The prevention of soil sealing (Poland)

Zapobieganie zasklepianiu gleb (Polish)

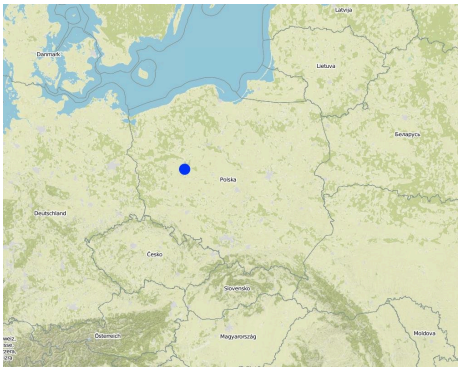
DESCRIPTION

The prevention of soil sealing is an approach in which stakeholders are making spatial planning decisions based on the new map of soil sealing, in case of protecting the most valuable soils.

Aims / objectives: The aim of this approach is to show how spatial planning decisions, should be made by taking into account the soil sealing problem. As the consequence of urbanization pressure, the urban sprawl is crossing municipal boundaries of Poznań. In the whole study site area, 53,3 % are arable lands, located mostly on loams, silts or sandy clay soils. Wielkopolska province has got the highest farm productivity per ha in Poland. Based on EEA data, sealed surfaces constitute 16 % of the city area. Soil sealing problem is a consequence of the urban sprawl process, which affects mainly the municipalities near by the Poznań city borders. To support decision-making in municipalities spatial planning offices, the data from the soil sealing maps is used to select the most appropriate areas to build new houses mostly on low quality soils.

Methods: Land use maps of at least 10-meter resolution are produced for two historical periods
through classification of the satellite images and using available local land use information. The information on land use change is superimposed on maps characterizing soil quality in order to detect to what extend the urbanization took place on valuable soils. The new sealed area, reflecting the built up sprawl of at least last 15 years, consists with expansion of the following land use classes: continuous residential area, commercial/industrial area and transport facilities. The soils under these new land use types fully lost their environmental functions. In the soil sealing forecasts the Cellular Automata-based Metronamica model is used. The final maps consist of the spatial planning aspect, soil sealing area and the scientific comment about the soil sealing problem.

LOCATION



Location: Poznan, Poland, Wielkopolska, Poland

Geo-reference of selected sites

- 16.92517, 52.40637

Initiation date: n.a.

Year of termination: n.a.

Type of Approach

- ☐ traditional/ indigenous
- ☐ recent local initiative/ innovative
- ☑ project/ programme based

APPROACH AIMS AND ENABLING ENVIRONMENT

Main aims / objectives of the approach

The Approach focused on SLM only

The main aim of this Approach is to utilize soil agricultural maps and provide information on quality of sealed soils. Send those maps to the municipal authorities, with a scientific comment on the problem. For the whole province, these maps should be made based on the digital soil maps in scale 1:25 000.

The SLM Approach addressed the following problems: The best type of soil is being sealed by new house constructions sites. People from the city center are moving out to municipalities which are near by the border of the city. They are building their houses mostly on agricultural fields in a chaotic way, in much cases on the highest quality soils. This urban sprawl process, affects negatively the soil ecosystem services by the soil sealing and also decrease the quality of inhabitants life.

Conditions enabling the implementation of the Technology/ ies applied under the Approach

Conditions hindering the implementation of the Technology/ ies applied under the Approach

- **Institutional setting**: In Poland, for every area there were made soil maps in scale 1:5000 and 1:25000. On those maps besides soil data there is also information about house areas and land use types. Most of those maps are still only in paper version, which makes it very hard to use them in spatial planning. Treatment through the SLM Approach: We will digitize the paper version of soil maps for the municipalities, and also update the map content about the land use.

PARTICIPATION AND ROLES OF STAKEHOLDERS INVOLVED

Stakeholders involved in the Approach and their roles

What stakeholders / implementing bodies were involved in the Approach?	Specify stakeholders	Describe roles of stakeholders
SLM specialists/ agricultural advisers		
local government		
national government (planners, decision-makers)	Wielkopolska province, the Office of spatial planning in Poznań	

Involvement of local land users/ local communities in the different phases of the Approach

	none	passive	external support	interactive	self-mobilization	
initiation/ motivation	☑					The project was introduced throught RECARE project
planning				☑		Wielkopolska province, the Office of spatial planning in Poznań. They firstly had chosen in which municipalities there is the biggest soil sealing problem
implementation	☑					Wielkopolska province, the Office of spatial planning in Poznań. It is implemented in the spatial planning strategy in the Wielkopolska province.
monitoring/ evaluation					☑	Institute of soil science and plant cultivation in Pulawy. There is a discussion on a regular basis with the stakeholders.
Research	☑					

Flow chart

Decision-making on the selection of SLM Technology

Decisions were taken by

- ☐ land users alone (self-initiative)
- ☐ mainly land users, supported by SLM specialists
- ☐ all relevant actors, as part of a participatory approach
- ☐ mainly SLM specialists, following consultation with land users
- ☑ SLM specialists alone
- ☐ politicians/ leaders

Decisions were made based on

- ☐ evaluation of well-documented SLM knowledge (evidence-based decision-making)
- ☐ research findings
- ☐ personal experience and opinions (undocumented)

TECHNICAL SUPPORT, CAPACITY BUILDING, AND KNOWLEDGE MANAGEMENT

The following activities or services have been part of the approach

- ☑ Capacity building/ training
- ☑ Advisory service
- ☑ Institution strengthening (organizational development)
- ☑ Monitoring and evaluation
- ☑ Research

Capacity building/ training

Training was provided to the following stakeholders

- ☐ land users
- ☐ field staff/ advisers
- ☑ office workers form the Office of spatial planning

Form of training

- ☐ on-the-job
- ☐ farmer-to-farmer
- ☐ demonstration areas
- ☐ public meetings
- ☐ courses

Subjects covered

Advisory service

Advisory service was provided

- ☐ on land users' fields
- ☐ at permanent centres

Advisory service is quite adequate to ensure the continuation of land conservation activities

Institution strengthening

Institutions have been strengthened / established

- [ ] no
- [x] yes, a little
- [ ] yes, moderately
- [ ] yes, greatly

at the following level

- [x] local
- [ ] regional
- [ ] national

Describe institution, roles and responsibilities, members, etc.

Type of support

- [ ] financial
- [x] capacity building/ training
- [ ] equipment

Further details

On the first workshop.

Monitoring and evaluation

technical aspects were ad hoc monitored by government through observations; indicators: Advisory meetings area treated aspects were ad hoc monitored by government through observations; indicators: only in municipalities with the highest soil sealing threat management of Approach aspects were regular monitored by project staff through observations; indicators: advisory meetings There were no changes in the Approach as a result of monitoring and evaluation There were no changes in the Technology as a result of monitoring and evaluation

Research

Research treated the following topics

- [ ] sociology
- [ ] economics / marketing
- [ ] ecology
- [x] technology

Research was carried out on station

FINANCING AND EXTERNAL MATERIAL SUPPORT

Annual budget in USD for the SLM component

- [ ] < 2,000
- [ ] 2,000-10,000
- [ ] 10,000-100,000
- [ ] 100,000-1,000,000
- [ ] > 1,000,000

Precise annual budget: n.a.

Approach costs were met by the following donors: international non-government: 90.0%; local government (district, county, municipality, village etc): 10.0%

The following services or incentives have been provided to land users

- [ ] Financial/ material support provided to land users
- [ ] Subsidies for specific inputs
- [ ] Credit
- [ ] Other incentives or instruments

IMPACT ANALYSIS AND CONCLUDING STATEMENTS

Impacts of the Approach

	No	Yes, little	Yes, moderately	Yes, greatly
Did the Approach help land users to implement and maintain SLM Technologies? It had raised the awareness about the value of soil ecosystem services, and had shown how big is the scale of soil sealing. This information have started to be very useful in case of taking new spatial planning decisions by the planners.		✓		
Did the Approach empower socially and economically disadvantaged groups? This isn't connected with the soil sealing threat	✓			
Did the Approach improve issues of land tenure/ user rights that hindered implementation of SLM Technologies?	✓			
Did other land users / projects adopt the Approach? Our every stakeholder have adopted the Approach.				✓

Main motivation of land users to implement SLM

- [ ] increased production
- [ ] increased profit(ability), improved cost-benefit-ratio
- [ ] reduced land degradation
- [ ] reduced risk of disasters
- [ ] reduced workload
- [ ] payments/ subsidies
- [ ] rules and regulations (fines)/ enforcement
- [ ] prestige, social pressure/ social cohesion
- [ ] affiliation to movement/ project/ group/ networks
- [x] environmental consciousness
- [ ] customs and beliefs, morals
- [ ] enhanced SLM knowledge and skills
- [ ] aesthetic improvement
- [ ] conflict mitigation

Sustainability of Approach activities

Can the land users sustain what hat been implemented through the Approach (without external support)?

- [ ] no
- [x] yes
- [ ] uncertain

Yes, they can continue the Approach activities without support. But we are opened for cooperation/consulting if there will be a need to make some improvements in this Approach.

CONCLUSIONS AND LESSONS LEARNT

Strengths: land user's view

Weaknesses/ disadvantages/ risks: land user's viewhow to overcome

Strengths: compiler's or other key resource person's view

- The analysis are made base on the low scale maps : 1:5000 and 1:25000. (How to sustain/ enhance this strength: Update the land use information in spatial data format)

Weaknesses/ disadvantages/ risks: compiler's or other key resource person's viewhow to overcome

- The commune authorities don't think about long therm consequences in soil loss. They don't see soil sealing as a threat. Raise the awareness about soil ecosystem services, especially about soil sealing threat. Showing them on the maps, the results of various prediction model, in which the urban sprawl will be still uncontrolled.

REFERENCES

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Full description in the WOCAT database
https://qcat.wocat.net/en/wocat/approaches/view/approaches_2540/

Linked SLM data
Technologies: Ex-post and ex-ante soil sealing maps https://qcat.wocat.net/en/wocat/technologies/view/technologies_1716/
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