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ENI SEIS II East
Implementation of the Shared Environmental Information System (SEIS) principles and practices in the ENP East region

Regional Conference on the outcome of the CLC-Pilot project, potential benefits and way forward in ENI-East countries

Azerbaijan

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1. Steps of implementing the CLC-pilot (1/2)

Area of interest:

Pilot area of 2500 km^2 covering **Absheron peninsula** including Baku and its outskirts

Database used in the project:

The CLC Pilot project is based primarily on the IMAGE2018 and IMAGE2000 high resolution (HR) satellite image coverages. The HR satellite image coverages, digital topographic maps (1:2000) scanned topographic maps (1:50000), ortho-photos (2000-2016) with resolution 15 to 50 cm and other ancillary data were used to map land cover status layer for 2018 and land cover changes between 2000 and 2018.

Trainings

- Experts from the ETC/ULS conducted 2 CLC training in Baku on 26-28 August 2019 and 26-27 November 2019.
- A training report from the ETC/ULS was shared with Azerbaijan colleagues shortly after, in which there were proposals on the overall project responsibilities among members of the Azerbaijan CLC team.

1. Steps of implementing the CLC-pilot (2/2)

Methodology of mapping

- Mapping CLC2018
- Delineation of land cover changes between 2000 and 2018, using satellite images and ancillary data
- Producing the CLC2000 database from revised CLC2018 and CLC-Changes 2000-2018 databases by means of semiautomatic generalisation;

Photointerpretation

The methodology consists of the following main steps:
InterChange 4.0 tool (provided by ETC-ULS) was used for mapping of CLC-2018 and CLC-Change.
According to the European methodology, all changes larger than 5 ha have been delineated, not depending on their location.

Quality control

Internal quality control

The revised CLC2018 and CLC-Change (2000-2018) databases were 100% quality controlled by the leading photo-interpreter.

External quality control

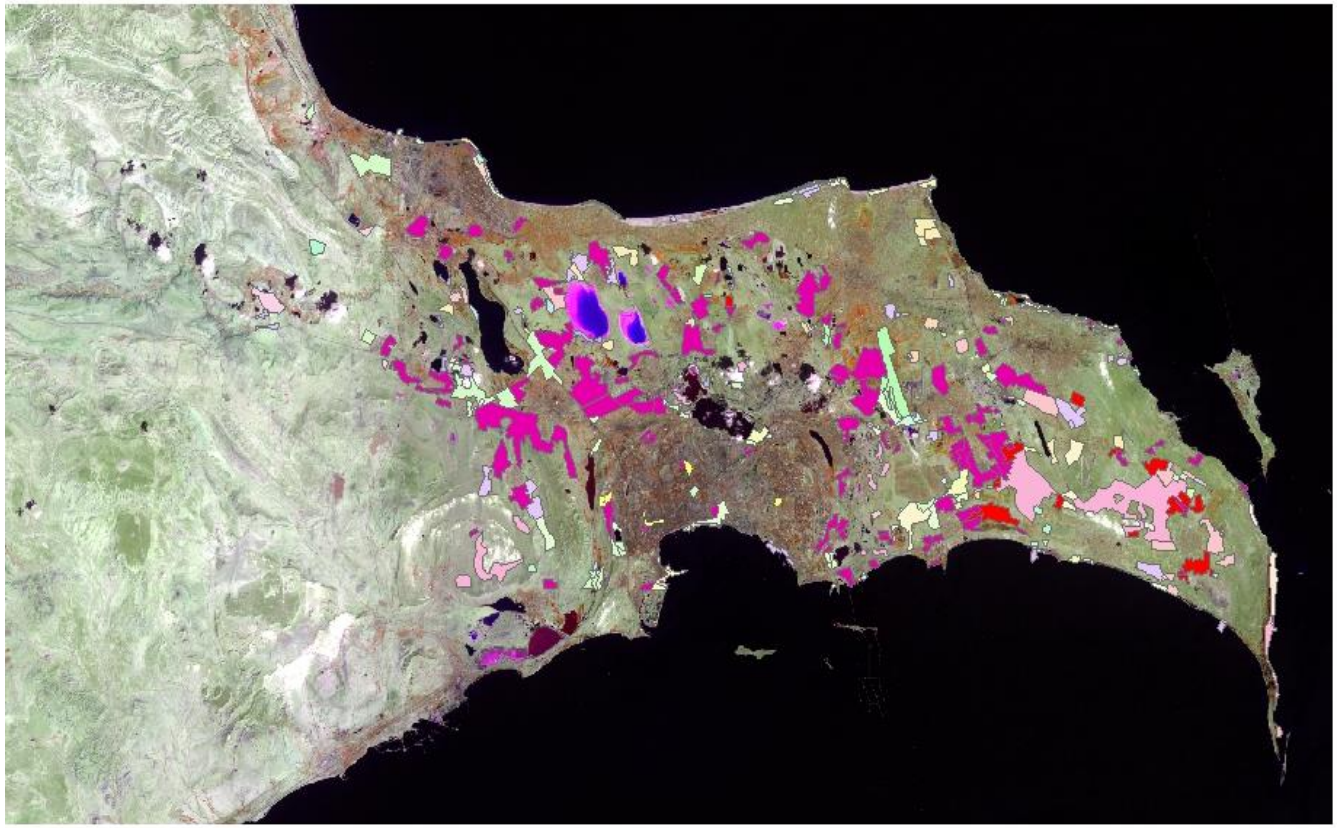
The CLC Technical Team of the ETC-ULS verified the results of the photo-interpretation, the CLC2018 and CLC-Change databases. Errors found were corrected by the Azeri Team and revised databases were produced.

2. Main results of the CLC-pilot (1/5)

CLC-changes

Altogether 349 CLC change polygons, representing 34 different change types were delineated 10,6 % of pilot area changed between 2000 and 2018.

CLC-changes (2000-2018) map of Absheron pilot area in Azerbaijan



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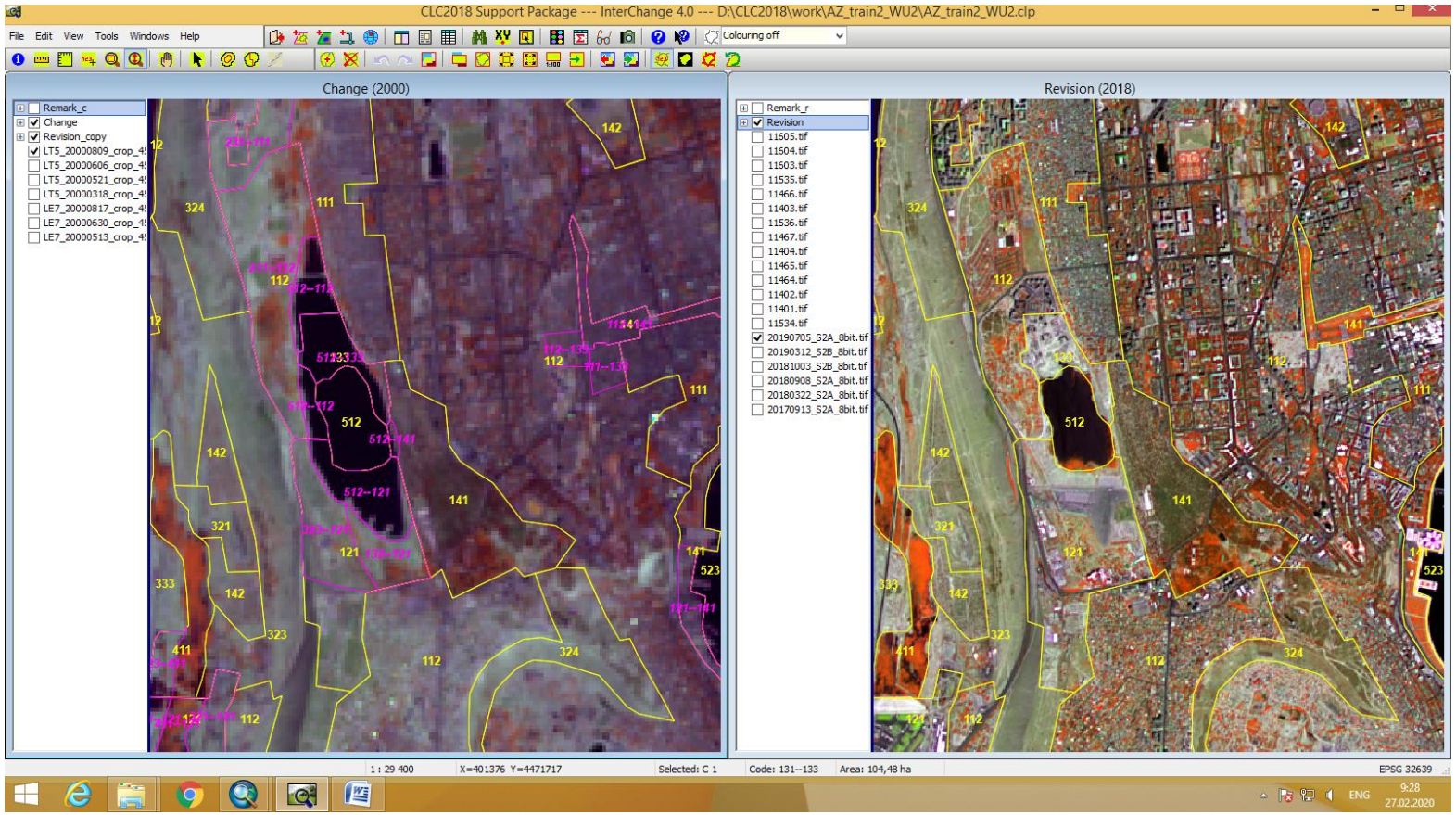
2. Main results of the CLC-pilot (2/5)

CLC Changes 2000-2018

This screen-shot illustrates CORINE land cover changes between 2000 and 2018. A large part of a Water body (512) changes to Discontinuous urban fabric (112), Commercial units (121), Green urban area (141), Construction site (133).



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2. Main results of the CLC-pilot (3/5)

Major CLC Changes between 2000-2018

Change 2000-2018	CLC Change type	Counts	Area(ha)	Evolution process
131-112	Mineral extraction sites to discontinuous urban fabric	9	545,79	Residential sprawl
231-112	Pastures to discontinuous urban fabric	34	4250,99	
321-112	Natural grassland to discontinuous urban fabric	14	2130	
523-112	Sea to discontinuous urban fabric	3	28,9	
231-121	Pastures to industrial or commercial units	9	1085,35	sprawl of industrial and mining sites
321-131	Natural grassland to mineral extraction sites	5	1484,75	
231-212	Pastures to permanently irrigated arable land	8	970,92	Increase of irrigated arable land

2. Main results of the CLC-pilot (4/5)

321-212	**Natural grassland to permanently irrigated arable land**	**5**	**292,86**	**Increase of irrigated arable land**
231-222	Pastures to orchards, fruit-tree plantations	7	777,14	increase of agriculture plantations
231-223	Pastures to olive groves	4	561,31	
512-112	Water bodies to discontinuous urban fabric	5	139,15	
333-223	Sparsely vegetated area to olive groves	1	222	
523-331	Sea to beaches, dunes and sand plains	10	592,8	
523-123	Sea to port areas	3	105,44	increase of ports
333-112	Sparsely vegetated areas to discontinuous urban fabric	6	599,86	
321-121	Natural grassland to commercial units	5	188,09	
121-142	Commercial units to sport and recreational areas	4	126,74	

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2. Main results of the CLC-pilot (5/5)

Conclusions

252.708 ha of area was covered.
10,6% of the total area has changed between 2000 and 2018.

Major changes (evolution processes) in Absheron pilot area in Azerbaijan are as follows:

- Pastures have decreased;
- Natural grassland areas have decreased;
- Discontinuous urban fabric areas have increased;
- Irrigated arable land have increased.

3. Difficulties encountered in realising the CLC-pilot (1)

- The main difficulty was that the pilot area faced many changes in last 18 years.
- The pilot area is partly covered with mud volcanoes and deserts with difficult access.
- The other complication was the difficulties in applying the CLC nomenclature in mapping CLC2018, especially at the west (seminatural) part of the pilot area.

4. Visibility and communication (1/5)

- The mid-term results of CLC pilot project has been already presented as a result of ENI SEIS II project implementation.
- The final results of the pilot project will be widely presented to the Ministry and National Implementation Team of the project as a tangible result of the ENI SEIS II project as soon as the conditions allow it.
- Wide dissemination of pilot project results is planned.

5. Potential use of CLC in the country (1/3)

Biodiversity

- Monitoring the changes in forestry
- Monitoring of national parks, state reservations and green areas
- Changes from dry land to grass land or opposite

5. Potential use of CLC in the country (2/3)

Environment and Agriculture

- Monitoring pollution and damages to land surface affected by oil industry and its recovery
- Monitoring of lands affected by mining and other industrial activities
- Monitoring of changing balance between agricultural and salt affected land areas and cultivation purposes.
- Monitoring of coastal areas of rivers, lakes and the sea

5. Potential use of CLC in the country (3/3)

City planning, Urbanization

- Assessment of changes in land surface for the areas allocated for residential use.
- Assessment of changes in land surface of deserted land transferred into urban infrastructure.

6. Plans for continuation of CLC mapping (1/2)

- CORINE Land Cover pilot results are considered as useful, worth to extend the project to cover the whole territory of the country.
- The CLC2018 project also could be interesting for Ministry of Agriculture of the Republic of Azerbaijan.

Proposed next steps:

- Develop a draft proposal with support of ETC/ULS experts for the national CLC according to the country needs.
- Finding financial assistance for project implementation.

6. Plans for continuation of CLC mapping (2/2)

- It’s planned that CLC mapping to be useful for the country in issues related to forestry and urbanization.
- Implementing institution of an operational CLC mapping for a moment uniquely is Ministry of Ecology and Natural Resources, but Ministry of Agriculture and State Committee on Urban Planning and Architecture are considered to be the next institutions that will use CLC mapping for their own purposes in the future.