

# TWAP – Transboundary Waters Assessment Programme

## RIVER BASINS COMPONENT

### Development of Assessment Methodology



### Working Group

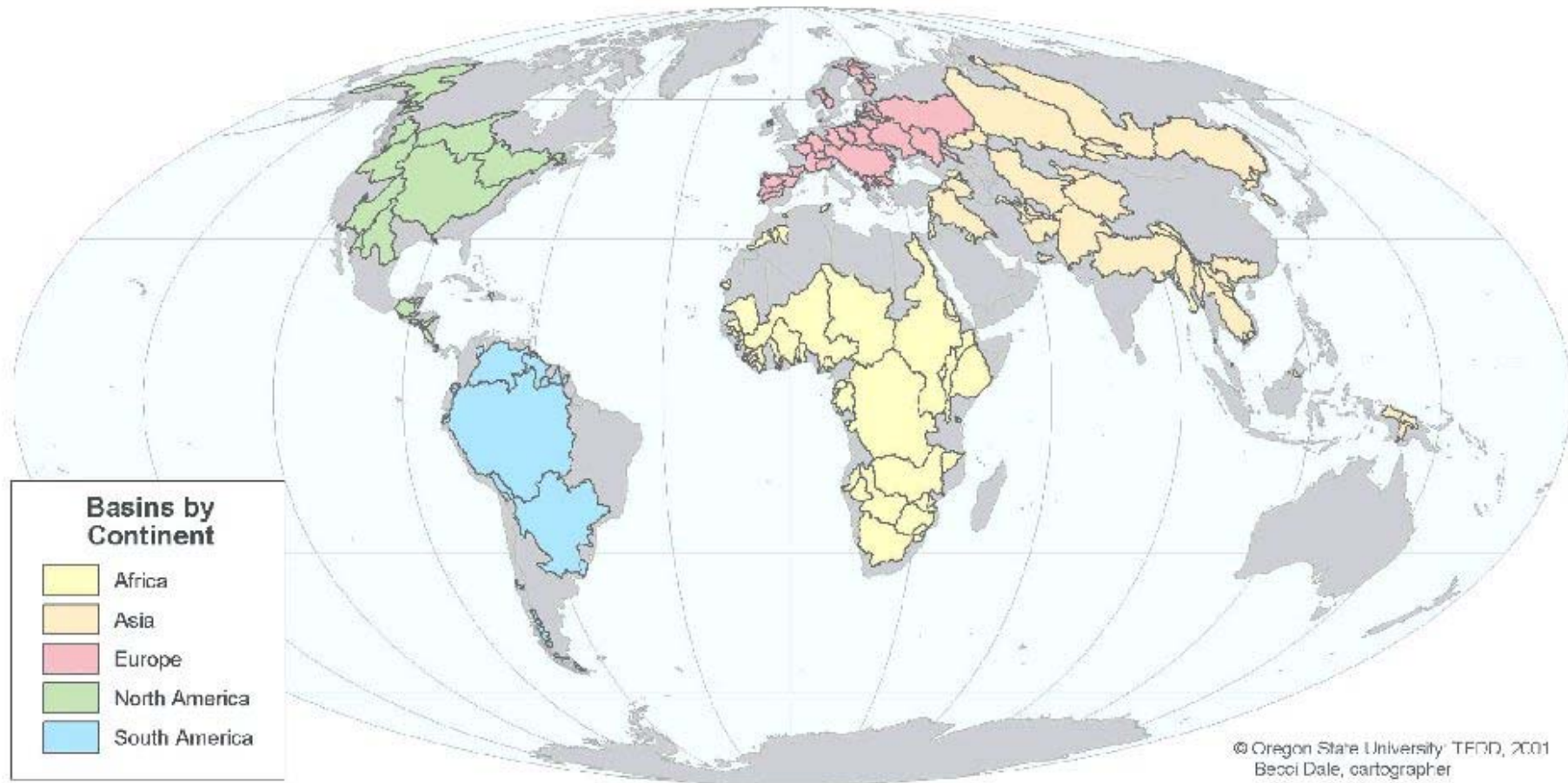
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# RIVER BASINS WG APPROACH

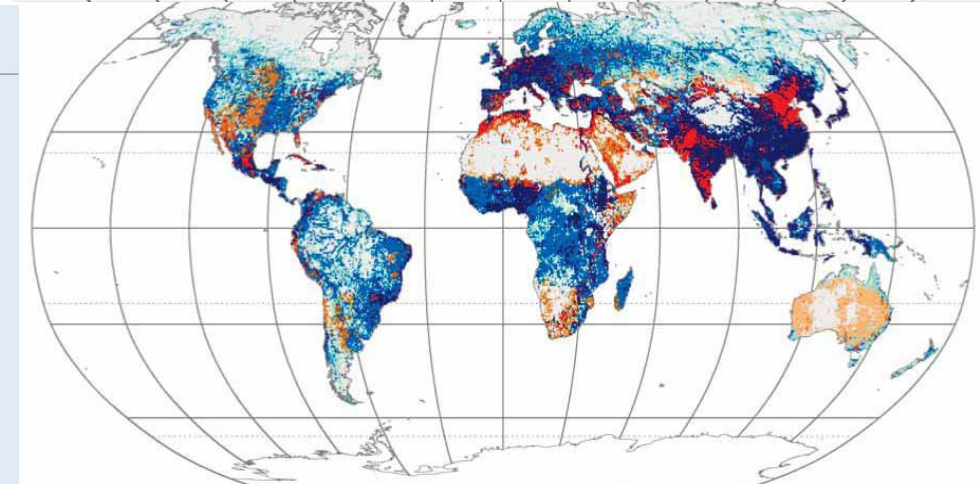
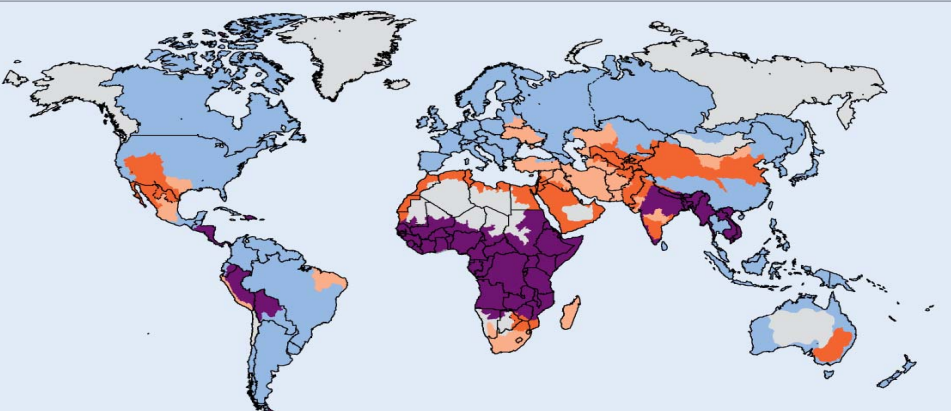
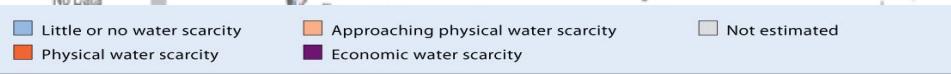
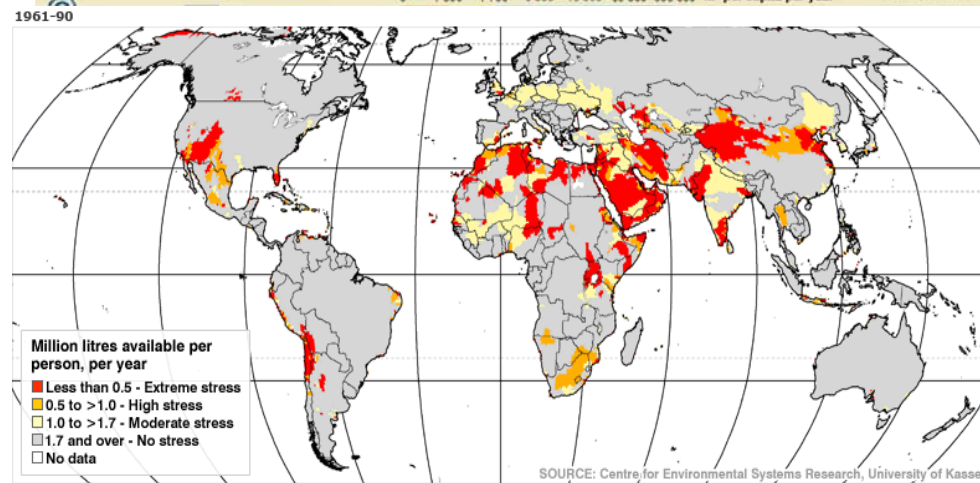
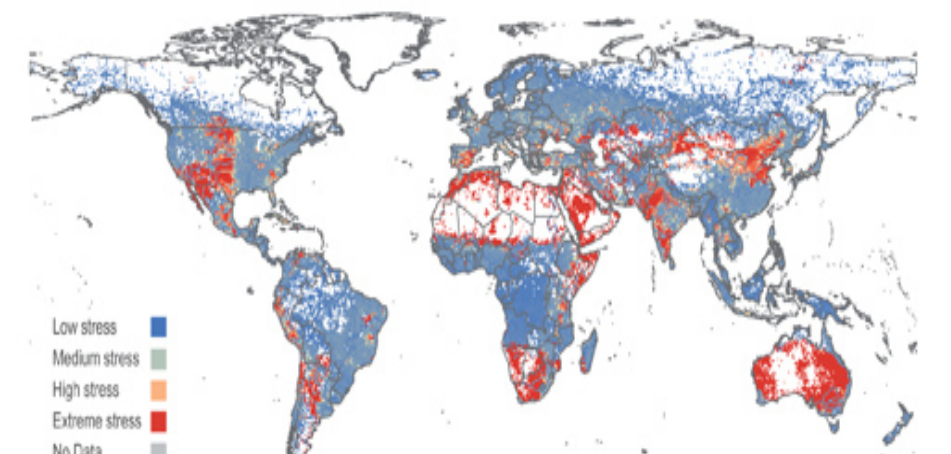
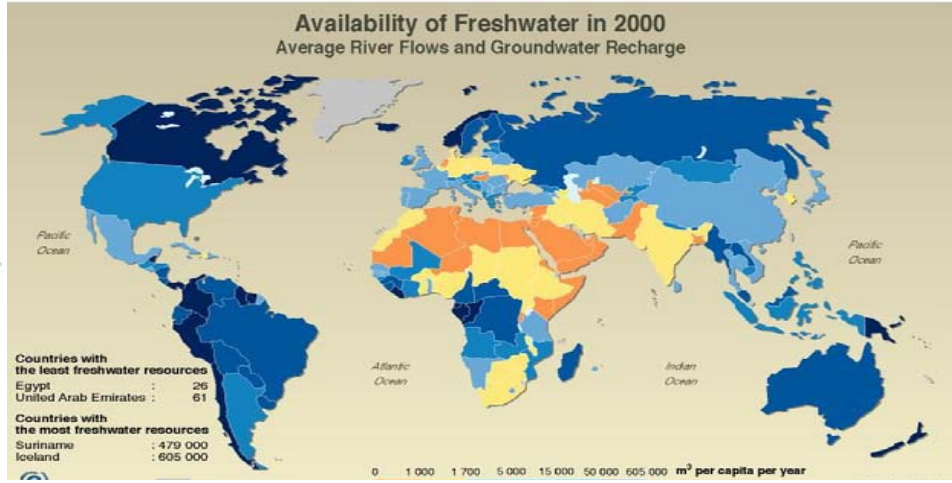
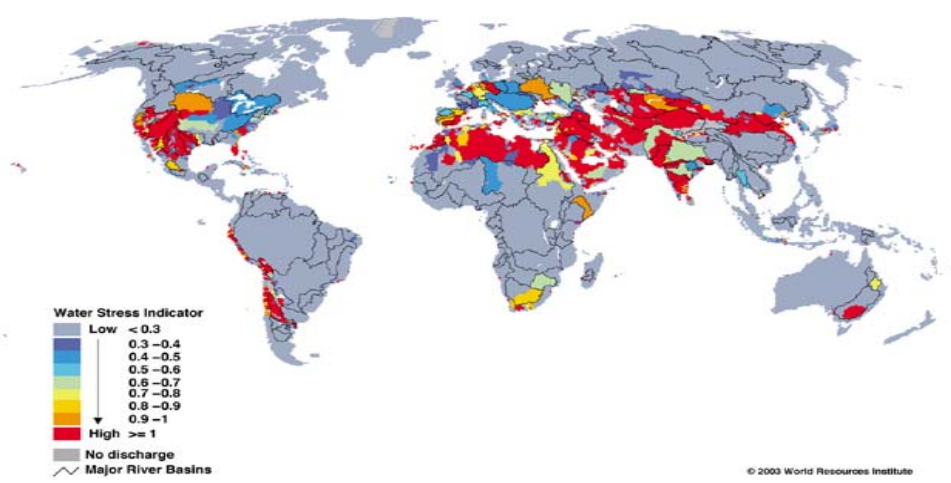
- Develop a simple, inexpensive methodology
  - robust against data deficiencies
  - uses available information through existing institutions and frameworks where possible
  - based on an ecosystem system approach,
  - takes into consideration human vulnerability and governance issues
- Indicators that allow both baseline survey and ongoing assessments to monitor trends



# Transboundary river basins







- Using a modified *Driving force, Pressure, State, Impact, Response (DPSIR)* framework and its further development in the Millennium Ecosystem Assessment
- An *issue* based approach – based on identification of current global issues in transboundary basins
- Indicators describing these issues have been identified, based on the availability of data sets with global coverage, available mostly in the public domain at present
- Scalable approach: Aggregation from national or regional to basin level

# Key points on indicators

- Need to assess all 260+ transboundary basins ⇒ Develop simple, inexpensive indicators which are robust against data deficiencies
- Some indicators are composite indicators composed of several basic indicators, combined into one single value
- Use of modelling where possible
- **Short-listing criteria:**
  - availability (i.e. cost efficiency in acquisition)
  - acceptability (i.e. ownership to information among stakeholders)
  - applicability (i.e. relevance to transboundary issues)
  - aggregation at river basin level and comparability between basins

# Indicator framework development

	State	Stress factors	(IWRM) Processes
Water quantity	<b>1. From state variables to process variables</b>		
Water quality	<ul style="list-style-type: none"><li>– environmental state</li><li>– stress reduction</li><li>– governance processes and socio-economic variables</li></ul>		
Ecosystem assets	<b>2. From issues and sub-issues to indicators</b>		
Governance	<ul style="list-style-type: none"><li>– Water quantity<ul style="list-style-type: none"><li>• Flow regime, floods, droughts</li></ul></li><li>– Water quality<ul style="list-style-type: none"><li>• Pollution, nutrients, sedimentation/siltation</li></ul></li><li>– Ecosystem assets<ul style="list-style-type: none"><li>• Ecosystem services, wetlands, biodiversity/habitats</li></ul></li><li>– Water governance<ul style="list-style-type: none"><li>• Water policy/law, institutions, finance</li></ul></li></ul>		



# The RIVER BASINS indicators

Current status		Projected stress (2030 / 2050)
Cluster	Indicator	
Water Quantity	1. Environmental water stress	1. Environmental water stress 2. Human water stress 3. Nutrient pollution 4. Population density 5. River basin resilience
	2. Human water stress	
	3. Agricultural water stress	
Water Quality	4. Nutrient pollution	
	5. Urban water pollution	
Ecosystems	6. Biodiversity and habitat loss	
	7. Ecosystem degradation	
	8. Fish threat	
Governance	9. Governance architecture	
	10. River basin resilience	
	11. Water legislation	
Socio-economic	12. Economic dependence	
	13. Societal wellbeing	
	14. Vulnerability	

Methodology for each indicator:  
Definition, units, metrics, data sources, computation, scoring, alternatives



# Criteria and scoring of indicators

- **Scoring of basins**

Score	Range (%)	Proportion of basins
1.	0 – 10	10%
2.	10 – 20	10%
3.	20 – 50	30%
4.	50 – 90	40%
5.	90 – 100	10%



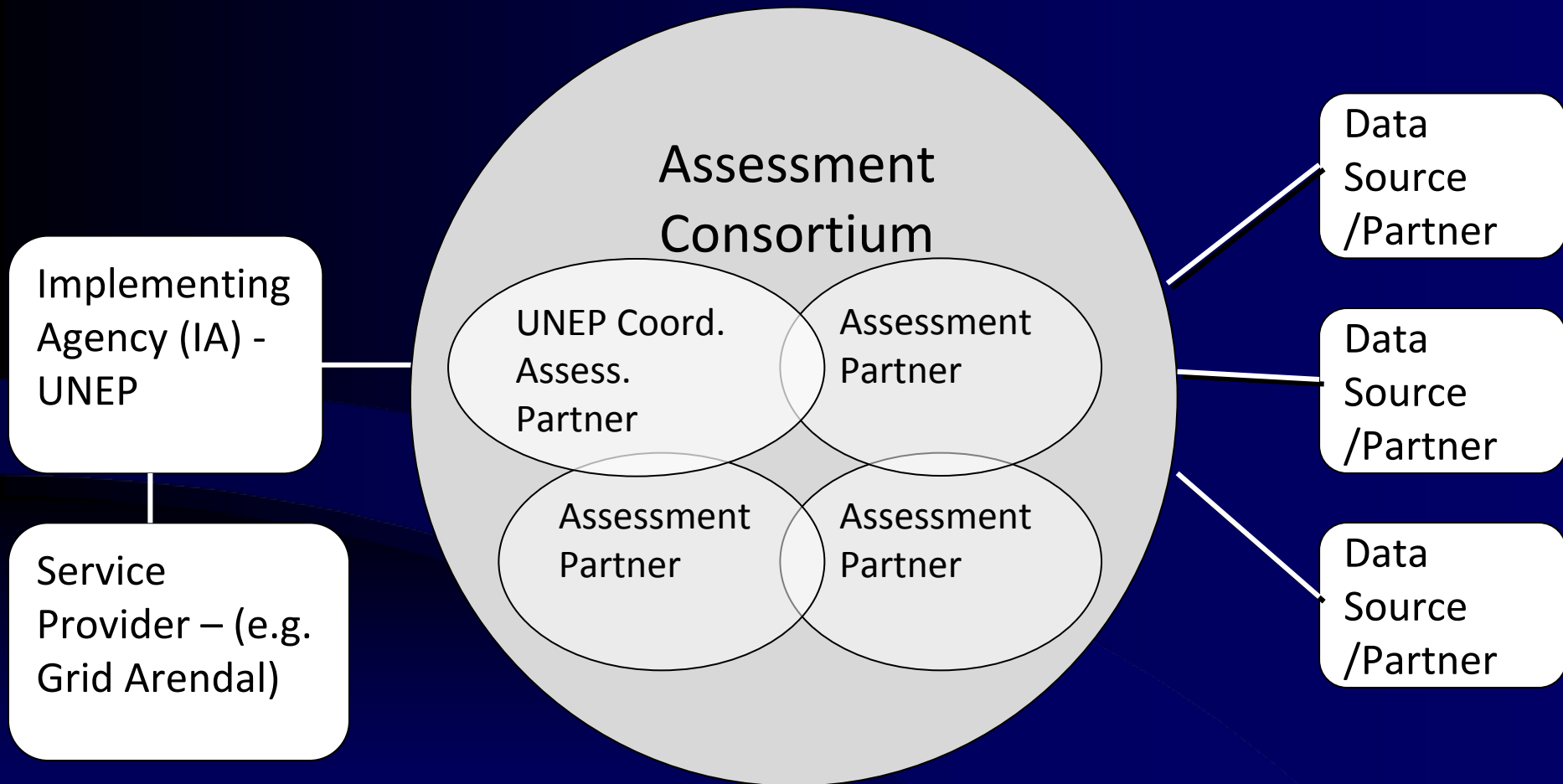
Poor  
status

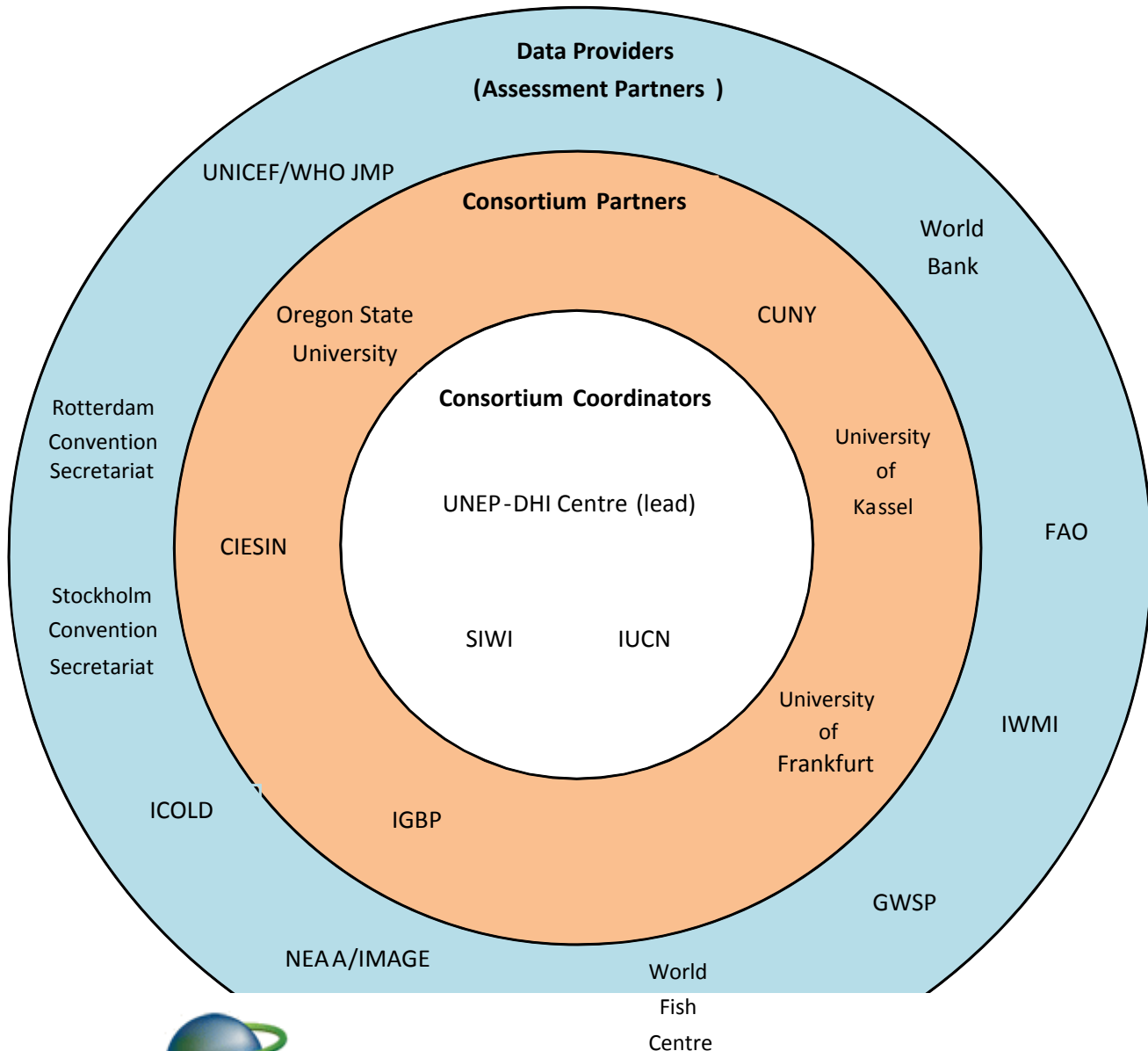
Good  
status

# EXAMPLE OF RESULT SUMMARY

	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6	Indicator 7	...	Indicator 27	Combined Unweighted Score (%)*
Basin 1	3	1	4	2	1	1	3		2	53
Basin 2	3	3	2	4	2	3	2		2	66
Basin 3	1	1	4	2	1	2	4		1	50
Basin 4	2	4	3	4	1	3	2		3	69
...										
Basin 256	1	3	2	4	1	3	3		2	59
Key overall indicator Issues	10	12	15	16	6	12	14		10	

# Rivers Organisation FSP







## Lessons learned & challenges ahead

- Challenges in developing unique yet harmonized methodology
- Challenges in identifying appropriate partners for assessment
- Modelled & measured data
- Global vs regional vs local datasets (& government buy-in)
- Challenges in developing concise, simple-to-understand, yet robust indicator set
- Challenges in representing governance with quantitative indicators