Green Infrastructure Case Study Template

The aim of the exercise is to provide information on how the elements of the Green Infrastructure Strategy are implemented at national level and to provide case studies on Green Infrastructure projects. The case studies will be demonstrated in a brochure, which will provide decision-makers, spatial planners, NGOs and other stakeholders with information on Green Infrastructure projects’ development and implementation.

Country: Poland
Person filling in: Monika Kotulak
Affiliate organisation (if applicable): Naturalists’ Club Poland
Date: 15,12,2013

Brief description of the case (4-5 lines) Blue Green Network around city of water - Łódź in central Poland is a great case study to show how scientists, public officers, NGOs can get together in Learning Alliance to discuss and plan how the city should look like in order to be more sustainable in using water resources and conserving green elements like parks.

Detailed description of the case

a. Type of Green Infrastructure (GI) element (see list here): Green urban and peri-urban areas

b. Location, expansion, type (urban or rural) and protection status of the sites (e.g. Natura 2000, Ramsar, other protected area, urban area, etc.): urban area

c. Actions carried out to designate, construct, manage and maintain the Green Infrastructure element:

Łódź, thanks to its location on the border between the basins of the Vistula and the Oder, was originally an area very rich in water. Eighteen rivers begin here, most of which, as a result of rapid development of industry in the nineteenth century, has been channelized and integrated into the sewage system.

In order to meet the numerous challenges, Łódź has taken a number of actions aiming to develop and implement solutions in the field of urban ecohydrology, within the framework of the European Project, SWITCH. The project was undertaken by the Department of Applied Ecology University of Lodz and the European Regional Centre for Ecohydrology under the auspices of UNESCO Sciences. The cooperation with the City of Łódź, a key partner in the project, enabled the testing and implementation of innovative solutions in practice. The project was designed to develop the knowledge base in order to develop a complete, innovative development plan of river valleys and water management in the city, having ecohydrology as its
integral component. The project included 25 countries from all over the world, and Łódź was one of nine demonstration cities, alike Accra, Alexandria, Belo Horizonte, Birmingham, Hamburg, Beijing, Tel Aviv and Zaragoza.

The aim of the work undertaken in the project was to harmonize the functions of urban rivers (retention of storm water treatment, recreation area) with ecohydrologic ones, designed to restore the valley of the potential for self-regulation. This included the reconstruction of cascade reservoirs, which hydrodynamics and vegetation cover has been designed to increase ecosystem resilience to the input of pollutants from urban catchments. The use of plants further reduces pollution by increasing their sedimentation and assimilation. Work on the modification of storm sewage settling into a multi- Sequential System Sediment - Biofiltration was completed in 2010.

Another step was the rehabilitation portion of the river valley, including restoration of the river meanders trough and restoration of wetlands. Such activities have lead to improvements in hydraulic communication between the river and the valley, improved the microclimate and better development of vegetation. This area is planned to be a Sokolówka Valley Park, which not only would be a recreation area for local settlements, but also enters into the system of rivers and green areas in Łódź.

In 2006, a platform of stakeholders: Learning Alliance (LA) was established, with the aim of sharing experiences and knowledge. It was also a forum for discussion, often conflicting goals, needs and expectations of individual institutions, as well as barriers to their achievement. Initially, members of the LA were representatives of entities directly related to the water sector. But already during the first workshop identified a number of other institutions whose participation has proved necessary to obtain a complete picture of the challenges and opportunities and create better cooperation in the water sector. Soon, the group has grown to more than 60 partners, representing more than 25 units of areas: science, public administration, NGOs, practitioners in the water sector and related media representatives and others. Regular meetings and contacts between participants in the LA group led in January 2008 to the workshop, during which, based on the results of a joint, two years longer work, formulated a vision for Łódź in 2038: "Łódź Smart Uses of Water". Vision building workshop was a turning point of policy makers, who have declared their commitment to a consistent policy of water management and the willingness to participate in the development of scenarios and strategic options for the realization of the vision. The result of these actions was also to formulate short-term action plan, which included, inter alia, to promote cooperation between science and administration, developing demonstration projects to promote the ecohydrological solutions and taking action towards their effective implementation.

Development of river Sokolówka is an inspiration for similar activities in other Łódź rivers and the creation of the concept Blue - Green Network, done by Learning Alliance group. It is a project combining and expanding existing studies on natural elements and green architectural elements of Łódź and the Łódź region. Created network is to contribute to maintaining the continuity of ecological processes and support ecosystem goods and services for the city. This idea became the basis for one of the three pillars adopted by the Council of the City of Łódź in 2012, the Strategy for Integrated Development of Łódź in 2020. Resource management of the city is based on efficient, integrated system that provides universal access to information. Investors and authorities respect the ecological use of land and water. Infrastructure meet the functions and requirements for safe cities, is reliable, meets the needs of all residents and provides good ecological status of waters. Green areas - river valleys along the outdoor troughs -
devoted to recreation and create a green lung Łódź and attractive conditions for the
development of the city. The use of environmental biotechnology and deep general
environmental awareness of inhabitants exceptional quality of life in the city. Łódź, is a leading
center for innovation, education and implementation in Poland.

d. Importance for biodiversity conservation (ecosystems connected, type of species benefitting,
ecosystem services’ enhancement, etc.): river restoration and connectivity, fish species and
aquatic fauna and flora, city parks connected

e. Short term (up to three years) environmental and social benefits of the GI element and its
effects (see lists of benefits here) – please quantify if possible:

  o Total area of inland water bodies and inland wetlands
  o Water infiltration capacity/rate
  o Water storage capacity in mm/m
  o Image enhancement: Scenery, amenity, environmental quality, recreation, exercise,
  o Accessibility for exercise and amenity: Reduced stress levels and improving mental
    health, increased physical activities

f. Long term environmental and social benefits of the GI element and its effects (see lists of
benefits here) – please quantify if possible:

  o Storage of freshwater resources: groundwater recharge, total area of inland water bodies
    and inland wetlands
  o Regulation of water flows: Water infiltration capacity/rate, water storage capacity in
    mm/m
  o Image enhancement: Scenery, amenity, environmental quality, recreation, exercise,
  o Proximity to natural habitat
  o Abundance and species richness of wild pollinators
  o Range of wild pollinators
  o Noise regulation: Natural sound absorption capacity
  o Accessibility for exercise and amenity: Reduced stress levels and improving mental
    health, increased physical activities

Sources of financing: EU Project SWITCH (IP 6 PR UE, GOCE 018530 2006 - 2011), further
supported by Grant of the City of Łódź Mayor (in 2009), continued by EU Projects: EH-REK
(LIFE08 ENV/PL/000517) and POIG.01.01.02-10-106/09-04 "Innovative resources and
effective methods of safety improvement and durability of buildings and transport
infrastructure in the sustainable development” financed by the EU from the European Fund of Regional Development based on the Operational Programme of the Innovative Economy.

h. Duration of financing and implementation: 2006 - 2010

i. Actions specifically financed: Revitalisation of the Sokolówka Urban River Valley, development of the Green Blue Network by:
   1) monitoring and surveys to improve understanding of ecohydrological processes
   2) demonstration of innovations
   3) learning and sharing within learning alliance to have wider impact
   4) advocacy and dissemination to raise wider awareness
   5) the facilitation and management activities that are vital to the SWITCH process in the city (a cross-cutting issue).

Scientific research (Hydrological monitoring of the Sokolówka river, Study of ecohydrological relationships

j. Main stakeholders involved: Department of Applied Ecology University of Łódź and the European Regional Centre for Ecohydrology, City Mayor: The Department of Municipal Management, the Department of Environment and Agriculture, the Bureau of Entrepreneurship, Development and Investor Relations the Department of Spatial Planning and Architecture; and the Office for Spatial Planning of the City of Lodz, The Lodz Infrastructure Company, The Waterworks and Sewage System Company, The Lodz Wastewater Treatment Plant, NGOses among others: ZRODLA (The Centre for Environmental Activities), GPO (Group of Certain People), and ‘Lodz on Bicycles’ – NGOs involved in promoting environmental issues in Lodz, The media, Researchers include among others: Department of Applied Ecology of the University of Lodz, European Regional Centre for Ecohydrology under the auspices of UNESCO – the International Institute of the Polish Academy of Sciences, Technical University of Lodz, Medical University of Lodz, Institute of Occupational Medicine in Lodz.

k. Legal and policy background (national, local, etc. acts, law and policies influencing the specific case): Strategy for Integrated Development: Łódź 2020+

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**General information on Green Infrastructure implementation on the national level**

a) Is habitat connectivity regarded as a major issue in national/regional/local conservation? If yes, can you list already existing tools on the ground that helped implementation (e.g. ecological corridors designated and managed)?

b) Are Green Infrastructure projects general practice to connect ecosystems and solve fragmentation problems in your country?

c) What are the most commonly implemented Green Infrastructure projects?

d) Are projects planned and linked spatially?

e) Who is responsible for implementation?

f) Do authorities have sufficient capacities to carry out monitoring, data collection and
**Legal background**

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<th>g)</th>
<th>Can you list some issues, which in your view are important to be tackled by Green Infrastructure projects at any level, but generally and currently overlooked?</th>
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<td>h)</td>
<td>Is the concept of Green Infrastructure known and accepted as delivering multiple benefits among relevant stakeholders (e.g. spatial planners, local authorities, conservation and environmental authorities, project developers, NGOs)? If no, please list the main reasons.</td>
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**Financing**

| a) | Which are the main funding sources? |
| b) | Which activities/projects are most likely to get financial support? |
| c) | Is Green Infrastructure project funding regarded as one of the issues directly referred to in national operational programs or does the government/ministry regard it as a priority within conservation/climate change mitigation and adaptation measures? |
| d) | Are there any examples of business or private stakeholders to develop Green Infrastructure projects? |

**Monitoring and capacities**

| a) | Are there any data collected or monitoring for successful implementation? |
| b) | What are the data sources? |
| c) | Were there sufficient data to set baseline and quantifiable targets? |

**Recommendations**

<p>| d) | How do you think the concept of Green Infrastructure could be more streamlined into decision-making? |
| e) | Would standards help GI implementation (e.g. green roofs, green bridges, integrated... |</p>
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<td>f) Which stakeholders are missing mostly? Why?</td>
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<td>g) How do you think the concept of Green Infrastructure and its benefits should be communicated better to various stakeholders?</td>
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<td>h) Please list at least three recommendations on how funding should be improved.</td>
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<td>i) Please list at least three recommendations on how stakeholder involvement should be improved.</td>
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<td>j) Please list any other recommendations in terms of how Green Infrastructure projects can be developed better and function more effectively.</td>
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**Please attach any related materials annexes (pictures, maps, websites, etc.)**

![Blue - Green Net](http://www.e-czytelnia.abrys.pl/zdjecia_duze/2013/07/20130730092106_rys2.jpg)
Sources of information:

- Blue - Green City for compensating Global Climate change
  http://www.theparliament.com/digimag/issue350

- Singer Malgorzata "Projekt Błękitno Zielona Łódź"

- Wagner Iwona, Krauze Kinga, Zalewski Maciej "Błękitne aspekty zielonej infrastruktury"
  Katedra Ekologii Stosowanej, Uniwersytet Łódzki, Europejskie Regionalne Centrum Ekohydrologii pod auspiciami UNESCO, PAN

- Wagner Iwona, Zalewski Maciej "Błękitno-Zielona Sieć – poprawa jakości życia w miastach w obliczu zmian klimatu" Studio Opinii

- Wagner Iwona, Zalewski Maciej "Błękitno-Zielona Sieć" www.e-czytelnia.abrys.pl

- Wagner Iwona, da Silva Wells Carnem, Butterworth John, Dźiękielewska - Geitz Monika
  "Reflection on the achievements and lessons from the SWITCH urban water management in Łódź, Poland" http://www.irc.nl/page/61360

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