

The iGeo
Problem Solving
Exercise; a
model
for schools?

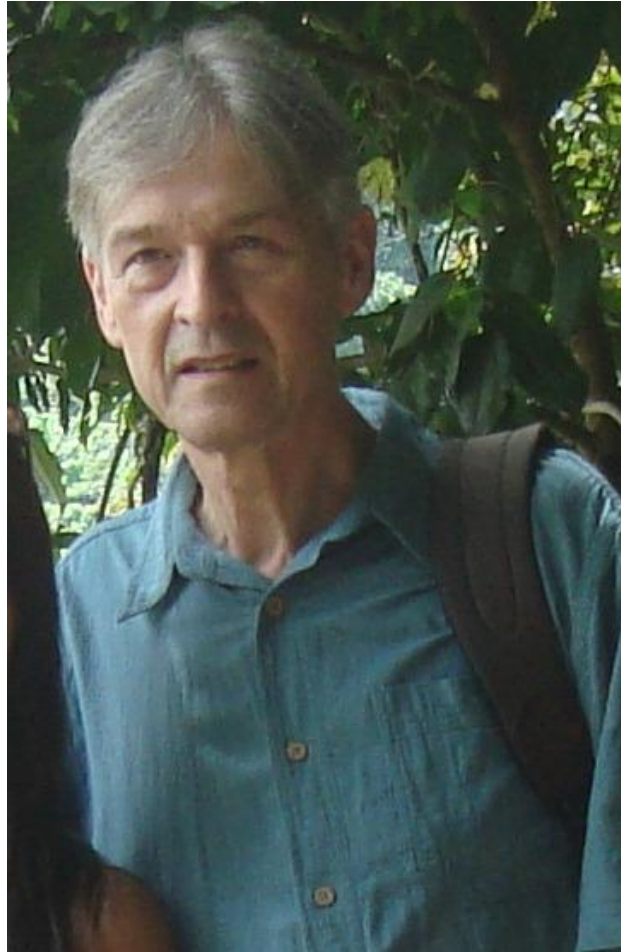
Henri Ankoné
& Igor Lipovšek



EUROGEO

Ljubljana, Slovenia, August 29, 2019

Henri Ankoné (Netherlands, 1950)



- Educator for 40 yrs.:
 - 20 yrs teacher & teacher trainer
 - 20 yrs curriculum & school development
- iGeo:
 - co-founder & organiser 1st Olympiad (1996)
 - co-chair 2004 - 2012
 - member Task Force 2012 - 2016
- Current activities:
coordinator Philippines of Jalès Foundation

Igor Lipovšek (Slovenia, 1956)



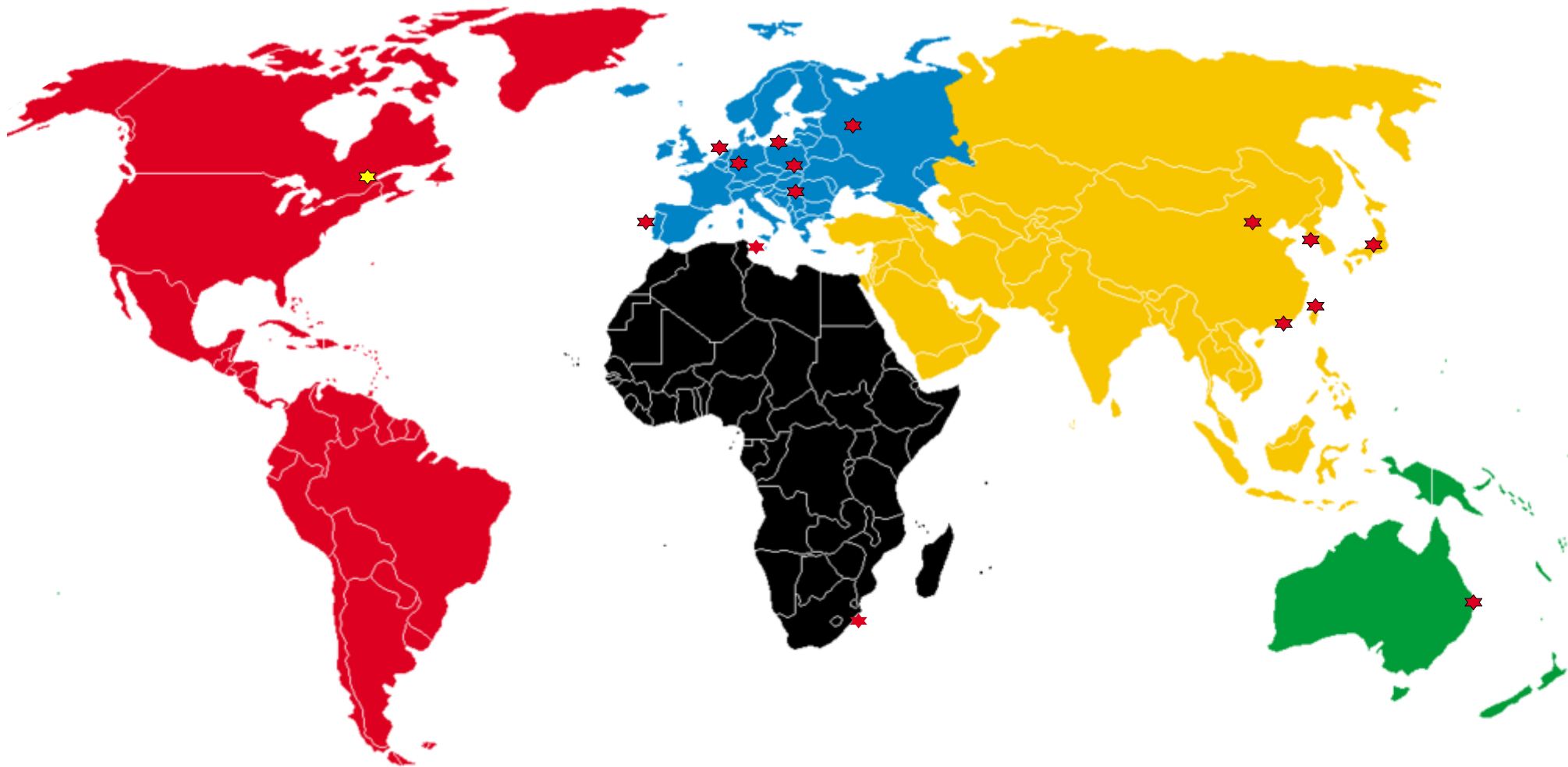
- Geography Educator for 37 yrs.:
 - 25 years teacher trainer
 - 14 years teacher
- iGeo:
 - team leader Slovenia 1st Olympiad (1996)
 - team leader '98, 2000, '02, '04
 - national coordinator 1995-2006
- Current activities:
 - operative member of Slovenian Geography Teacher Association

Outline of the workshop

- iGeo & the iGeo Field Work Exercise in a nutshell (10 min's)
- The Beijing FW-Exercise applied to Ljubljana (35 min's)
 - field observation task by half of the participants (Igor)
 - problem solving task by half of the participants (Henk)
- Presentations of both tasks (30 min's)

iGeo





iGeo Locations:

2019 HONG KONG
2018 QUÉBEC 🌟
2017 BELGRADE
2016 BEIJING

2015 TVÈR
2014 KRAKÓW
2013 KYOTO
2012 COLOGNE

2010 TAIPEI
2008 CARTHAGE
2006 BRISBANE
2004 GDANSK

2002 DURBAN
2000 SEOEL
1998 LISBON
1996 The HAGUE

Participating Countries

Argentina

Armenia

Australia

Azerbaijan

Belarus

Belgium

Bolivia

Bosnia

Hercegovina

Brazil

Bulgaria

Canada

China-Beijing

China-Hong Kong

China-Macau

Croatia

Cyprus

Czech Republic

Denmark

France

Germany

Hungary

India

Indonesia

Israel

Japan

Kazakhstan

Korea

Latvia

Lithuania

Mexico

Mongolia

Montenegro

The Netherlands

New Zealand

Nigeria

Pakistan

The Philippines

Poland

Estonia

Finland

Portugal

Romania

Russian Federation

Saudi Arabia

Serbia

Singapore

Slovakia

Slovenia

Switzerland

South Africa

Taiwan

Tajikistan

Thailand

Tunisia

Turkey

United Kingdom

USA

The iGeo Format

Written Response Test	6 topics about geographically and socially relevant issues	3 hrs.	Individual Competition
Multi Media Test	40 items, each consisting of a map, photo, film or graph and a multiple choice question	1 hr.	Individual Competition
Fieldwork Exercise	<ul style="list-style-type: none"> □ observing, mapping and analyzing a spatial issue in a fieldwork area, including additional data gathering □ a problem-solving exercise leading to a proposal, including a spatial plan or map 	½ day ½ day	Individual Competition
Poster Presentation	about a geographical issue in the home country, presented to and marked by other iGeo participants	3 hrs.	Team work Social activity
Cultural Presentation	performance (song, dance, sketch) or presentation (audio, visual) highlighting a cultural aspect of the home country	evening	Team work Social activity

Content & Skills

- Climate & climate change
- Hazards & hazard management
- Resources & resource management
- Environmental geography & sustainable development
- Landforms, landscapes & land use
- Agricultural geography & food problems
- Population & population change
- Economic geography & globalisation
- Development geography & spatial inequality
- Urban geography, urban renewal & urban planning
- Tourism & tourism management
- Map skills
- Inquiry skills
- Graphicacy skills (read, analyse and interpret images, photos, statistics, graphs)

The 2016 Beijing FWExercise



The iGeo Field Work Exercise (FWE):

- is a skills based practical test in applied geography
- in the form of a problem solving exercise about a real or hypothetical spatial issue at the fieldwork site,
- involving field observation, mapping & analysis,
- leading to a proposal which includes a spatial plan visualized in a sketch map

2016 Beijing, China

This year's theme:

Eco-cities

- of utmost importance to the planet and humanity
- a challenge for geography & geography education

2016 Beijing, China

10 Dimensions of Eco-cities

M.P. van Dijk

1. Energy issues

6. Sanitation issues

2. Solid waste issues

7. Climate change issues

3. Transport issues

8. Housing issues

4. Pollution issues

9. Ecological issues

5. Water issues

10. Integrated approach

2016 Beijing, China

Key concepts:

- **Sustainability**
 - ↳ environmental aspects
- **Liveability**
 - ↳ aspects regarding the quality of life

3 Exercises: housing
water
traffic

Set up Field Work Exercise:

- Part 1: Field Work (half day)
observation & analysis → annotated map
- Part 2: Desk Work (half day)
analysis & problem solving → plan map

2016 Beijing, China



0 500m



Fieldwork Route



River



Commercial and business facilities



Residential



Administration and services



Elementary and secondary schools



Regional heat-supply plant



Water recycling plant



Wangjing Huayuangongqu Community



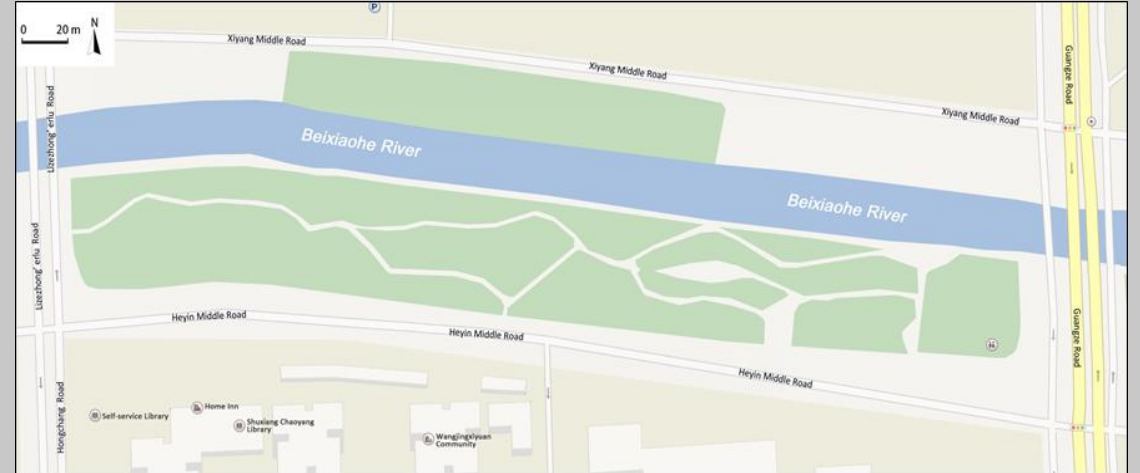
Beixiaohe River



Hongchang Road - Hongtai West Street intersection



- Task 1a: Observe the river and annotate, on a separate worksheet version of the map provided, notes about:
 - its form and structure;
 - what functions it serves with respect to water management in this part of Beijing;
 - what functions it serves within the local community.
- Task 1b: Write brief observations of the water quality of the river on the worksheet provided.



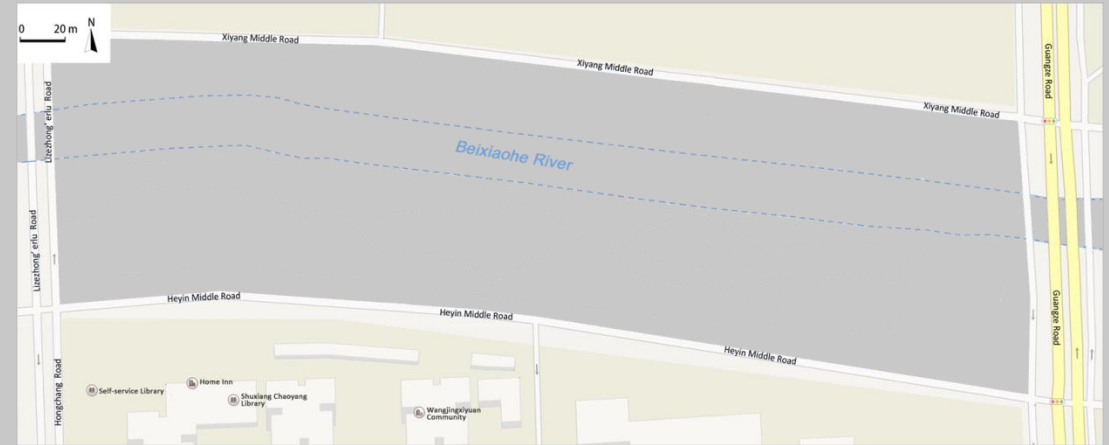
Indicators		Observations
Clarity		
Water	Velocity	
	Depth	
Flow	Obstacles	
Smell		
Aquatic organisms		



2016 Beijing, China

- Task 2: on the map provided suggest changes to the river to
 - improve water retention during the dry seasons;
 - enhance the liveability of the area for the local community.

Annotate your suggestions on the sketch map provided.

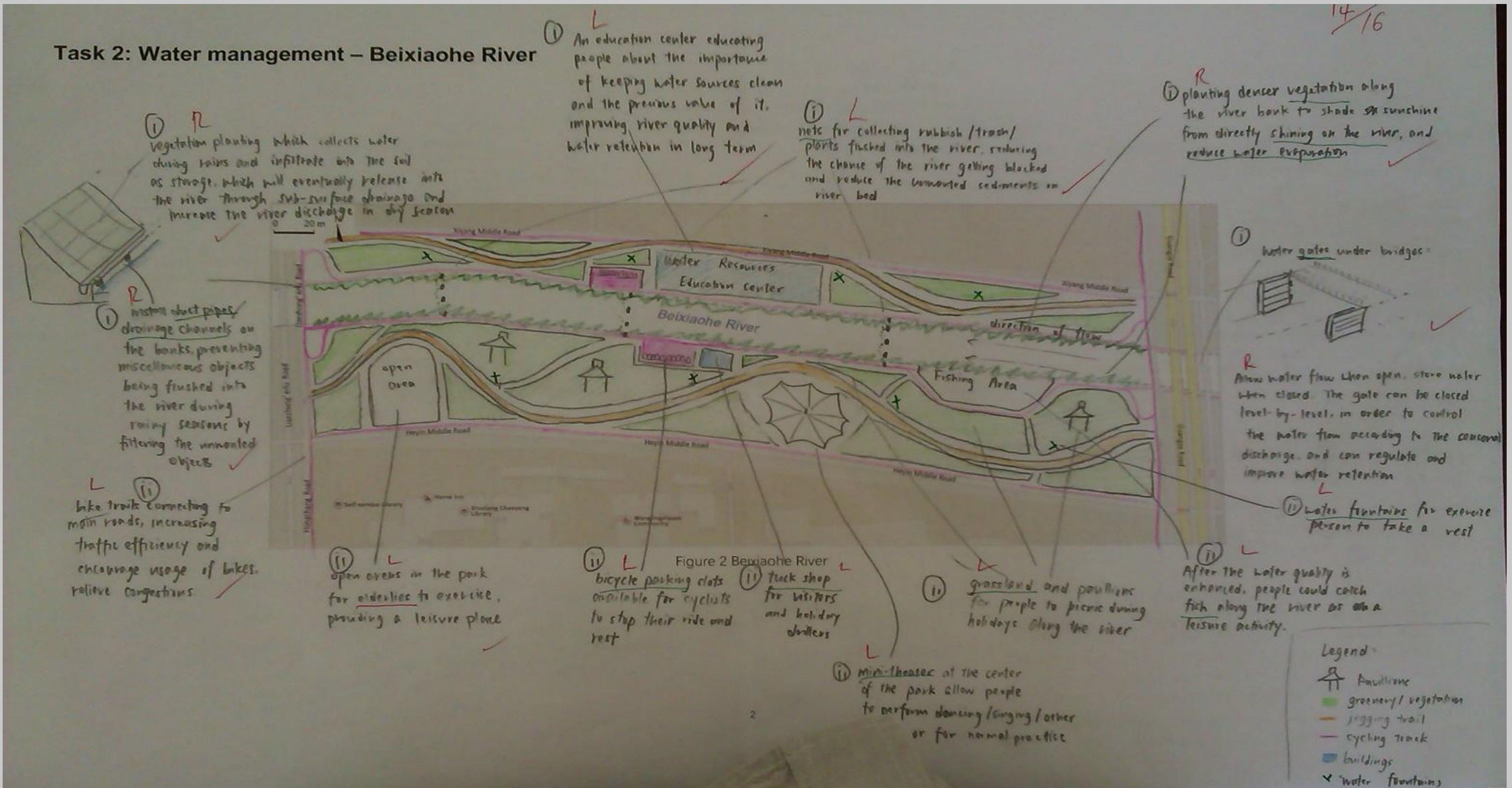




2016 Beijing, China

14/16

Task 2: Water management – Beixiaohe River



① R
Vegetation planting which collects water during rains and infiltrate into the soil as storage, which will eventually release into the river through sub-surface drainage and increase the river discharge in dry season

① L
An education center educating people about the importance of keeping water sources clean and the precious value of it, improving river quality and water retention in long term

① L
nets for collecting rubbish/trash/plants flushed into the river, reducing the chance of the river getting blocked and reduce the unwanted sediments on river bed

① R
planting denser vegetation along the river bank to shade or sunshine from directly shining on the river, and reduce water evaporation

① R
install duct pipes/drainage channels on the banks, preventing miscellaneous objects being flushed into the river during rainy seasons by filtering the unwanted objects

①
water gates under bridges

R
Allow water flow when open, store water when closed. The gate can be closed level-by-level, in order to control the water flow according to the seasonal discharge, and can regulate and improve water retention

L
①
bike trails connecting to main roads, increasing traffic efficiency and encourage usage of bikes, relieve congestions

①
water fountains for exercise person to take a rest

①
open areas in the park for elderlies to exercise, providing a leisure place

① L
bicycle parking slots available for cyclists to stop their ride and rest

①
tuck shop for visitors and holiday shoppers

①
grassland and pavilions for people to picnic during holidays along the river


①
After the water quality is enhanced, people could catch fish along the river as a leisure activity.

①
mini-theater at the center of the park allow people to perform dancing/singing/other or for normal practice

- Legend:
- Pavilion
 - greenery/vegetation
 - biking trail
 - cycling track
 - buildings
 - water fountains

9/16 2/16

Task 2: Water management – Beixiaohe River



Task 2: Water management – Beixiaohe River

- water transport system - small boats will sail up the river and they will connect this neighbourhood with other parts of the city, where the river flows, they are attached to use cable like cable cars/cableway, so they keep the same direction and the operation is easy, they will be used by tourists as an attraction but also by local people, it will be ecological way of transport.
- straight, high solid banks? of the river remain, so they can protect the surrounding area in case of strong floods and also they keep the river suitable for the river transport.
- routes for cyclists - cycling is an ecological way of transport which doesn't harm the environment, so it's suitable for use in the park.
- many plant species will be introduced, so they will have many functions: they keep the water clean and eliminate the smell. They ~~also~~ improve quality of the water in the river, as it will come back clean, they provide a shelter for animals and they decrease effects of climate change.
- building, where you can observe you bicycle, or it's in a safe place.
- small river park, where the small boats stop, this kind of transport can't smelt in a traffic jam and it's very ecological.
- solar panels on its roof provide electricity, which can be used in the area (for example for cable boats).
- Floodgates - they protect the 'city delta' from the strong floods, they regulate the water inflow into the area, they are used also as bridges.
- tower for the animal observation - people can watch the animals in their natural environment and relax.
- meanders and lakes keep lot of water, so it will stay in the area for a long time.
- 'city delta' is a good way to keep a water from the river in the area and it creates good conditions for biological diversity and sustainability.
- water animals, such as fish, birds and frogs will be introduced, so the biological diversity will be higher and the problem with high number of mosquitoes will be solved, as they will eat them.
- many pavements for pedestrians, so they can walk in the park and relax, the most ecological and healthy way of transport.

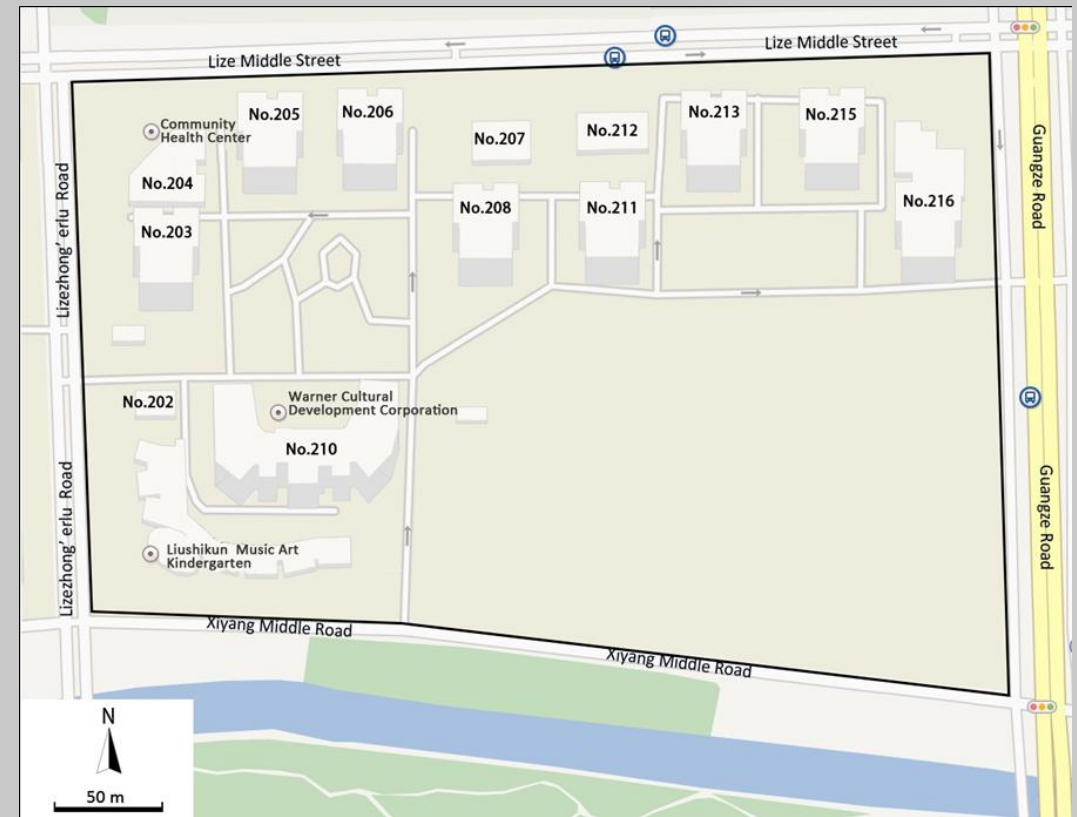
LEGEND

- Buildings
- water plants - on the land - in the water
- water bodies
- cable boats
- floodgates
- park greenery
- pavements
- cyclist streets

Figure 2 Beixiaohe River

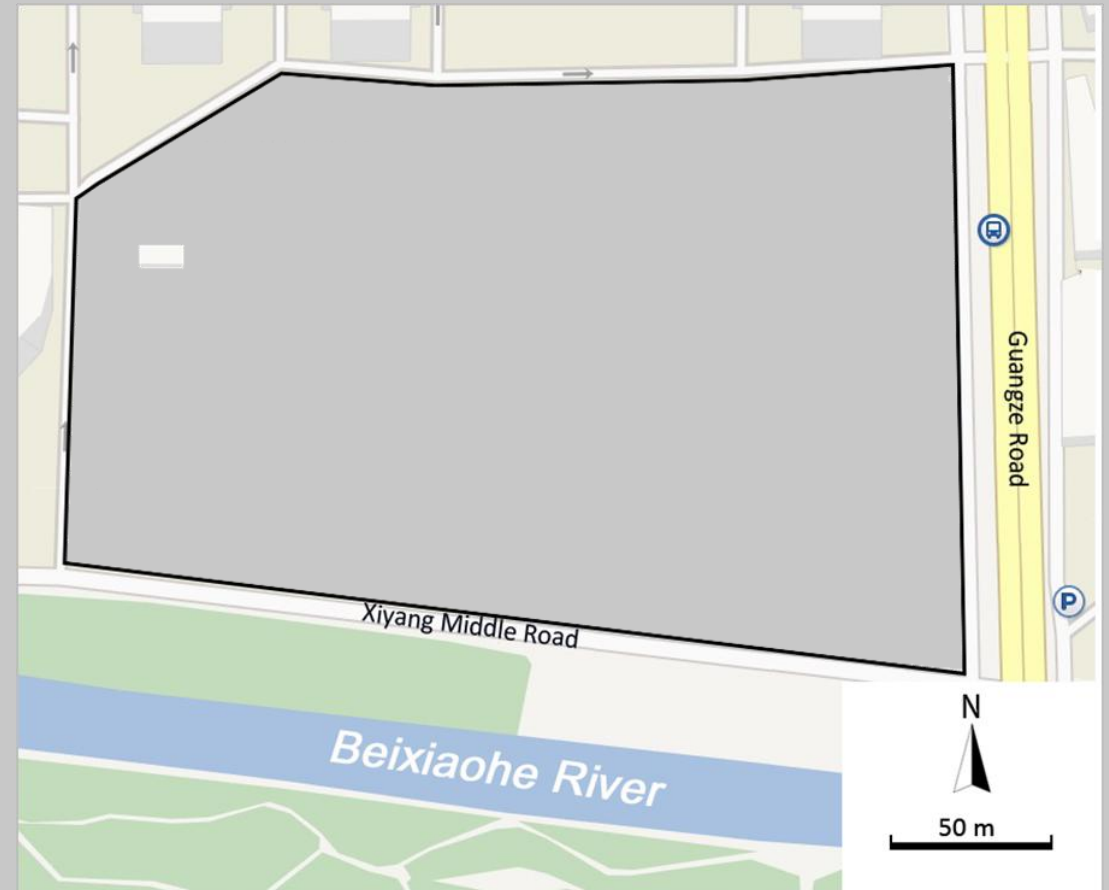
Huayuandongqu Community

- Task 1: identify, indicate and annotate on the map provided:
 - 6 features that affect environmental sustainability and
 - 6 features that affect liveability in a positive or negative way.



Huayangdongqu Community

- Task 2: on the map provided
 - design a sustainable residential development plan for the empty plot of land in the community;
 - explain how your proposed development plan will enhance environmental sustainability and liveability.
- Use no more than 400 words.



The questions of the FWExercise are generic, so they can be used in urban environments all over the world.

SO

Feel free to use them and adapt them to your specific geographical context : all you have to do is to substitute the area specific resources.

2016 Beijing, China

Transfer to Ljubljana

Half of the participants will carry out Task 1 in the field facilitated by Igor.
Time available: 30 min.

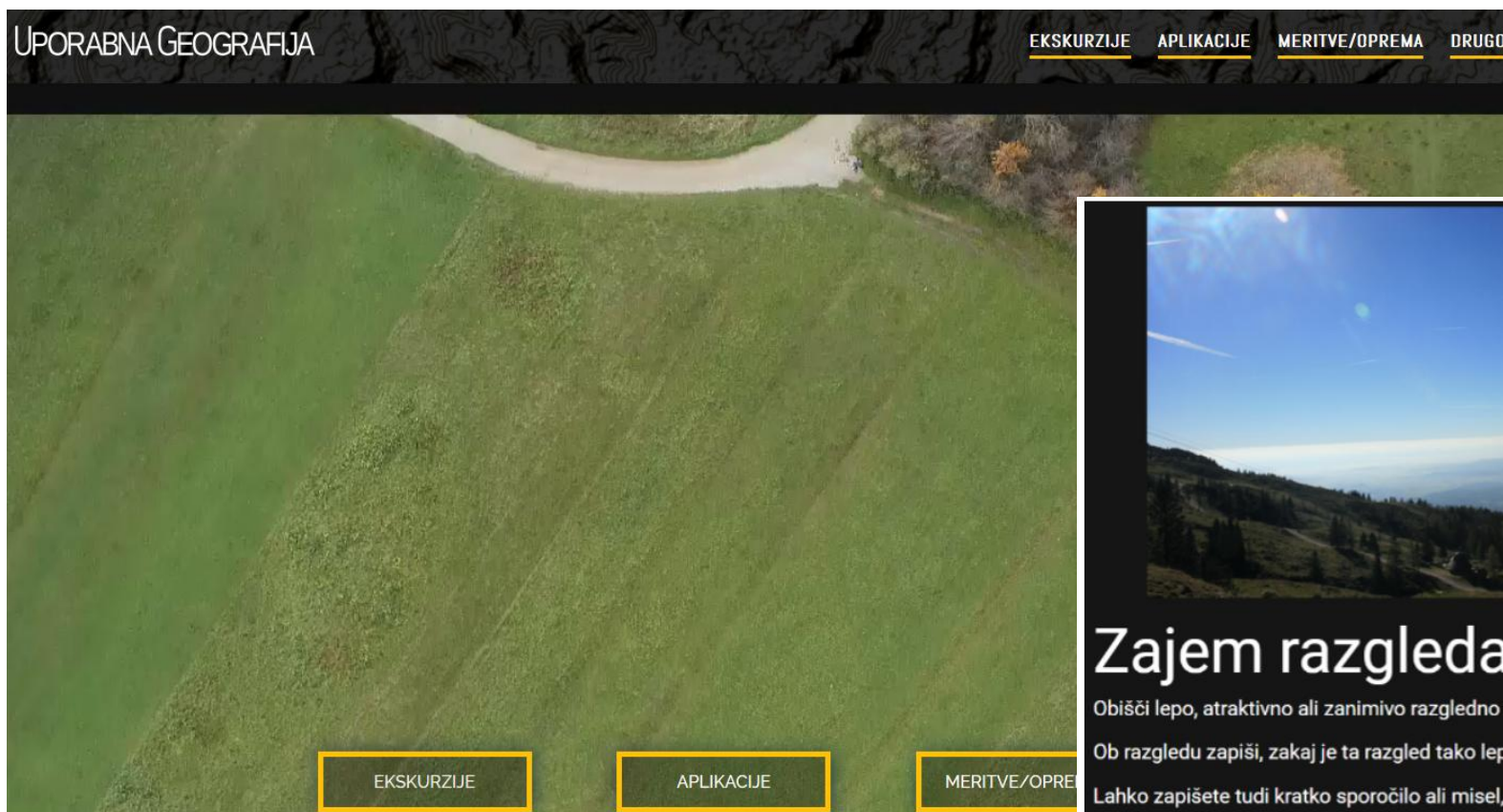
The other half of the participants will stay in the room and will carry out Task 2 facilitated by Henk
Time available: 30 min.



Transfer to Ljubljana

With the support of UPORABNA GEOGRAFIJA

<https://skupnost.sio.si/mod/glossary/view.php?id=311227>



and

Zajem razgleda

Skriti kotički, od koder je pogled na pokrajino res čudovit!

Deli ga z ostalimi



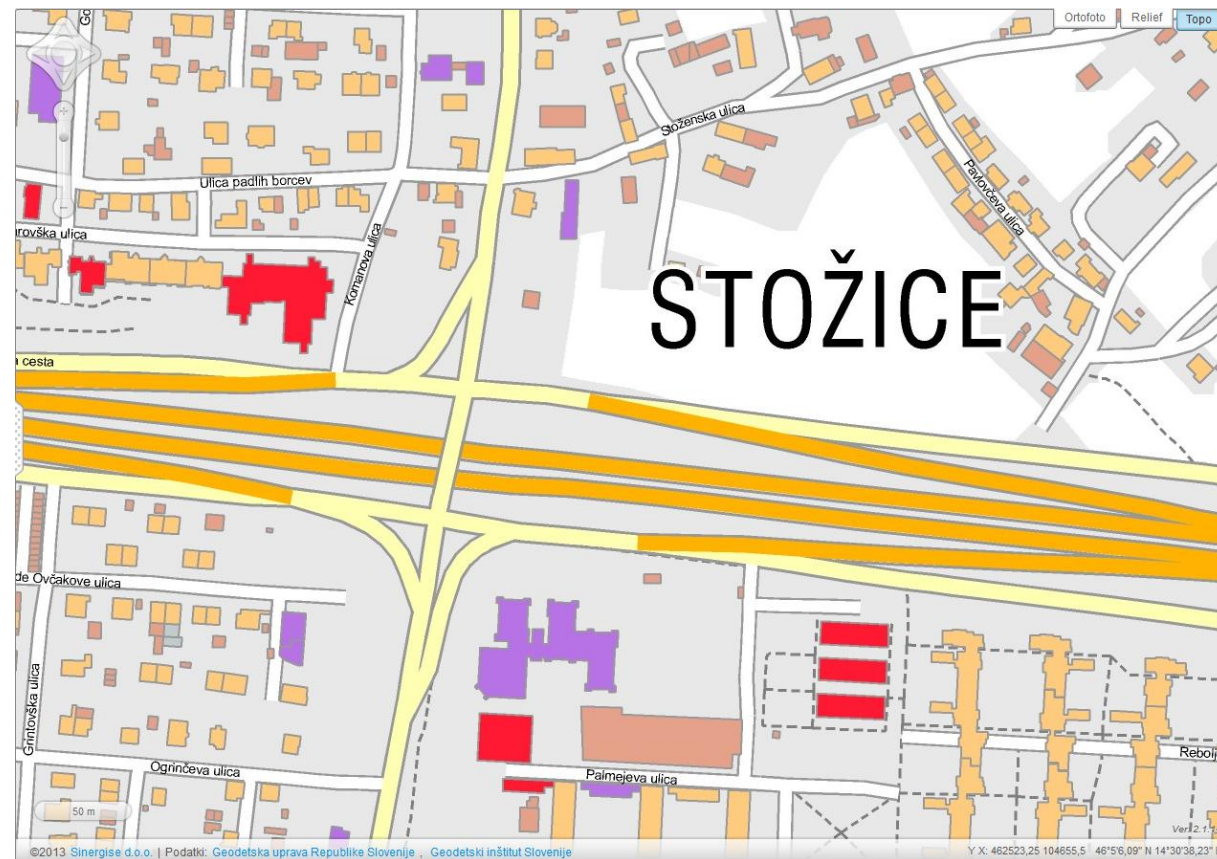
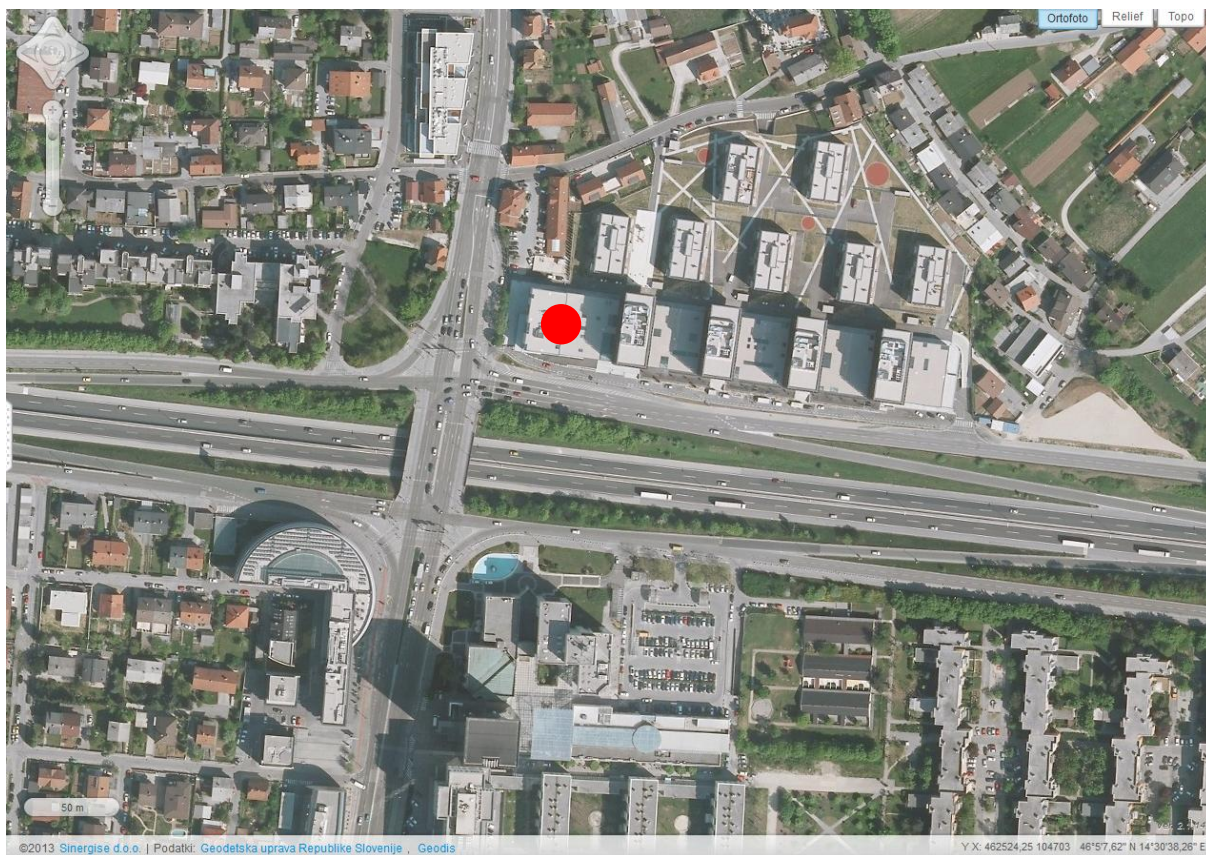
Preberi QR kodo s pametnim telefonom in zaženi aplikacijo.



Zajem razgleda

Obišči lepo, atraktivno ali zanimivo razgledno točko.
Ob razgledu zapiši, zakaj je ta razgled tako lep ali edinstven.
Lahko zapišete tudi kratko sporočilo ali misel, ki se vam utrne zaradi razgleda ali ob samem razgledu.
Fotografiraj pogled z razgledišča.

Transfer to Ljubljana - sustainability & liveability



Presentation & discussion

- Each group will briefly report findings/experiences
10 min. each: 20 min.
- Discussion with the whole group about the feasibility to transfer
and adapt the FWExercise to your own local school area.
10 min.



How did the iGeo students do?

- In general students were able to apply the relevant dimensions of eco-cities to the field work sites;
- Students who did well included area specific aspects and the wider geographical context in their analysis and solutions;
- Only the best students were able to represent their ideas succinctly and clearly on their maps using appropriate map conventions;
- Many students came up with conventional suggestions for identified problems, the best students presented innovative and integrated solutions and referred to concepts.

2016 Beijing, China

for reactions and suggestions:

henk@ankone.net

igor.lipovsek@guest.arnes.si

2016 Beijing, China

Food for thought

The teacher who is indeed wise does not bid you to enter the house of his wisdom but rather leads you to the threshold of your mind.

Khalil Gibran