BULGARIAN DATA
ACCOMPANYING REPORT

/Sampling and Analysis of Soils/

The realization of the intensive monitoring program for assessment of soil quality in Bulgaria was organized in 3 stationary areas. The territories are attributed to two different climatic regions: Black sea climatic region – Eastern Balkan mountain subregion (site Staro Oriahovo) and Mountainous climatic region –Middle mountain subregion (sites Yundola and Vitinia).

Morphological description of soil profiles In the stationary sample plots was carried out. The soil horizons, layer limit superior and layer limit interior, moist colour of the soil matrix (using Munsell soil colour charts), transition between soil horizons, structure, bulk density, soil texture, effective soil depth and effervesce with the addition of 10 % HCl were determined.

According to the World Reference Base for soil resources ((WRB, first update 2007) soil in stationary sample plot Yundola is Cambisols. Suffix qualifiers is Eutric. It has base saturation of 50% and more between 20 and 50 cm from the soil surface and diagnostic horizon Cambic.

The soil in stationary sample plot Vitinia is Cambisols. Suffix qualifiers is Dystric. It has base saturation less than 50% between 20 and 50 cm from the soil surface and diagnostic horizon Cambic.

The soil in stationary sample plot St. Oriahovo is Luvisols. Suffix qualifiers is Dystric. It has base saturation less of 50% between 20 and 50 cm from the soil surface and diagnostic horizon Argic.

The sampling activities should be stick to periods with a low biological activity, e.g. winter or summer. In 2009 the soil sampling in the stationary sample plots was carried out in July.

For every layer: 0-5cm, 5–10cm, 10-20cm,20-40cm and 40-80cm were taken samples. It has been decided, that the taken layers afford an opportunity for a distinction of the biogenic accumulation of elements and early diagnostics of pollution with aerosol origin.

For the layers: OFH, M05 and M51, it was accepted to be taken 3 samples (a composite of 8 subsamples is allowed).

The samples of soils were analyzed for all mandatory and some of optimal parameters, according the Manual.

The analytical methods, units and limits of detection for the elements are given as follows:

Sequence number	Parameter	Units	Standardized/ internal methods for analysis	Detection limit
1	pH(H2O)	–	БДС ISO 10390	
2	pH(CaCl2)	–	БДС ISO 10390	
3	N\total)	g/kg	БДС ISO11261	0.04
4	Corg	g/kg	БДС ISO 14235	0.14
5	Extr. P	mg/kg	ISO 11466, ВВМ 301/ ЛКПч:2007	0.13
6	Extr. Cu	mg/kg	ISO 11466, ISO11047	0.11
7	Extr. Zn	mg/kg	ISO 11466, ISO11047	0.15
8	Extr. Pb	mg/kg	ISO 11466, ISO11047	0.10
9	Extr. Cd	mg/kg	ISO 11466, ISO11047	0.22
10	Extr. K	mg/kg	ISO 11466, БДС EN ISO17294 -1,2	0.25
11	Extr. Ca	mg/kg	ISO 11466, БДС EN ISO17294 -1,2	0.25
12	Extr. Mg	mg/kg	ISO 11466, БДС EN ISO17294 -1,2	0.20
13	Extr. Mn	mg/kg	ISO 11466, БДС EN ISO17294 -1,2	0.15
14	Exchangeable acidity	cmol(+)/kg	ISO 11260, ISO14254	0.26

15	Exchangeable Mn	cmol(+)/kg	ISO 13536	0.20
16	Exchangeable Ca	cmol(+)/kg	ISO 13536	0.22
17	Exchangeable Mg	cmol(+)/kg	ISO 13536	0.08
18	Exchangeable K	cmol(+)/kg	ISO 13536	0.22
19	Exchangeable Na	cmol(+)/kg	ISO 13536	0.25

The process of the laboratory analysis, range over a period from 26.09.2009 to 02.07.2010.