Regulatory and financial barriers on geothermal energy utilization in Austria, Hungary, Slovakia and Slovenia

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PISA ITALY 04-06 May 2013

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Tools and methods

- EU and national policy overview.
- Authorities‘ view on geothermal resources development status (recommendations from GTR-H project).

- **NEW:** Benchmarking of management sustainability.

Regulation

Water policy 2000/60/EC

- Groundwater within aquifer

Environmental objectives:

- Constant level / no intrusions
  - RBMPs : A, HU, SK, SI
- 2009 - **2015** – 2021 - 2027

Energy policy 2009/28/EC

- Geothermal energy stored beneath the surface

Energy objectives:

- Significant specific increaments
  - NREAPs: A, HU, SK, SI
- 2010 – **2020** - 2030

Distribution of management of geothermal resources between two sectors is actually still represented as an obstacle!

Regulation

Water policy 2000/60/EC

- Basic, suplementary and aditional measures

Energy policy 2009/28/EC

- Incentives

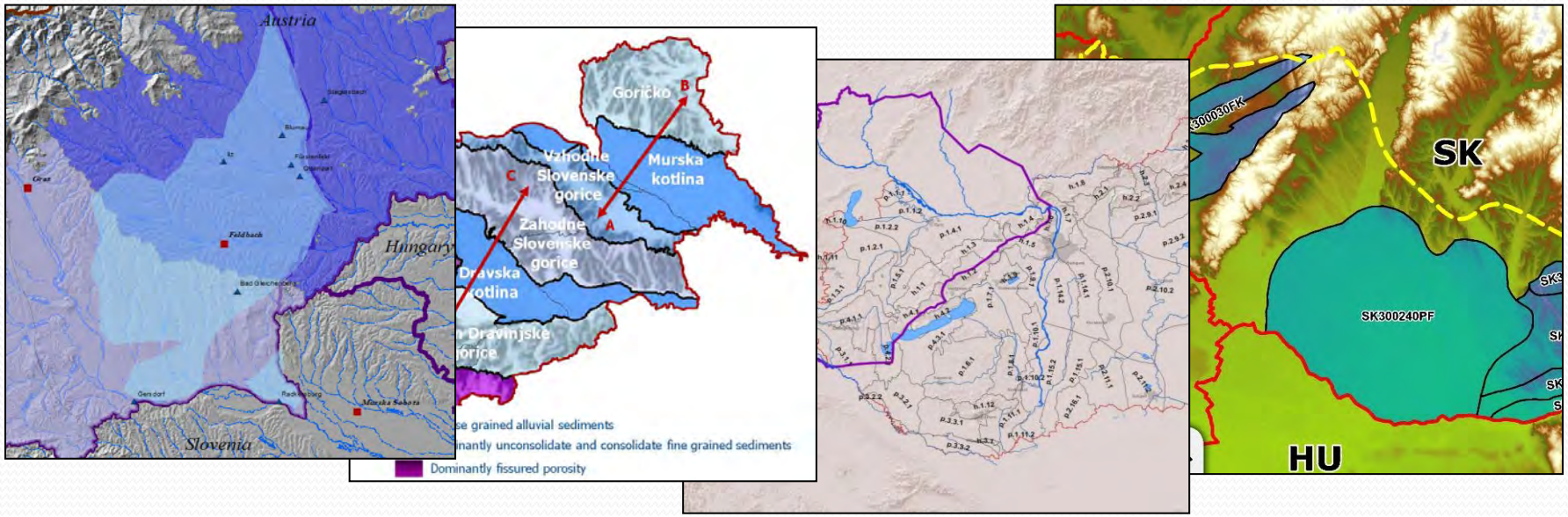
aimed to:

stable highly developed geothermal resources /
highest stage of comprehensive and effective management /
high level of abstraction /
sound balance between competing stakeholders interests.

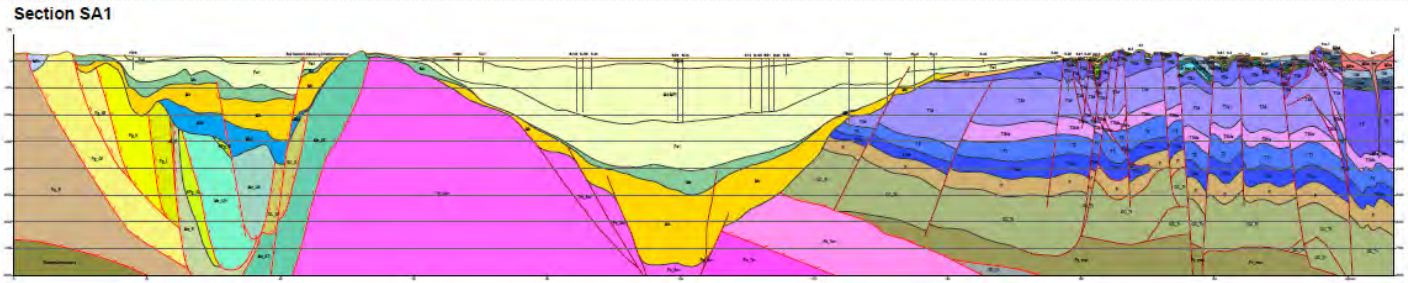
Management sustainability

2010 – **2020** – 2030 – 2050 -

Very different delineations of resources and …



… supraregional views!



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Basic, suplementary and aditional measures

PERMITING:

1. Start licensing for water abstractions that are without permits; if necessary, terminating them.
2. Detailed definition of the depth and the exploited aquifer in the application for permiting.
3. Explicit permitting for activation of new layers in the same well in the research permit.
4. Modifications or restrictions in water rights granting depending on the trend of water level or reinjection.
5. Particular attention to the cross-border services because they have higher demands for the assessment.

Basic, suplementary and aditional measures

MONITORING:

6. Databases development of geothermal resources and their exploitation and processing of geothermal water balance.
7. Further development of established monitoring system.
8. Determination of referential observation points.

Basic, suplementary and aditional measures

REPORTING:

9. Re-evaluation and updating of geothermal potential of significant structures.
10. Elaboration of deep aquifers maps, survey of geothermal units.
11. Evaluation of available thermal water reserves for the direct use of heat abstraction and tourism.
12. Definition of critical levels and alert system establishment where available reserves are in question.
13. Appropriate well technology application, well reconstruction.
14. Development of re-injection technologies.

Incentives

REGULATORY:

1. An independent professional expert body, resp. for promotion and development of the GE sector has to be established.
2. Proactive awareness campaigns to target professionals for RES-H&C technology, in particular for GE.
3. Standardization and research & development support measures have to be more exploited.
4. Templates to ensure full reporting monitored data have to be developed.
5. The confidentiality of all submitted data defined by licence period, confidentiality period or after licence period.

Incentives

FINANCIAL:

1. The cost of site characterization has to be funded from the research and development support.
2. The exploration stage of GE projects has to be considered in exemptions from environmental impact assessment.
3. Completion of GE boreholes has to be subject of waived or reduced cost of national drilling permits.
4. Long term GE production data have to be a basis for the assessment of the project for financial incentives.
5. Fees regulation and definition of financial incentive parameters are the most unexploited or unknown tools.

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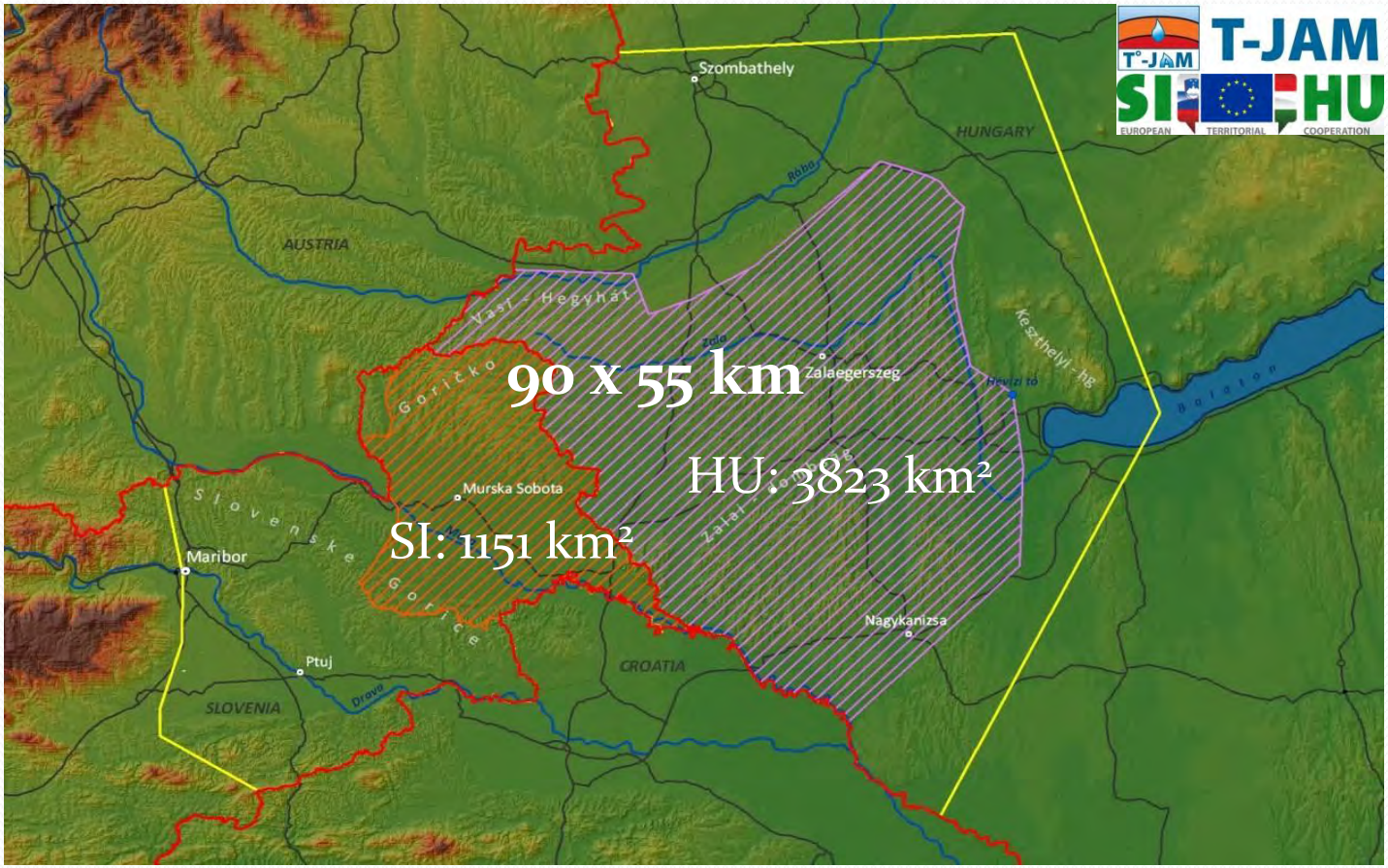
Sustainability of geothermal resources management

Sustainability is reached when:

- there is a favourable efficiency of resources exploitation,
- the real expenses are not postponed to the next generation.

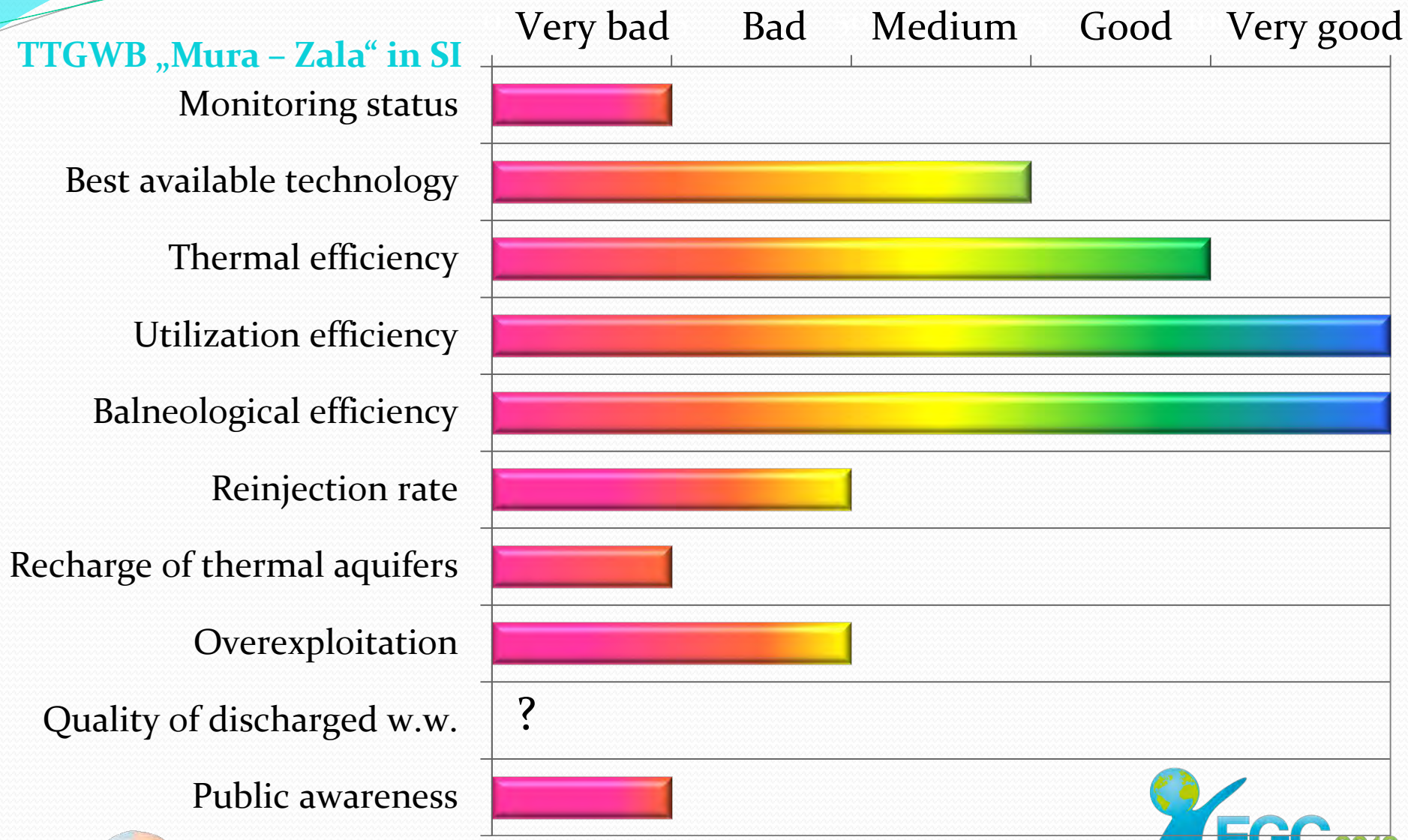
What is local weakness (bad) and what is strength (good)?

Management sustainability - benchmarking essay: Transboundary thermal groundwater body „Mura – Zala”

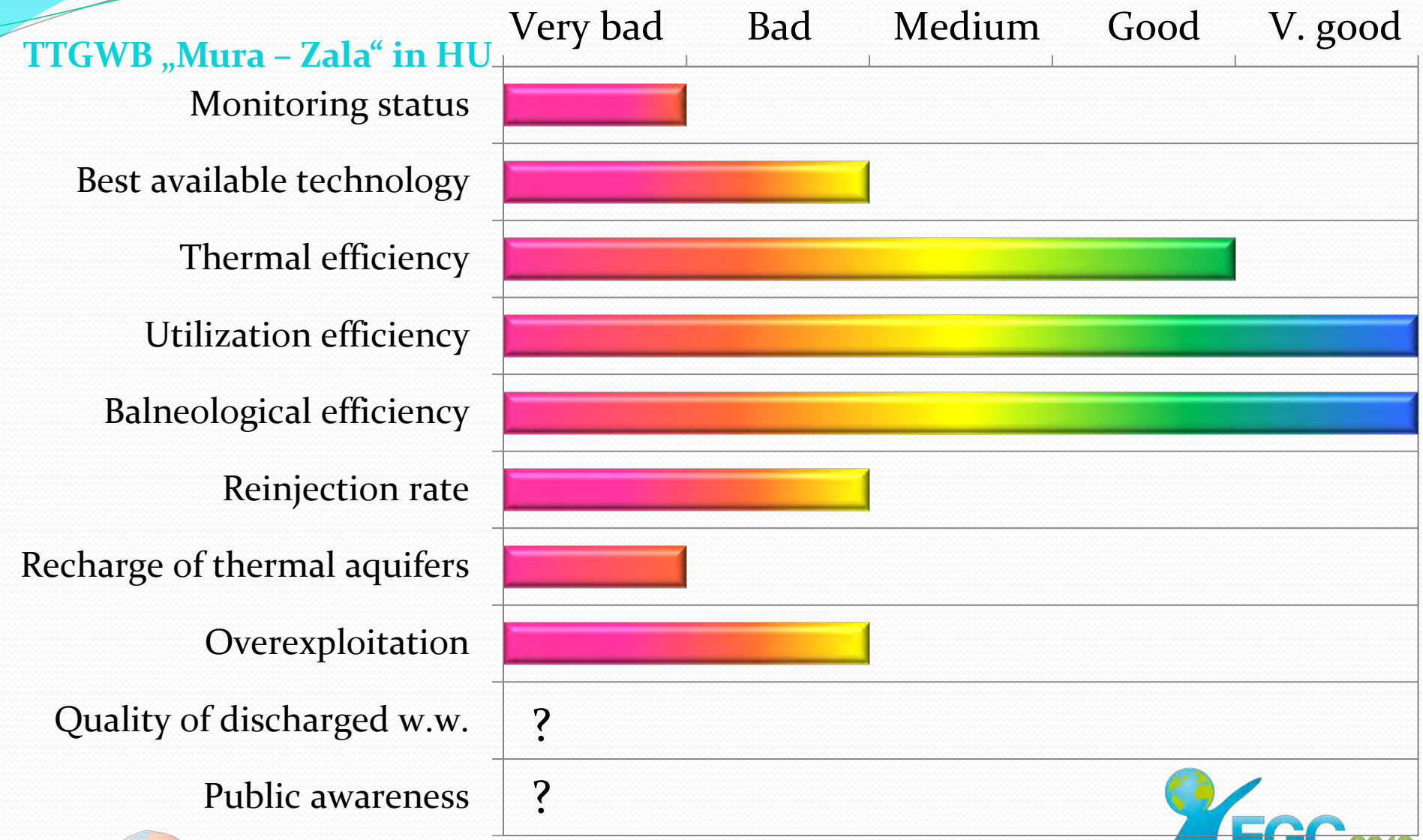


4,974 km² (= significant in Danube River Basin Management scale)

TTGWB „Mura – Zala“ in SI



TTGWB „Mura – Zala“ in HU



Benchmarking essay: TTGWB „Mura – Zala“ in SI and HU

- Management efforts are not promoted adequately from user to user.

- There are 3 the most significant issues to promote:

1) yearly reports of monitoring results - submitted by user and approved by granting authority,
2) critical level points of the abstracted wells - defined at least from other available data or locations,
3) public should get free accessible information, at least of quality status of waste water.

Conclusion

1. Database of authorities‘ views enables to follow integrated regulatory and financial incentives structure.
2. Benchmarking facilitate to manage priorities.
3. Cross borders models (geological, heat flow, water flow, water suitability, recharge) enable to understand response of natural system.

http://transenergy-eu.geologie.ac.at/

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