

# Czech Republic

## LAND

The records of real estate in the CR are kept in the Land Register. In the CR, the agricultural land covers approximately half of the total area of the country, though the area of the agricultural land keeps decreasing year by year. Conversely, the forest land area has been on an increase and accounts for more than one third of the CR. The area of arable land kept decreasing in the last decade, especially in favour of permanent grassland. A half of the agricultural land area is situated in the Less Favoured Areas, while even in such areas the share of land under tillage is still too high compared to the EU.

Concerning the development of organic farming, there was an expansion of the organic farming area, especially after 1998 to more than 6% of total agricultural land area in 2004. However, the structure of the organic farming area constitutes a structural problem as the share of about 90% of this area comprises meadows and pastures, while organic farmed arable land or orchards and vineyards are relatively scarce.

The essential prerequisite for settling the titles to land, enabling more farmers to farm on their own land as well as enhancing the motivation of farmers to make long-term investments in real estate, land and landscape is the comprehensive reparcelling. The reparcelling makes land available and contributes to the environment and land improvement. The comprehensive reparcelling in the CR is conducted in public interest and its implementation is supported from both the state budget and the EU funds.

### *Soil monitoring programme*

The monitoring programme on agricultural soil is being realized in the network of 190 representative monitoring plots on arable land, grassland and on special crops since 1992. On selected monitoring plots, atmospheric deposition is monitored simultaneously in one month period. On the special subsystem of 25 monitoring plots, designed in highly polluted areas, parameters of pollution are investigated (level of pollution, sources, translocation in soil profile, transfer in plants).

In six years period, the following parameters are monitored: active and exchangeable soil reaction, content of available nutrients - P, K, Mg, Ca analysed by several methods, content of microelements (B, Mo, Mn, Zn, Cu, Fe), sorption capacity (S, T, V), organic matter content (Cox), risk element content in nitric acid (As, Be, Cd, Co, Cr, Cu, Ni, Pb, V, Zn) and aqua regia (Al, As, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Ni, P, Pb, V, Zn) extraction and total Hg content. Yearly monitored parameters are as follows: content of mineral nitrogen, selected microbiological and biochemical parameters, content of selected organic pollutants (persistent organochloric pollutants, PCB, PAH), content of risk elements in plants on contaminated plots.

Atmospheric deposition is monitored on selected plots using a simple monitoring device. These samples are analysed for total N, nitrate-N, ammonium-N, sulphates, chlorides as well as for the elements Ca, Mg, K, P, Na, Cu, Zn, Mn, Fe, Pb, Cd, Ni, and Cr. The atmospheric deposition is measured on a month cycle. Content of risk elements in crop plants is observed on monitoring plots in polluted areas and on a reference set of plots in agricultural subsystem in standard conditions.

The purpose of the whole monitoring system is to gain information about soil conditions, to explore changes in soil conditions especially because of human activities and to test new methods of soil exploration. The results can contribute to develop methods to arrest land degradation, application of sustainable development principles in agriculture, and to develop strategies to protect land area.

### *Register of contaminated sites*

In the period 1990 – 1993, the survey of risk element content (Cd, Pb, Cr, Hg) in agricultural soils in the network of 1 km<sup>2</sup> was implemented. The four elements were successively supplied by analyses of Be, Co, Cu, V, Zn. That survey laid down the database which has been continuously filled by results of supplementary sampling. Each sample in the database is identified by geographical co-ordinates and a number of plot in agricultural enterprise. Affiliated are the results of risk elements contents in soil in 2M nitric acid extract or aqua regia extract. Other risk substances can be analysed in soil samples if requested by the Ministry of Agriculture. The list of substances observed in agrochemical testing of agricultural soils is as follows: risk elements (As, Be, Cd, Co, Cr, Cu, F, Hg, Mo, Ni, Pb, V, Zn), risk substances (Polycyclic aromatic hydrocarbons, Chlorinated hydrocarbons, Polychlorinated biphenyls (PCB), EOCl, AOCl, Persistent organochloric pesticides, Polychlorinated dibenzodioxins (PCDD) and dibenzofurans (PCDF).

#### *Economic instruments in protection of agricultural land area*

The main economic instruments in protection of agricultural land area are charges and fines. According to the Act on protection of agricultural land area, those whose interest is the exclusion of the agricultural land area must pay a charge if the relevant authority decides on exclusion, taking into account some exceptions defined by law.

Should the agricultural land be damaged or degraded, perpetrator must pay fine which represents to some extent a financial source of State Environmental Fund.

#### *Good Agricultural and Environmental Condition (GAEC)*

In 2005 – 2006, the Good Agricultural and Environmental Condition (GAEC) represented a legal condition for payments to farmers. There were five standards of the GAEC such as no elimination of landscape components, exclusion of planting of broad-row crops on sloping land, insertion of liquid farm manure into land, prohibition of conversion of grassland to arable land, prohibition of burning of plant rests. Following the GAEC standards is essential because of land protection. They address one of the key issues which is erosion of agricultural land.