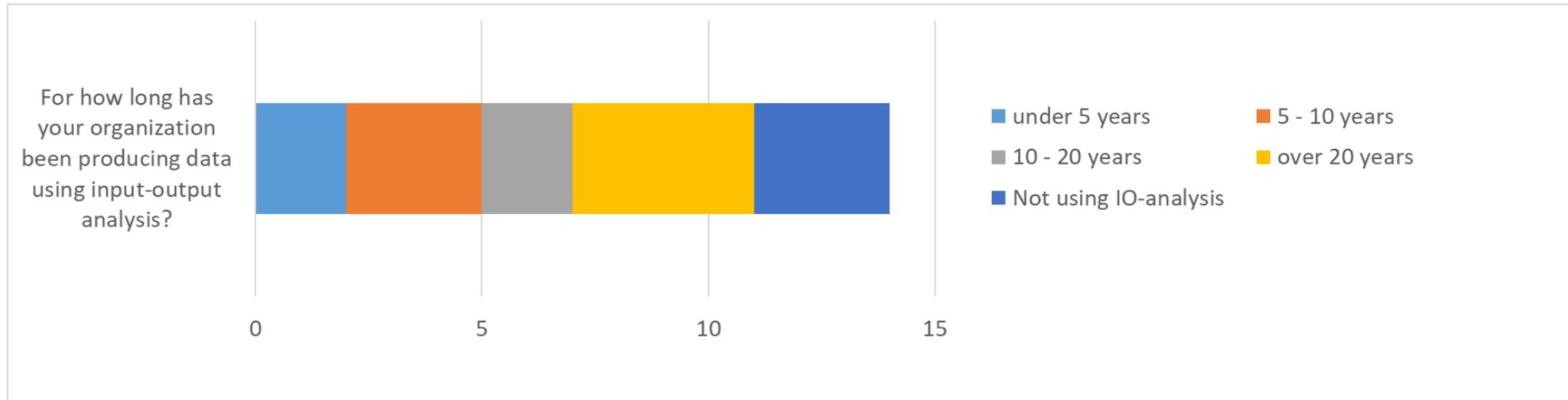


Figure 1: Number of responding agencies using IO analysis to produce data and the length of time they have been doing it.

Results – are the data official Statistics?

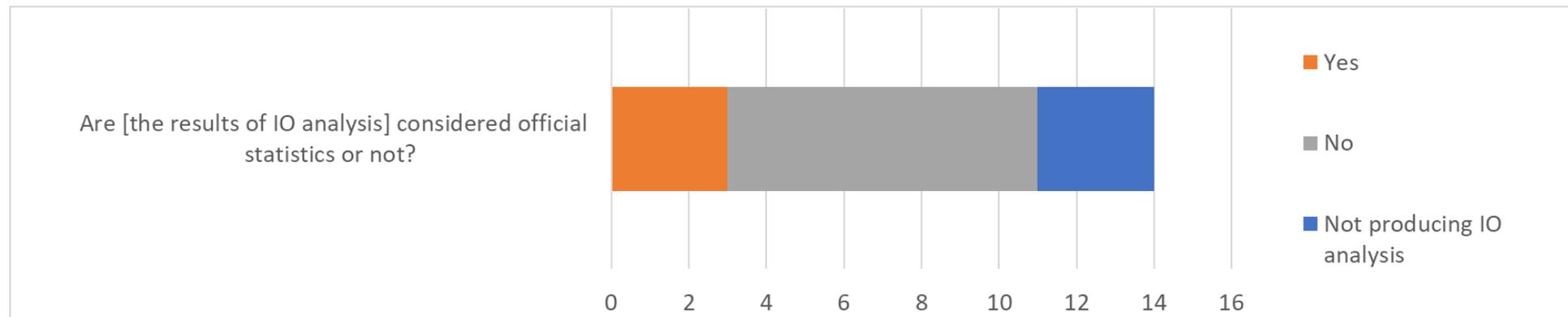


Figure 4: Responses to question "are [the results of IO analysis] considered official statistics or not?"

Survey results – the terminology

”A BELOVED CHILD HAS MANY NAMES”

- National accounts terminology – final demand, final use
- ”Footprint”
- ”Environmental pressure from consumption”
- Other overarching terminology also in use ”tourism satellite accounts”, CGE, IEEM, ”natural capital accounting”, ”ecosystem service analysis”

Results – a clear role of the data to communicate strenghts of the SEEA

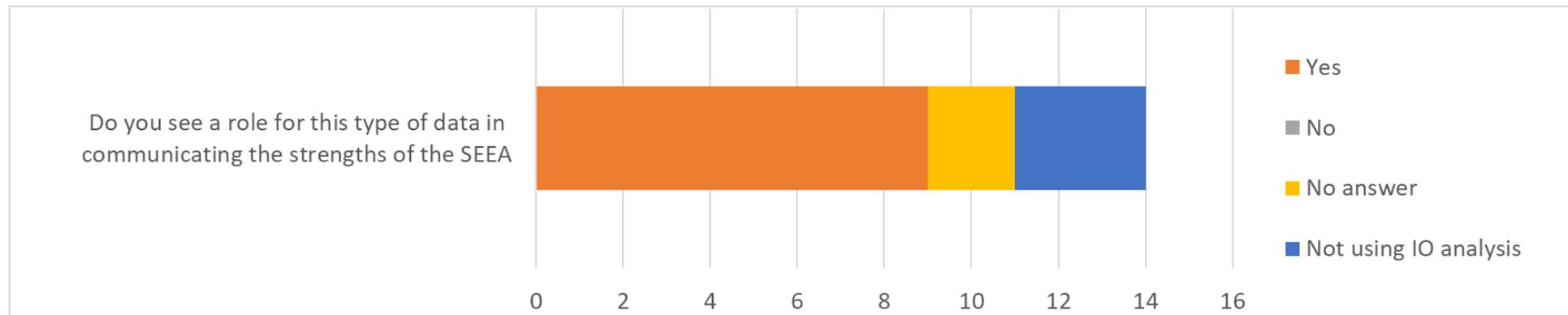


Figure 5: Responses to question "do you see a role for this type of data in communicating the strengths of the SEEA?"

Results – issues identified

- How to handle and interpret environmental pressure related to investments?
- Residence adjustments – e.g. specifically if tourists' use of vehicles is already adjusted for in SEEA CF then will the IO model estimate a double adjustment?
- Level of detail in the basic analysis changes the outputs – what would the “right” level of details be?
- Timeliness – National accounts IO-tables usually over T-36 months
- How to know what differences are with the global MRIO databases?
- How to provide transparency in governance between national data produced and the work done on the global MRIO's?
- How to improve communication and visualization?
- Policy implications

Moving forward together

Proposal:

- **Create a virtual pool of experts that can, starting 2020:**
 - Identify methodological issues in need of clarifications
 - Be a partner when solving new issues in implementation
 - Identify communication aspects and impacts on policy demand
- Their first task: plan and follow-through a report/publication on the merits – with country examples on data and analysis on using IO analysis in the SEEA



Are you willing to participate in this work?

In groups discuss:

The task force is set up and you are now sitting with the team at your first meeting

- Discuss a disposition/layout of the publication – what topics are essential to include? What can be excluded or left for another time?
- What type of product would the publication be? A brochure or full scale report, or a web-site?
- Discuss what kind of work the person reading the report would have –identify the target group



Thank you!

