11th Steering Group Meeting of the Priority Area 2 Ulm, 28th October 2015

Update on the Danube Region Geothermal Concept

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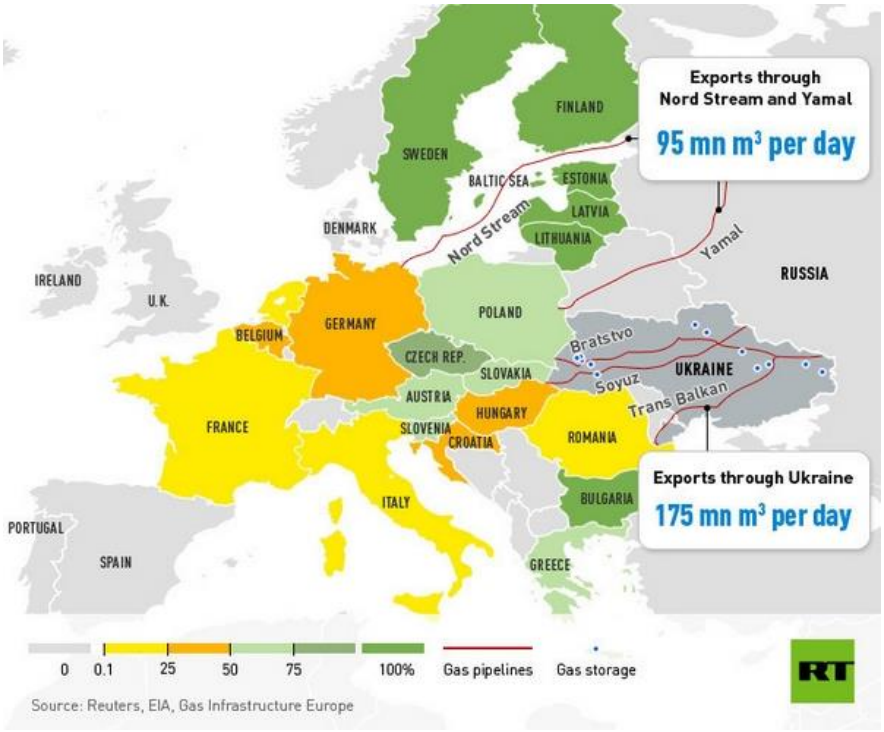
DANUBE REGION strategy Energy

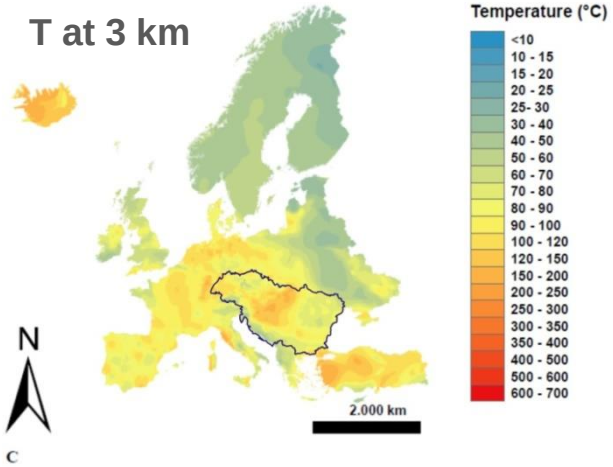
Danube Region energy challenges



SECURITY OF ENERGY SUPPLY

- ✓ enhance the interconnection of the transmission/distribution networks,
- ✓ establishment of functional regional energy markets,
- ✓ improvement of energy efficiency
- ✓ better usage of the potential in renewable energies: GEOTHERMAL

DANUBE REGION strategy Energy



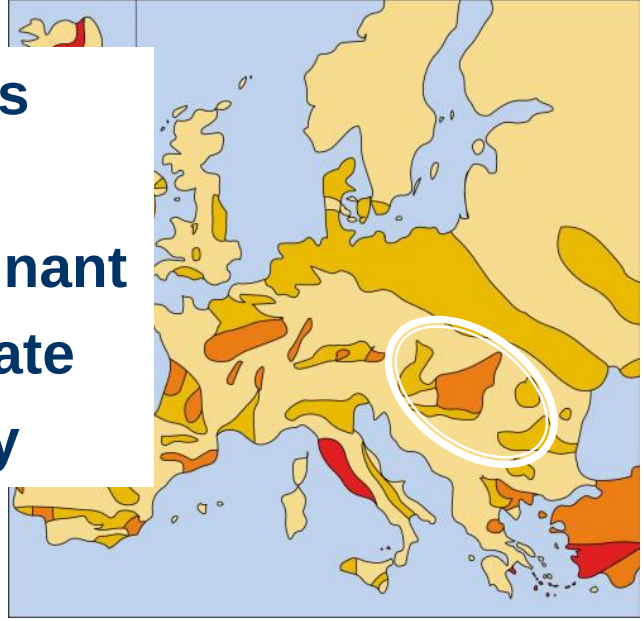
Favorable conditions

Untapped potential

Balneology predominant

Direct use subordinate

Low energy efficincy



	Geothermal power plants		Geothermal district heating plants		Geothermal heat in agriculture and industry		Geothermal heat in balneology and other	
	Installed capacity (MW_e)	Production (GWh_e/y)	Installed capacity (MW_t)	Production (GWh_t/y)	Installed capacity (MW_t)	Production (GWh_t/y)	Installed capacity (MW_t)	Production (GWh_t/y)
Austria	1,85	2,2	117,6	158,9	2	4,6	2,4	20,6
Bosnia and Herzegovina	0	0	0	0	1,6	11,25	19,94	59,36
Bulgaria	0	0	1,83	8,03	1,65	7,67	82,3	586,08
Croatia	0	0	36,66	NA	NA	NA	77,24	NA
Czech Republic	0	0	6,56	25	0	0	2,12	NA
Germany *	4,11	18,83	157,25	331,17	0	0	48	380
Hungary	0	0	132,97	339,65	250,14	825,066	312,37	1648,743
Romania	0,05	0,4	106,63	148,34	8	50	10	12
Serbia	0	0	53,646	231,254	16,955	82,881	55,595	258,41
Slovakia	0	0	27,5	NA	29,5	NA	73,6	NA
Slovenia	0	0	3,72	6,27	13,96	31,61	45,48	126,42

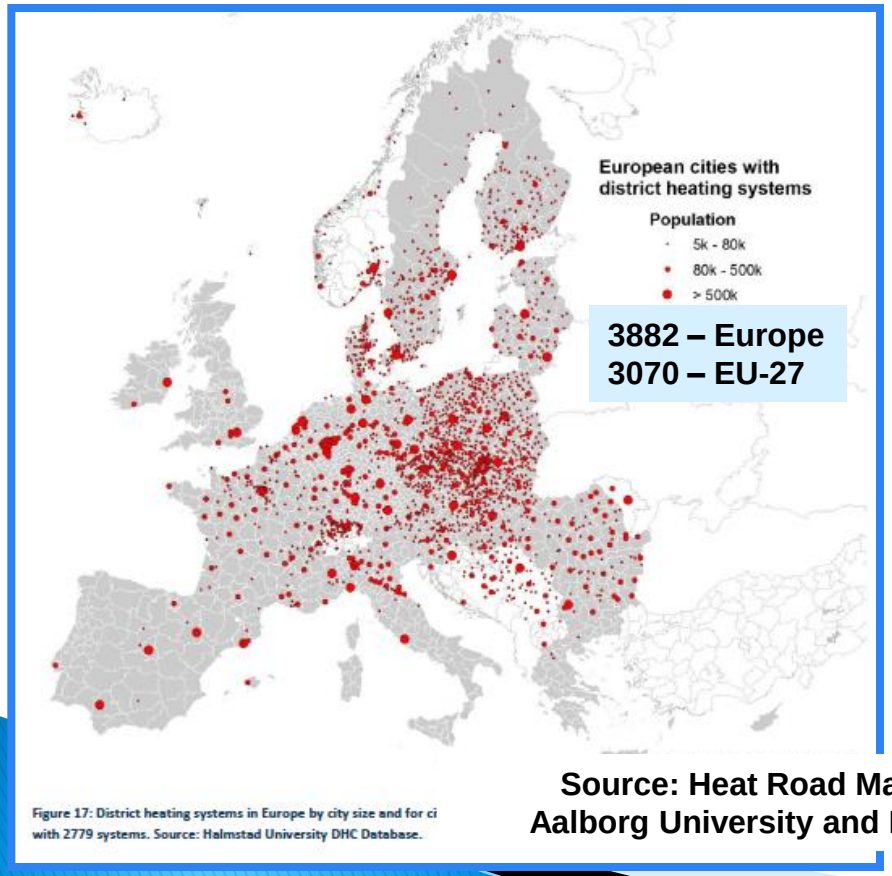
Untapped geothermal resources could significantly contribute to the decarbonisation of the DH market

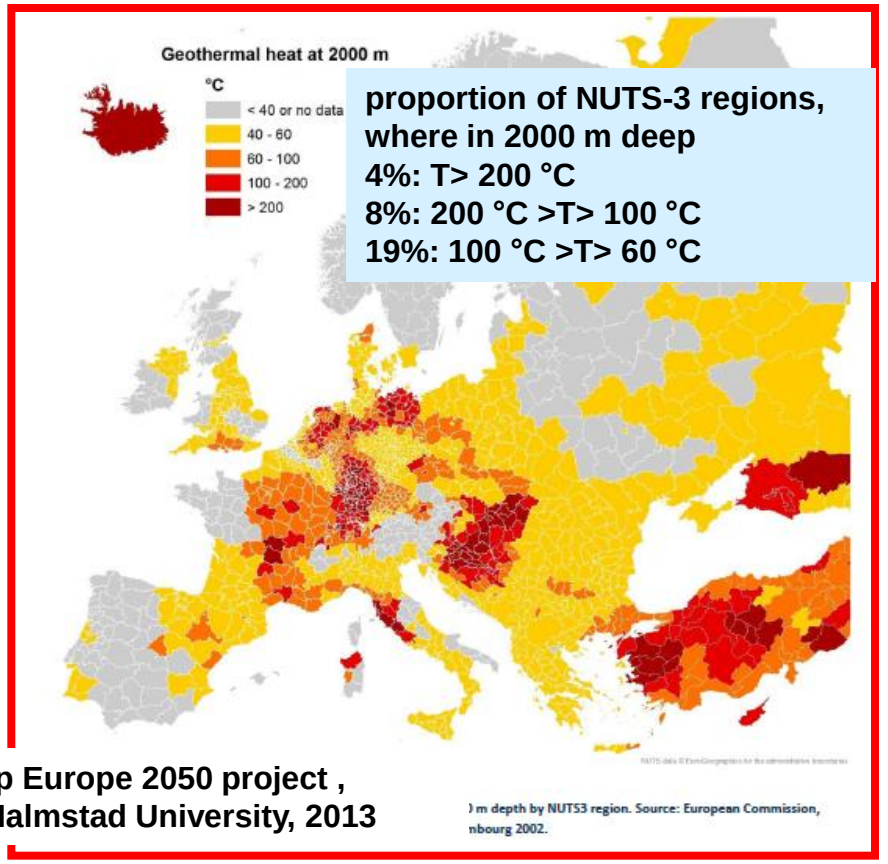
12% of the total communal heat demand is DH

Geo-DH would be available for 26% of EU-27 population

heat supply to DH systems:

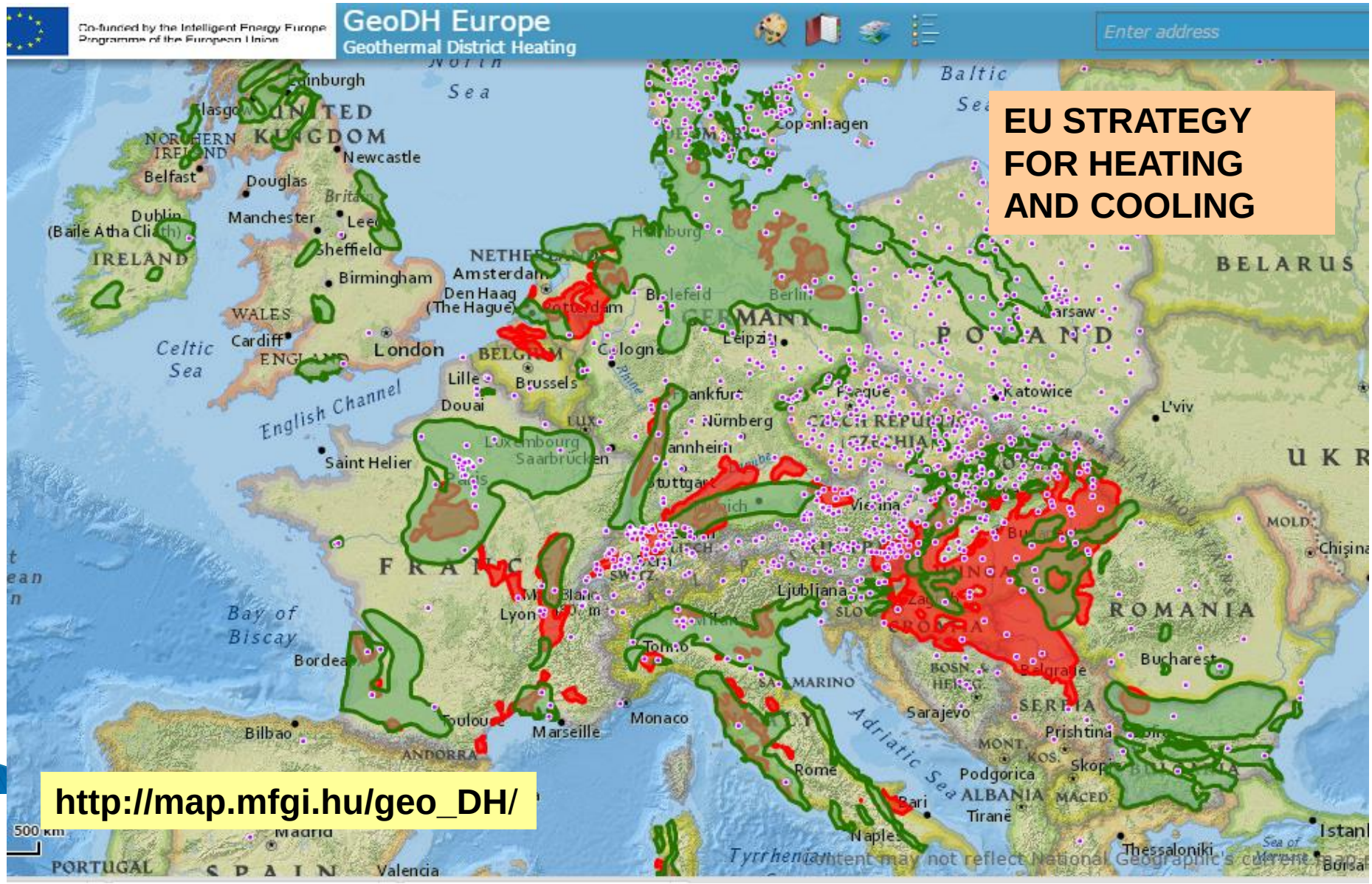
- **power plants: 17%**
- **waste: 7%**
- **industrial heat: 3%**
- **biomass: 1%**
- **geothermal: 0,001%**





Source: Heat Road Map Europe 2050 project , Aalborg University and Halmstad University, 2013

GeoDH potential of Europe



Establishing cooperation in geothermal energy in the DSR

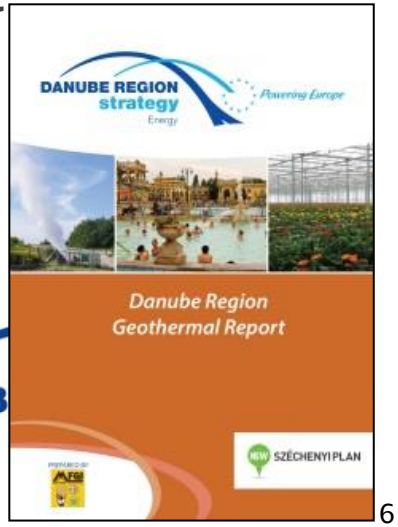
2012-2013: MFGI started to overview the state-of-the art of geothermal energy resources and their utilization in 11 DRS countries: first version of a project concept ("DanReGeotherm v.0"): to provide a geothermal resource assessment for the Danube Region, raise the awareness on the untapped resources and to develop a joint geothermal database – presented at SG meetings.

November 28, 2013: A meeting with 40 participants from 10 DSR countries was held on in Budapest – engagement of countries

2014: Technical Assistance Facility for Danube Region (TAF): iC clean energy solutions GmbH further helped to refine concept

2014: Danube Region Geothermal Report

Available at:
http://groupspaces.com/Energy2/item/657526



DanReGeotherm-DATA project

2014: the first call for START projects: preparation of future DTP projects: successful application (HU, HR, SRB, BH, RO, CZ): DanReGeotherm-DATA: deliver a final concept of database policy and web-based data services of a future project to be submitted to the DTP

2015.04.01-2015.12.31. 44000 euro LP: MFGI (HU)

Partners:

- **PP1: Federalni zavod za geologiju – Sarajevo (BH)**
- **PP2: Hrvatski geološki institut (HR)**
- **PP3: Česká geologická služba (CZ)**
- **PP4: Institutul Geologic al României (RO)**
- **PP5: Univerzitet u Beogradu, Rudarsko-geološki fakultet (SRB)**

Grant Agreement (EuroVienna – EU-consulting & management GmbH (as Funder) and MFGI (as LP) in March 2015: contractual framework + WP-s, budget, eligibility rules, reporting templates

Partnership Agreements (LP and PPs): May 2015

DanReGeotherm-DATA project

Tasks:

1. Elaboration of an online questionnaire on data availabilty - done
2. National inputs - done
3. Evaluation of results, feasibility study on database concept - ongoing

	A	D	E	H	I	J
2	Country	Bosnia-Herzegovina	Serbia	Croatia	Romania	Hungary
3	BASIC WELL DATA					
4	Do you have information on the status of wells? (e.g. active, inactive, liquidated, etc.)	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the	such information exists, but is not available for	YES - such information is available for the
5	If you have information about the status of the wells, can you classify this information in the following categories: active / inactive / liquidated?	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the	such information exists, but is not available for	YES - such information is available for the
6	Do you have information on borehole activity? (e.g. continuous, occassional, etc.)	such information exists, but is not available for	YES - such information is available for the	YES - such information is available for the	such information exists, but is not available for	such information exists, but is not available for
7	If you have information about the borehole activity, can you classify this information in the following categories? continuous / occasional (at peak	such information exists, but is not available for	YES - such information is available for the	YES - such information is available for the	NO - such information does not exist	such information exists, but is not available for
8	UTILIZATION OF THERMAL WATER					
9	Do you have information on type of utilization?	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the	such information exists, but is not available for	YES - such information is available for the
10	If you have information about the type of utilization, can you classify this information in any of the following categories? agriculture / heating /	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the
11	Do you have information on problems during operation?	YES - such information is available for the	NO - such information does not exist	YES - such information is available for the	such information exists, but is not available for	NO - such information does not exist
12	If you have information about the problems during operation, can you classify this information in the following categories? scaling (calcite,	such information exists, but is not available for	NO - such information does not exist	YES - such information is available for the	YES - such information is available for the	NO - such information does not exist
13	GEOTHERMAL DATA 1.					
14	Do you have information on outflow temperature at wellhead?	YES - such information is available for the	YES - such information is available for the	YES - such information is available for the	Such information exists, but is not available for	YES - such information is available for the
15	Do you have information on yield at which outflow temperature was measured?	Such information exists, but is not available for	Such information exists, but is not available for	Such information exists, but is not available for	Such information exists, but is not available for	Such information exists, but is not available for

DARLINGe: Danube Region Leader in Geothermal Energy

Proposal submission to DTP 1st Call: Priority Axis 3, section 7e: Improving energy efficiency and security of supply… through the integration of distributed generation from renewable sources

Consortium: 17 full partners + 6 ASP-s from HU, SLO, HR, SRB, BH, RO (LP: MFGI Hungary)

The main objective is to enhance the sustainable and energy-efficient use of deep geothermal energy resources in the central and SE-ern part of the Danube Region

Planned budget : 3,45 mio euro

DANUBE REGION strategy Energy

WP1 Management

WP2 Communication, dissemination

WP3 Capacity building and transnational stakeholder forum

3.1. Capacity building for project partners

3.2.Stakeholder consultations

3.3.Training activities for stakeholders

WP4: Transnational data management

4.1. Data collection and processing

4.2. Danube Region Geothermal Information Platform (DRGIP)

Key Output: decision supporting web tool

WP5: Multi-sectoral analyses of state-of- art

5.1. Outline of main potential reservoirs

5.2. Current utilization schemes

5.3. Case studies of good practices and bottlenecks

5.4. Energy landscape mapping

5.5. Regulatory framework, licensing procedures and funding opportunities

WP6: Transnational strategy development

6.1 SWOT analysis

6.2. Joint Danube Region Geothermal Strategy

6.3. Tool-box on transboundary geothermal resource management

6.4. Joint Danube Region Geothermal Action Plans

Key Output: Transnational Strategy and Action Plans

WP7: Pilot actions

7.1. Scenario analyses

7.2. Benchmark evaluation

7.3. Geological Risk Mitigation

Key Output: pilot testing of transnational tools

Thank you for your attention !

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